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3 Navigating a Green Future

Target Readers:

Employee / Labor Union	External Audit Agency
Direct Customer	Shareholder / Investor / Financial Institution
Government	

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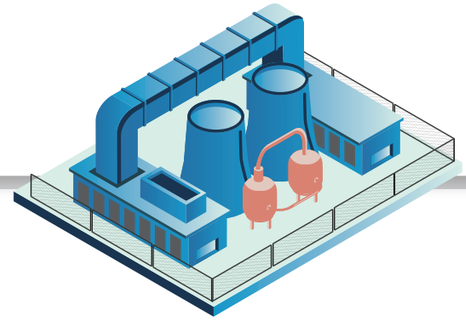
2023 Highlight

GHG Emissions **↓25%**
From the Base Year
Reaching 2025 Short-Term Target Ahead of Schedule

Incorporating
Internal Carbon Pricing System

120 Energy Conservation Projects
GHG Emissions Avoided **77,701** tCO_2e



Total Energy Consumption **↓12%**

180 GWh Renewable Electricity Usage
11.1% of Energy Mix

Total Air Pollutant Emissions **↓8%**

Switching to **Natural Gas Boilers**
at Kuanyin Chemical Fiber Plant
Air Pollutant Emissions **↓61%**

Total Water Withdrawal
↓12%
Total Water Discharge
↓15%

98%
Water Recycling Rate

Total Waste Generated **↓43%**

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Target and Progress

	Reducing Energy Consumption per Unit of Production	Reducing Water Withdrawal per Unit of Production	Reducing Waste (Non-Recycling and Reuse)	Reducing Air Pollutant Emissions	Reducing GHG Emissions	Increasing the Use of Renewable Electricity
2030 Target	↓20%	↓20%	↓20%	↓20%	↓40%	400 GWh
2025 Target	↓10%	↓10%	↓10%	↓10%	↓20%	300 GWh
2024 Target	↓8%	↓8%	↓8%	↓8%	-	120 GWh
2023 Target	↓6%	↓6%	↓6%	↓6%	-	120 GWh
2023 Progress	Completed ↓9%	Completed ↓13%	Completed ↓25%	Completed ↓9%	Completed ↓25%	Completed 180 GWh
Target Base Year	2020	2020	2020	2020	2020	-
Base Year Data	2.91 GJ / metric ton of production	2.98 kiloliter / metric ton of production	23,238 metric tons	1,606 metric tons	2,432 $ktCO_2e$	-
Action Plan	• Optimize production and facilities. • Incorporate innovative management approaches.	• Continue with efforts in reducing water withdrawal at the source. • Increase the percentage of recycled water utilized.	• Optimize waste recycling and classification. • Enhance waste recycling and reuse.	• Monitor and control air pollution. • Replace outdated equipment.	• Improve energy efficiency. • Develop renewable energy. • Adopt low-emission fuel alternatives. • Utilize CCUS. • Foster raw material transition.	• Build additional solar stations and biogas generators. • Purchase renewable electricity.

Note: The scope of disclosure covers 21 FENC production sites, which accounts for 100% of the production sites covered in this report.

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Material Topics

Climate Strategy and Low-Carbon Transition

Significance and Purpose of Management for FENC

FENC evaluates the risks and opportunities brought by climate change and responds with concrete strategies. The Company implements a broad range of projects aiming to avoid GHG emissions. By forging alliances with its global partners, the Company strives to mitigate global warming. Disclosures on GHG management performance include emissions; reduction targets and progress; renewable energy use and implementation; carbon trading; regulatory compliance.

Management Approaches and Effectiveness Evaluation Mechanisms

- Conduct regular evaluation of climate-related financial impacts.
- Establish GHG reduction targets, formulate strategies and track project performance.
- Continue to expand the scope and category of GHG inventory.
- Obtain international certifications such as ISO 14064-1.
- Introduce innovative low-carbon production facility.
- Replace fossil fuels with low-carbon alternatives.
- Increase the use of renewable energy.
- Research and develop green products.

Authority

- Energy Task Force
- All production sites

Energy Resource Management

Significance and Purpose of Management for FENC

FENC believes that natural resources are meant to be shared among all humanity, hence regarding energy and resource efficiency as the means to prevent resource depletion. FENC monitors the management approaches, reduction targets, strategies and implementation on the consumption of energy, water and raw materials. All practices are carried out in accordance with regulatory requirements with regular tracking on performance in areas such as energy and water efficiency.

Management Approaches and Effectiveness Evaluation Mechanisms

- Establish targets for reducing energy and resource use.
- Appropriate budget and establish intercompany authority.
- Implement reduction projects and regular performance tracking.
- Obtain international certifications such as ISO 14001 and ISO 50001.

Authority

- Energy Task Force
- All production sites

Environmental Management

Significance and Purpose of Management for FENC

FENC values all beings on Earth. With a strong commitment to protecting natural habitats and resources from pollution, the Company has been introducing innovative products that are made of recycled waste from the land and ocean. The objective is to protect natural resources, ensure biodiversity and safeguard environmental sustainability. Its corporate sustainability disclosure covers data on pollution related to air, soil, noise as well as solid and toxic waste; preventive and control measures; leakage occurrences; targets; implementation; management.

Management Approaches and Effectiveness Evaluation Mechanisms

- Establish air pollution and waste reduction targets.
- Introduce innovative production and facilities.
- Conduct environmental impact analysis prior to plant construction.

Authority

- Energy Task Force
- All production sites

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Overview of Environmental Performance

Energy

- Energy Consumption **18,695** (TJ)
- Energy Reduction **300** (TJ)
- Percentage of Energy Reduction in Energy Consumption **2%**

Air Pollutant

Air Pollutant Emissions **1,455** (metric ton)

Waste

- Waste Generated **109,092** (metric ton)
- Percentage of Recycling and Reuse **84%**

GHG Emissions

- Scope 1 and 2 GHG Emissions **1,822** ($ktCO_2e$)
- Scope 3 GHG Emissions **11,532** ($ktCO_2e$)
- GHG Emissions Avoided **78** ($ktCO_2e$)
- Percentage of GHG emissions Avoided to Total Emissions **4%**

Water Resources

- Water Withdrawal **18,492** (megaliter)
- Water Saving **780** (megaliter)
- Percentage of Water Saving in Water Withdrawal **4%**
- Water Recycled and Reused **1,155,798** (megaliter)
- Water Recycling Rate **98%**
- Water Discharge **9,746** (megaliter)

Resources Consumed for Operation in 2023 | Environmental Impact Avoided in 2023 | Environmental Impact on Operation in 2023

Note:
1. Business-specific data is included in 7.1 Environmental and Employee Data.
2. The percentage of GHG emissions avoided (%) is calculated based on the total GHG emissions of Scope 1 and Scope 2.

Sustainability Strategies and Management Approaches at FENC

System Establishment and Management	Establish specific management goals and track the progress; optimize management systems and adjust as necessary; provide training that enhances environmental awareness and skills among employees.
Incorporation of Innovative Technology and Equipment	Integrate AI technologies into production management; optimize processes and enhance equipment to boost production efficiency and minimize environmental impact.
Value Chain Collaboration	Implement environmental policy through the management of FENC's green value chain and reduction of air, water and waste pollution, greenhouse gas emissions, as well as energy and resource consumption.
Avid Support for Governmental Policies	Comply with policies and regulations; support local energy transition policies; promote applicable management projects internally to co-create environmental sustainability.
Reduction, recycling and Reuse	Reduce waste by enhancing production flow and increasing resource efficiency by recycling and reusing waste materials generated from operational activities.

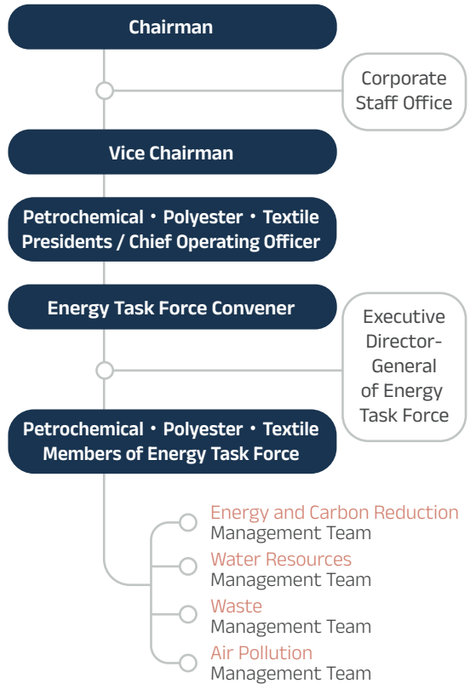
Environmental and Energy Management Authority: Energy Task Force

FENC established the inter-departmental Energy Task Force in 2010. With each FENC Business as the unit, the task force establishes mechanisms for internal environmental audit and review, and charts the operation and planning of environmental and energy management systems. The scope of management covers FENC production sites in Taiwan, mainland China, Vietnam, Japan, Malaysia and the U.S., where teams are established to implement and oversee the management of water resources, air pollution, waste materials as well as energy and emission reduction, which includes the management of GHG, renewable energy and emerging carbon reduction technologies.

A monthly Energy Task Force management meeting is held at all production sites. During the meeting, the environmental performance and responses targeting climate risks and opportunities are reported to high-level executives. Adjustments are made to energy and resource management policies based on actual conditions to fulfill FENC's mission to foster environmental sustainability.

The Energy Task Force systematically collects environmental data from all production sites through an online database. Performance review and tracking are conducted during the monthly energy management meeting. Every September, a special briefing on energy and carbon reduction is conducted with the convener and committee members of the Energy Task Force presenting annual performance and future plans to corporate executives such as the Chairman, Vice Chairman and President of each Business in attendance to establish future strategies and plans.

Organizational Framework of Energy Task Force



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Percentage of FENC Operational and Production Sites With Third-party Verification of International Standards

Certification Standards	Coverage Rate	Verification Agency
ISO 14001	68%	BSI, DNV, SGS, TUV
ISO 50001	41%	BSI, DNV, SGS, TUV
ISO 46001	5%	SGS

ISO Certification Dates and Validity Periods

Special Budget for Energy Reduction and Environmental Protection

To implement projects furthering the objectives of improving environmental performance and fulling its sustainable vision, FENC has been appropriating budgets for energy conservation and environmental protection purposes since 2010. In 2023, FENC moved full steam ahead towards the net-zero transition, and appropriated NT$2.65 billion for energy reduction from 2024 to 2025.

The special budget for environmental protection from 2024 to 2025 amounts to NT$750 million. Among the projects funded are the removal of waste gas from the boiler exhaust, and the R&D budget for the avoidance or reduction of pollution, waste and resource consumption.

Energy Reduction and Environmental Protection Technical Exchange Meeting

The Energy Task Force conducts energy reduction and environmental protection technical exchange meetings to promote dialogues among FENC production sites. The meeting, which is cross-Business and cross-regional, was suspended for three years due to the COVID-19 pandemic. When the meeting resumed in May 2023, the committee members from the task force visited 11 production sites in mainland China and Vietnam, observing best practices in environmental management as well as energy and carbon reduction through in-person exchange. The 2023 exchange focused on three major aspects. First, to reach the GHG targets, the progress of energy and emission reduction projects from each production site is reviewed, and representatives from each production site share the performance of major projects. Second, measures for environmental management were presented, including water resources, air pollution and waste materials. Case studies featuring outstanding projects were shared during the exchange as a best practice guide to refine environmental performance for all production sites. Third, progress of the implementation of management systems was shared, including ISO 50001, ISO 46001 and ISO 14067 with experience exchange. A total of 130 participants attended the meetings. Such exchange amplified the effect of energy conservation measures through on-site demonstrations and shared technological insights, ultimately fulfilling energy and carbon reduction while minimizing environmental impact across all FENC production sites to reach a green and sustainable future.

3.1 Marching Towards Net Zero

FENC is committed to corporate sustainability actions for the long haul. With the establishment of short-, mid- and long-term GHG reduction targets for Production Business in 2022, FENC makes its pledge to reach net zero by 2050, which is to be realized through the five major low-carbon transition strategies. The aim is to mitigate the environmental impacts of GHG emissions and safeguard the sustainability of global ecosystems. For details, please refer to Special Report 2. Reaching Net Zero Through Low-Carbon Transition.

3.1.1 Building Climate Resilience

The effects of climate change and global warming are growing severe. To mitigate and adapt to climate risks, FENC adopted the Task Force on Climate-related Financial Disclosures (TCFD) assessment in 2019. Each year, the Company discloses the results in its annual Sustainability Report and on the Company website. In 2023, the Company issued its first TCFD Report. Leveraging the TCFD framework and sustainability disclosure standards from IFRS S2 Climate-related Disclosures, the report is an assessment of climate-related financial risks and opportunities on FENC Businesses and production sites with which the Company wishes to cultivate a resilience mindset.

FENC TCFD Report 2023

Climate Governance

FENC's climate governance is led by the Board of Directors, which oversees the company's climate-related strategies and management guidelines. FENC also set up a functional committee at the Board level, the Sustainability Committee. In addition, the Sustainability Implementation Committee was established under the company's organizational structure, with the President of Corporate Management serving as the convener. The committee consists of representatives from the production sites and business units of each Business, and the administrative department, collaborating to promote the company's climate-related risk mitigation, adaption and low-carbon transition. The Energy Task Force is in charge of matters related to greenhouse gases and energy management. The Sustainability Team of the Corporate Staff Office is responsible for compiling sustainability performance data and reporting to the Board of Directors and the Sustainability Committee. The Presidents, Chief Operating Officers of each Business and the Energy Task Force report to the Board of Directors and internal meetings on a regular basis.

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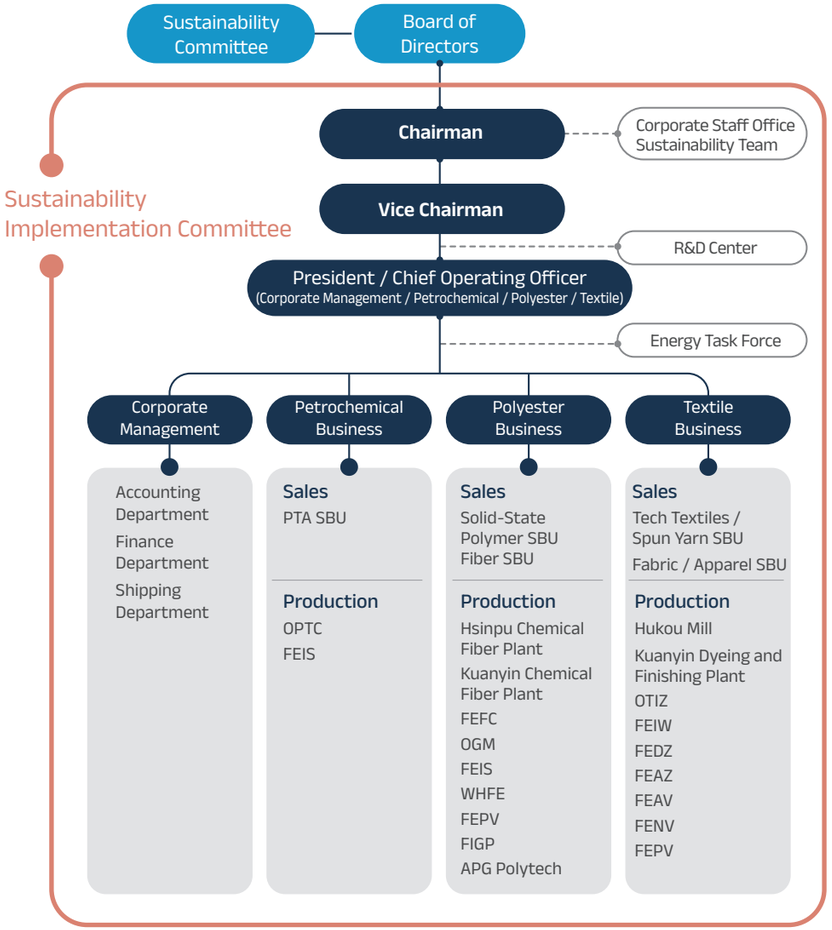
The Organizational Chart of Climate-Related Risk and Opportunity Management



Climate-Related Risk and Opportunity Management System

In order to fully grasp the impact of climate-related risks and opportunities on the company, FENC has established a climate-related risk and opportunity management system. The Sustainability Implementation Committee is responsible for promoting the management of climate-related risks and opportunities and formulating a bottom-up risk and opportunity reporting system to implement a top-down tracking and supervision mechanism by the Board of Directors.

Climate-Related Risk and Opportunity Management Procedure

Identifying Climate-Related Risks and Opportunities

- Research and analyze international scientific reports and relevant laws and regulations of various countries; regularly assess climate risks and opportunities related to the company.
- Cross-functional communication and assessment among business units, production units and administrative departments.
- Identify the company's material risks and opportunities.

Assessing the Extent of Impact and Formulating Management and Response Measures

- Conduct financial impact analysis specific to the top three material risks and opportunities identified.
- Formulate risk and opportunity management strategies and response measures.

Reporting and Tracking

- Regularly report to the Sustainability Committee and the Board of Directors on the outcome of climate-related risks and opportunities identification, impact analysis, strategies and response measures.
- Internal meetings are held regularly to report to members of the Board and senior executives on the management status of climate-related risks and opportunities.

Identifying Climate-Related Risks and Opportunities

Based on the TCFD framework, FENC established a comprehensive workflow to identify climate-related risks and opportunities. First, climate-related issues are collected. The climate risks and opportunities are then identified and screened using the Shared Socioeconomic Pathway 5-8.5 (SSP5-8.5) and Net Zero Scenario (NZE) analysis to arrive at 18 that are most relevant to FENC. The risks and opportunities are assessed for impacts based on the time horizon, likelihood of occurrence and degree of impact for the prioritization of major climate risks and opportunities.

Climate-Related Risks and Opportunities Identification Process

Information Gathering on Climate Issues

- Gather information of international reports and create a list of climate issues.

Identifying Material Risks and Opportunities

- Develop an assessment methodology.
- The business units related to any specific issue should conduct internal interviews, collect data through questionnaires, and converge the results.

Completing the Screening of Material Issues

- A Screening process is conducted to determine material issues, based on the likelihood of occurrence and extent of impact.

Scenario for Risks and Opportunities

Scenario	SSP5-8.5 (Very High GHG emissions)	NZE (Net Zero Scenario)
Type	Physical risks	Transition risks and opportunities
Detail	The SSP5-8.5 scenario is presented in the IPCC's Sixth Assessment Report (AR6) under the assumption of absence in climate actions from all countries, which would result in the highest CO_2 concentration. It could be regarded as the most stringent climate scenario. Adopting this scenario would help FENC assess the degree of impacts under the most extreme climate challenges.	The NZE scenario is published by IEA. To limit the global temperature rise to 1.5 °C, the NZE scenario represents a path to net zero emissions by 2050 for the world and is considered the most extreme reduction scenario. As the surge of carbon reduction policies sweeps through the world, adopting the NZE scenario would help FENC gain competitive advantages by taking preemptive strikes.

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List of Climate-Related Risks and Opportunities

No.	Type	Risk and Opportunity Issues	Potential Financial Impact	Time Horizons
1	Transition Risk	Regulations on greenhouse gas reduction and renewable energy	To meet regulatory requirements, FENC has expanded the deployment of its renewable energy installations, resulting in an increase in operating costs.	medium term
2	Transition Risk	Carbon pricing mechanism	The regions where the company's production sites are located have implemented carbon pricing policies and imposed carbon fees/taxes on carbon emissions. It is estimated that the rising operating costs from carbon fees or taxes may peak in 2050.	long term
3	Transition Risk	Carbon border tax	To avoid carbon leakage, countries have formulated carbon border taxes for imported products. FENC's operating costs will rise due to the import duty imposed on its exports.	medium term
4	Transition Risk	Transition to low-carbon technologies and fuels	In order to achieve low-carbon transition, FENC has replaced existing conventional equipment and machines of high energy consumption and high carbon emissions with high-efficiency and low-carbon ones, resulting in an increase in both capital expenditure and production cost.	medium term
5	Transition Risk	Research and development in net zero technologies	In the face of market demand, FENC has continued to develop net-zero technologies and green and low-carbon products, resulting in an increase in its R&D cost.	medium term
6	Transition Risk	Changes in customer behavior	Considering the impact of climate change, customers prefer to use lower-carbon products and demand FENC should reduce carbon emissions. Failure to meet customer requirements may result in customer attrition and revenue loss.	medium term
7	Transition Risk	Loss of investment attractiveness	Due to the inability to maintain good ESG performance, the willingness of investors to invest (or finance) will be reduced, resulting in a decline in FENC's market value or an increase in funding costs.	medium term
8	Transition Risk	Industry stigmatization	With the rising awareness of environmental protection, any negative publicity related to carbon emissions may cause government and people living in the surrounding area to demand FENC cut down or even stop production, resulting in reduced production capacity and revenue.	long term
9	Physical Risk	Increased severity and frequency of extreme weather events such as cyclones and floods	Damage to equipment caused by extreme weather events may reduce production capacity or increase maintenance costs.	long term
10	Physical Risk	Rising sea levels	Under the impact of climate change, if the company's production site is located in a high-risk area prone to sea level rise, it may cause the assets and equipment to be submerged, leading to asset damage.	long term
11	Physical Risk	Increased severity and frequency of extreme weather events such as cyclones and floods (supply chain)	The locations of suppliers or the shipping routes are affected by climate change, causing raw materials to not arrive at the factory on schedule, resulting in a reduction in output.	medium term
12	Physical Risk	Rising mean temperatures	Outdoor operations need to be suspended due to high temperatures, leading to prolonged working time and an increase in labor costs.	long term
13	Physical Risk	Changes in precipitation patterns and extreme variability in weather patterns	Extreme precipitation patterns, such as an increase in consecutive dry days, heighten the risk of water shortages. In order to enhance the resilience of water resources, FENC has invested in water-saving facilities and initiated water conservation measures, resulting in an increase in capital expenditure and operating costs.	short term
14	Opportunity	Reduced water usage and consumption	When water shortages occur, FENC's water resources management measures with better resiliency, compared to its peers, help to avoid a decline in production output or delayed shipments, thereby increasing sales revenue.	medium term
15	Opportunity	Use of lower-emission sources of energy	By using renewable energy or other low-carbon energy sources to meet customer requirements, FENC can increase product price bargaining power or order volume, thereby increasing sales revenue.	medium term
16	Opportunity	Development or expansion of low emission goods and services	The company continues to reduce product carbon emissions, meeting customers' emission reduction requirements, increasing product price bargaining power or order volume, thereby increasing sales revenue.	short term
17	Opportunity	Development of new products or services through R&D and innovation	Through the research and development of green products, FENC can meet customer requirements, thereby increasing sales revenue.	short term
18	Opportunity	Access to new markets	As recycling policies are promoted and implemented in various countries, the overall environment is conducive to FENC's expansion of its market for recycled products, thereby increasing sales revenue.	short term

Note: Short term refers to the period between 2023 and 2025; medium term 2026 and 2030; long term 2031 and 2050.

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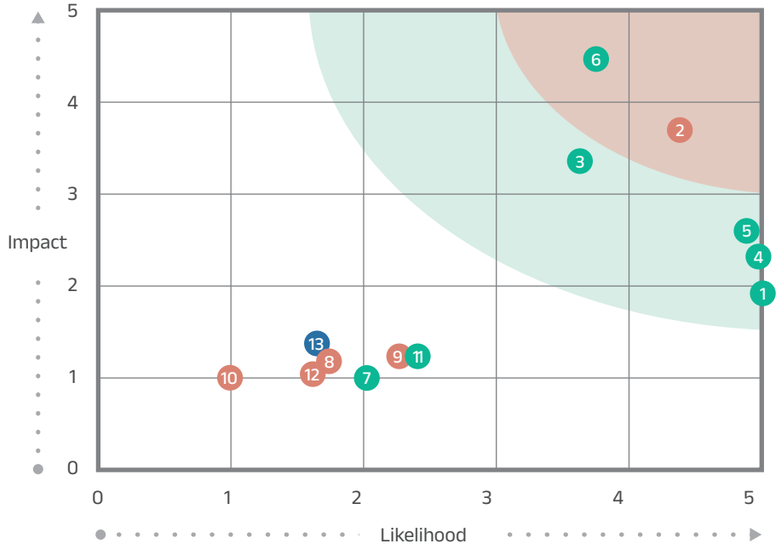
Identification Outcome of Material Climate Risks and Opportunities

Carbon pricing mechanism, carbon border tax and changes in customer behavior are identified in the assessment as the top three material risks; access to new markets, use of low-emission sources of energy, and development or expansion of low-emission goods and services are the top three material opportunities. FENC conducted quantitative financial analysis targeting the six issues and formulated management strategies with implementation measures to galvanize FENC's climate resilience.

FENC Climate-Related Risk Matrix



- Short-term Risks
- Medium-term Risks
- Long-term Risks
- Low Impact
- Medium Impact
- High Impact

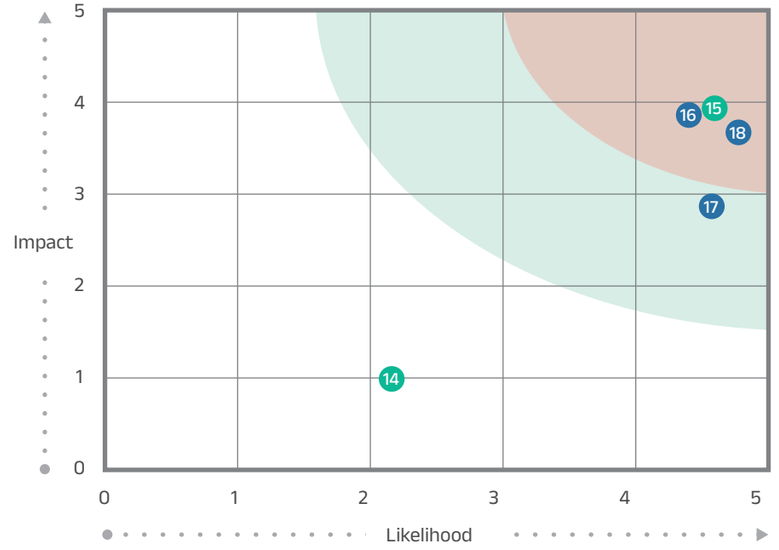
Transition Risks

1. Regulations on greenhouse gas reduction and renewable energy
2. Carbon pricing mechanism
3. Carbon border tax
4. Transition to low-carbon technologies and fuels
5. Research and development in net zero technologies
6. Changes in customer behavior
7. Loss of investment attractiveness
8. Industry stigmatization

Physical Risks

9. Increased severity and frequency of extreme weather events such as cyclones and floods
10. Rising sea levels
11. Increased severity and frequency of extreme weather events such as cyclones and floods (supply chain)
12. Rising mean temperatures
13. Changes in precipitation patterns and extreme variability in weather Patterns

FENC Climate-Related Opportunity Matrix



- Short-term Opportunities
- Medium-term Opportunities
- Long-term Opportunities
- Low Impact
- Medium Impact
- High Impact

Opportunities

14. Reduced water usage and consumption
15. Use of lower-emission sources of energy
16. Development or expansion of low emission goods and services
17. Development of new products or services through R&D and innovation
18. Access to new markets

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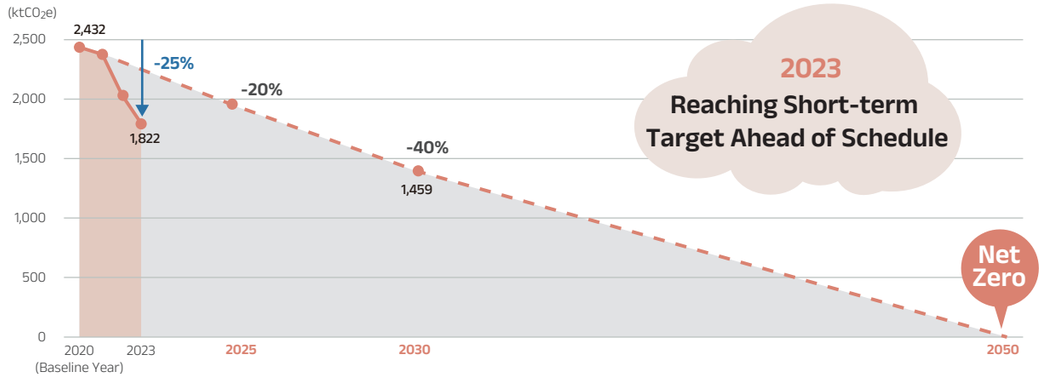
Material Climate-Related Risks and Opportunities: Strategies and Response Plans

Material Climate-Related Issues	Strategies and Response Plans
Carbon pricing mechanism	GHG emissions at each production site are monitored, and FENC aims to achieve its short-, mid- and long-term GHG reduction targets through the five major low-carbon transition strategies to ultimately accomplish net zero by 2050. Meanwhile, the Company adopted the internal carbon pricing mechanism as a management tool that incentivizes carbon efficiency during the evaluation of energy and emission reduction projects. Carbon costs are also included in the monthly management reports of each Business as a decision-making reference.
Carbon border tax	The financial impact is positively correlated with the carbon emissions per unit of production. To mitigate the risk, FENC will implement strategies, such as expanding the use of alternative low-carbon materials, improving energy efficiency, adopting low-emission fuel alternatives, and deploying more renewable energy facilities to reduce the carbon footprint of its production processes.
Changes in customer behaviors	In response to customers' demand for low-carbon products in the value chain, we will aggressively reduce GHG emissions per unit of production, and GHG emissions in the production processes by improving energy efficiency, adopting low-carbon fuels, and using renewable energy.
Use of lower-emission sources of energy	Renewable electricity will be acquired through means such as long-term electricity purchase agreements. FENC will also continue expanding the installed capacity of renewable energy, such as solar and biogas power, at its worldwide production sites for self-use. It is anticipated that FENC's global renewable electricity capacity will reach 20% of its energy mix by 2025, which also satisfies customers' expectations.
Development or expansion of low emission goods and services	FENC continuously promotes the research and development of technologies related to green products, including products which can replace petroleum-based raw materials (Replace), and can be recycled (Recycle), as well as reduce energy and resource consumption (Reduce). FENC has been expanding its green product production capacity to meet the needs of customers in the value chain.
Access to new markets	FENC keeps on researching and developing circular recycling technology and the applications of multiple recycling products, while paying attention to the trend of recycling-related laws and regulations in various countries. It has deployed all-encompassing circular technology on land, ocean and air, and expanded its production capacity of recycling and circular products with optimal capacity planning, aiming to become the World No. 1 in rPET production capacity.

Climate Risk Metrics and Targets

FENC's 2023 GHG emissions fell by 25% compared to the base year, which has surpassed the short-term target. Please refer to 3. Navigating a Green Future – Targets and Progress for additional climate targets and progress.

Target and Progress of GHG Reduction



Note:
1. The emissions include scopes 1 and 2 emissions from all production sites within the scope of this report.
2. Carbon credits are excluded from contribution towards the GHG reduction targets of FENC.

Five Major Low-Carbon Transition Strategies

Improve Energy Efficiency

FENC improves energy efficiency by optimizing the production process, facilities and energy management. Energy projects in the pipeline include a new cogeneration system, capitalizing on thermal and electrical power by recycling and reusing waste heat. Please refer to 3.2.1 Energy Management for details.

Adopt Low-Emission Fuel Alternatives

FENC's short-term carbon reduction plans call for replacing high-emission fuels such as coal or heavy oil with low-emission alternatives such as natural gas and biofuels. The mid- to long-term plans are to be fully transitioned, replacing natural gas completely with hydrogen fuels. Please refer to Special Report 2. Reaching Net Zero Through Low-Carbon Transition.

Develop Renewable Energy

FENC is investing heavily in renewable energy equipment and increasing the percentage of renewable energy yearly in its energy mix. Please refer to 3.1.3 Renewable Energy Use for details.

- Renewable energy generators: 18.6 MW installed in 2023 and 111 MW in 2025 with 140 GWh expected in capacity
- Long-term electricity purchase agreement: At least 100 GWh purchased per year starting from 2023

Utilize CCUS

FENC plans to capture and reuse carbon from the boiler exhaust to reduce carbon emissions.

Foster Raw Material Transition

FENC adopts low-carbon alternatives with focuses on recycling and biomass. The Company has been applying its core strengths towards the development of environmentally friendly and low-emission materials and expanding the applications of these innovations. Please refer to 2.2 Developing Green Products for details.

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3.1.2 GHG Management

GHG Management Policies

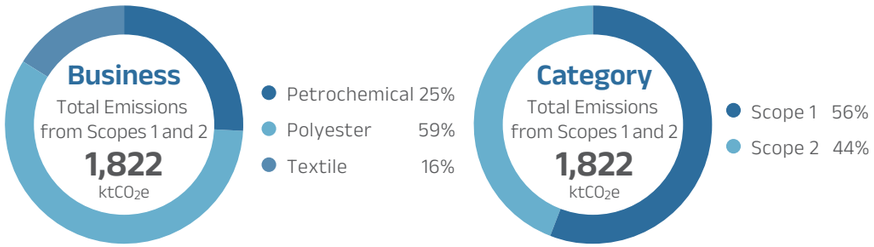
1. FENC Greenhouse Gas Management Operating Procedures

All FENC production sites comply with the FENC Greenhouse Gas Management Operating Procedures and conduct annual GHG inventory based on the standards of ISO 14064-1:2018 or Greenhouse Gas Protocol (GHG Protocol). Scope 3 emissions should be identified based on the principle of materiality and classified into the 15 categories in the GHG Protocol, such as purchased goods and services, fuel-related activities, upstream and downstream transportation, and employee commuting. Data credibility is ensured through third-party verification, which has become a yearly practice since 2023.

2. Internal Carbon Pricing System

To accelerate the pace of decarbonization within the Company and complete the net-zero transition, FENC incorporated the internal carbon pricing system in 2023 as a management tool. FENC reviewed international carbon pricing trends and reports such as "World Energy Outlook" from the International Energy Agency (IEA) and "State and Trends in Carbon Pricing" published by the World Bank, examined internal and external carbon costs from its global production site, and consulted the pricing approaches and strategies within the industry to arrive at NT$1,500/$tCO_2e$ as the internal carbon pricing for developed economies, and NT$1,000/$tCO_2e$ for emerging economies, effective in 2024 after the Board review. The carbon pricing system is implemented through two approaches. First, the system is included as a criterion that improves carbon efficiency during the review of carbon reduction projects to incentivize decarbonization. Second, the system is used to calculate the carbon costs of all Businesses for the monthly management reports as a decision-making reference.

2023 GHG Emissions in 2023



Note:
1. Data collection on scopes 1 and 2 accounts for 100% of the scope of this report.
2. Scope 2 emissions are accounted according to the market-based method.

Direct and Energy Indirect GHG Emissions (Market-Based)

Unit: $ktCO_2e$

		2020	2021	2022	2023
Direct Emissions	Scope 1	1,272	1,340	1,163	**1,016**
Energy Indrect Emissions	Scope 2	1,160	1,015	869	**806**
Biogenic Emissions		27	25	37	**33**
Total		**2,432**	**2,355**	**2,032**	**1,822**

Direct and Energy Indirect GHG Emissions (Location-Based)

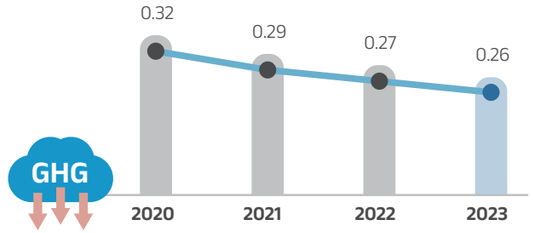
Unit: $ktCO_2e$

		2020	2021	2022	2023
Direct Emissions	Scope 1	1,272	1,340	1,163	**1,017**
Energy Indrect Emissions	Scope 2	1,160	1,015	881	**829**
Biogenic Emissions		27	25	37	**33**
Total		**2,432**	**2,355**	**2,044**	**1,846**

Note:
1. The scope of data collection covers 21 production sites, which account for 100% of the production sites included in this report. The consolidation approach for emissions is operational control.
2. GHGs include CO_2, CH_4, N_2O, HFCs, PFCs, SF_6 and NF_3.
3. The calculation is based on the ISO 14064-1:2018 GHG inventory standards.
4. Biogenic emissions are not included in the total.
5. From 2020 to 2023, 100% of the emission data passed the internal audit.
6. In 2020, 66% passed the third-party verification for the ISO 14064-3 standards or local regulations.
7. The percentages of emission data being third-party verified under the ISO 14064-3 standards are 100%, 88%, and 100% in 2021, 2022 and 2023, respectively.

Direct and Energy Indirect GHG Emissions per Unit of Production

Unit: tCO_2e / metric ton of production



Note: FEAZ, FEAV and FENV are not included.

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In 2023, direct and energy indirect GHG emissions from scopes 1 and 2 were down by 10% compared to the previous year, and the GHG emissions per unit of production was reduced by 6%. The substantial decrease demonstrates the effectiveness of GHG reduction projects. In 2023, all business units re-examined the production and sales structures and reduced direct emissions by 140 $ktCO_2e$ through equipment improvement and fuel alternatives. Indirect energy emissions were cut by 60 $ktCO_2e$ by implementing energy conservation measures and increasing the use of renewable energy. Among them, GHG emissions per unit of production from the Textile Business dropped by 10% compared to the previous year, which is mainly attributed to the increase of renewable electricity use.

Other Indirect GHG Emissions (Scope 3)

Unit: $ktCO_2e$

	2021	2022	2023
Purchased Goods and Services	7,754	7,640	7,297
Capital Goods	53	91	91
Fuel- and Energy-related Activities	432	406	338
Upstream Transportation and Distribution	238	220	224
Waste Generated in Operations	13	14	9
Business Travel	1.66	0.95	1.97
Employee Commuting	24.33	30.32	26.24
Upstream Leased Assets	50.19	3.13	4.15
Downstream Transportation and Distribution	428	381	376
Processing of Sold Products	-	2,824	2,809
End-of-Life Treatment of Sold Products	-	294	355
Downstream Leased Assets	0.07	0.18	0.19
Franchises	0	0	0
Investments	0	0	0
Total	**8,994**	**11,905**	**11,532**

Note:
1. The scope of data collection covers 21 production sites, which account for 100% of the production sites included in this report. The consolidation approach for emissions is operational control.
2. Significant indirect GHG emissions are identified in accordance with ISO 14064-1:2018 and divided into 15 reporting categories based on the GHG Protocol.
3. FENC focuses on the production of polyester and raw materials with an array of terminal applications. The GHG emission generated from the use of sold products must be calculated based on specific scenarios. Due to the lack of objectivity and reference value, the data is excluded. The GHG emissions generated from the processing and end-of-life treatment of sold products have been calculated since 2022.
4. FENC production sites do not engage in franchising or investment activities, thus without GHG emissions under the two categories.
5. The percentages of emission data being third-party verified under the ISO 14064-3 standards are 100%, 94%, and 100% in 2021, 2022 and 2023, respectively.

Cleaner Production Approval for WHFE

With a focus on fine-tuning the technical aspect of production, WHFE reduces pollutant emissions, conserves energy and protects the environment through cutting-edge technologies and equipment. The plant also promotes environmental measures that enhance circularity and carbon reduction. In 2023, WHFE passed the cleaner production assessment, representing WHFE's compliance with governmental standards while making a firm step towards sustainable development.

Measures and Performance in Energy Saving and Emission Reduction

FENC's ongoing efforts in promoting energy and emission reduction measures continued in 2023 with 120 energy and emission reduction projects implemented, which averted 77,701 tCO_2e in GHG emissions. The energy reduction projects focused mainly on low-carbon fuel alternatives, including the replacement of coal-water slurry boilers with the natural gas models, and using biomass instead of coal as production fuels. The secondary focus was on the enhancement of energy efficiency through production and equipment improvement. Meanwhile, capacity utilization of all production lines was evaluated to determine dated equipment to be replaced.

2023 Energy Saving and Emission Reduction Projects

Production Improvement	34 cases	Refinement of production technologies and changes of production parameters, such as temperature, pressure and operating period
Equipment Improvement	57 cases	Optimization, upgrade and replacement of air conditioning, air compressors, boilers, power generators, motors, lighting and production equipment
Energy Management	22 cases	Adjustment of operating hours and discontinuing operation, installation of solenoid valves and timer-controlled switches and replacement of purchased steam with self-generation
Low-Carbon Fuel Alternative	3 cases	Replacement of coal-water slurry boilers with natural gas models, and coal with biomass as production fuels
New Renewable Energy Source	4 cases	Installation of new solar power generators

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Energy Saving and Emission Reduction Project in 2023

		Energy Savings (TJ)	GHG Emissions Avoided (tCO_2e)	
			Scope 1	Scope 2
Project	Production Improvement	121	6,008	6,856
	Equipment Improvement	145	1,171	16,887
	Energy Management	34	355	5,296
	Low-Carbon Fuel Alternative	-	36,565	1,150
	New Renewable Energy Source	-	0	3,413
Business	Petrochemical	57	0	7,960
	Polyester	143	27,991	20,590
	Textile	100	16,108	5,052
	Total	**300**	**44,099**	**33,602**

Note:
1. The estimate of energy efficiency is compared against the energy consumption with original production process and equipment prior to project implementation.
2. The calculation of calorific value is based on the factors of calorific value from all production sites.
3. Scope 1 emission sources are coal, coal-water slurry, and natural gas; scope 2 emission sources are purchased electricity and purchased steam.
4. The emission factor of each energy source is based on the externally verified emission factor from each production site, including plant-specific / mass balance factors and those released by the local government.
5. GHGs avoided include CO_2, CH_4 and N_2O.
6. The focus of projects under Low-Carbon Fuel Alternative and New Renewable Energy Source is replacing high-emission energy sources with low-emission ones. The reduction in energy consumption is not calculated.

Energy Saving and Emission Reduction Project Highlights in 2023

Production Site	Project and Performance
Kuanyin Chemical Fiber Plant	Replacement of coal-water slurry with natural gas fuels: The replacement of coal-water slurry boilers with natural gas models reduces 22,667 tCO_2e of carbon emissions annually.
FEIS-Petrochemical Business	Steam turbine retrofit in the air compressor system: Improvements were made to the steam turbine of the air compressor to increase the ability in steam recovery, and capture the byproduct steam for power generation. The improvement reduces annual electricity consumption by approximately 7.22 GWh, which translates to approximately NT$25.41 million in financial benefits and 3,034 tCO_2e in emission reduction annually.
Plant 2 of OPTC	Back-pressure steam turbine power generation: The back-pressure steam turbine generator unit is installed to capture and convert energy loss into electricity. The improvement reduces annual electricity consumption by approximately 6.3 GWh, which leads to approximately NT$18.22 million in savings and reduces carbon emissions by 3,120 tCO_2e annually.
Kuanyin Dyeing and Finishing Plant	Boiler replacement: The project has increased operational efficiency, reducing 433,000 cubic meters in natural gas consumption, approximately NT$4.46 million in costs and 965 tCO_2e in carbon emissions annually.

A total of 38 energy and emission reduction projects from 2023 are still underway. Once completed, they are expected to cut carbon emissions by 30,928 tCO_2e annually.

Energy Saving and Emission Reduction Projects in the Past Four Years

	2020	2021	2022	2023
Actual Investment (NT$1,000)	61,959	268,365	204,725	**834,766**
Savings (NT$1,000)	40,958	85,467	64,121	**346,328**
Energy Savings (TJ)	557	754	1,188	**300**
GHG Emissions Avoided (tCO_2e)	78,955	114,048	135,168	**77,701**

Avid Support for Governmental Policies

1. Climate Change Response Act, Taiwan

On February 15, 2023, the Climate Change Response Act was promulgated in Taiwan, laying out regulations governing carbon fees as one of the means to help Taiwan march towards net zero by 2050 and push corporations to take action against carbon emissions in advance. FENC's production sites in Taiwan have been engaging in various emission-reducing actions. Hsinpu Chemical Fiber Plant, for instance, added a solar power generation system, Kuanyin Chemical Fiber Plant replaced coal-water slurry boilers with natural gas models, and Plant 2 of OPTC introduced a back-pressure steam turbine generator unit. To alleviate the burden imposed by the carbon fee, FENC will install additional renewable energy facilities, purchase Taiwan Renewable Energy Certificates and improve energy efficiency. The Company will also submit voluntary reduction plans to the authorities to win preferential rates.

2. Decree 06/2022/ND-CP Regulations on Reduction of Greenhouse Gas Emissions and Protection of the Ozone Layer, Vietnam

In 2022, Vietnam enacted Decree 06/2022/ND-CP, which governs the reduction of GHG emissions, protection of the ozone layer and the development of carbon market. FEPV is among the enterprises on the control list and must start submitting an annual GHG inventory report in 2025 and a GHG reduction plan prior to the end of 2025. The plant has the capability to conduct its own GHG inventory and has been doing so annually since 2021. The plant also has multiple emission reduction projects in the pipeline, including the replacement of coal with biomass fuels and adding solar power generation facilities.

3. Interim Regulations for the Management of Carbon Emission Trading and the carbon quota provisions under Trial Measures for Shanghai Municipality on Carbon Emission Management, mainland China

On May 1, 2024, the Interim Regulations for the Management of Carbon Emission Trading, which governs the national carbon trading system in mainland China, went into effect, and since 2013, FEIS-Petrochemical Business and Polyester Business have been subject to the carbon quota provisions under Trial Measures for Shanghai Municipality on Carbon Emission Management. The plants ensure compliance with governmental mandates through various emission reduction projects and control measures with annual energy and carbon reduction targets established at the end of each year. Monthly meetings are held to track and review energy consumption and carbon emissions with proposals for improvement measures and the designation of departments responsible for implementation. FEIS also established the carbon emission management team, carbon trading decision-making team, carbon trading capital trading team, and carbon trading confirmation team to track the daily fluctuation of carbon pricing, and present the report at the monthly energy conservation meetings to monitor the entire carbon trading process.

In mainland China, governments use the carbon quota allocation to mandate carbon reduction among corporate entities,

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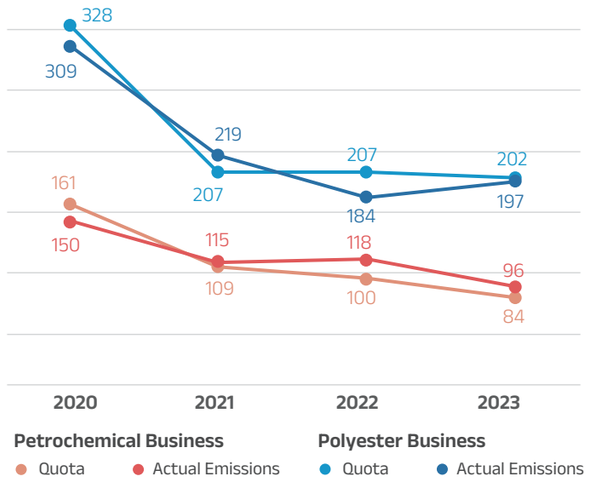
and the allocation is decreasing by the year. In anticipation of a 15% cut in the 2023 carbon quota and in response to the tightening allowance, FEIS-Petrochemical Business replaced the low-pressure cooling water pump within the same year to reduce energy consumption, and the plant will tap into its unused carbon emission balance to replenish the margin over the cap of emission quota. FEIS-Polyester Business retrofitted multiple pieces of equipment to reduce energy consumption and transformed adsorption dryers into zero-loss adsorption dryers. In the future, the plant will cut energy consumption further through an integrated energy station equipped with the cogeneration technology. Prior to 2025, the plant will build a solar power station with 26,300 kW in capacity for self-use.

Carbon Quotas and Emissions of FEIS

Unit: $ktCO_2e$



Note:
1. The quota in 2023 were estimated emissions; the actual quota is yet to be verified by the government.
2. The 2022 carbon allowance was updated to reflect the actual allocation by the authority.

Value Chain Collaboration

1. Carbon Reduction Alliance with Value Chain Partners

In response to Coca-Cola's emission reduction initiative, FENC has been participating in a series of courses from Supplier Leadership on Climate Transition (Supplier LOCT) since 2022 and obtained the certificates and badges. The courses cover GHG inventory and the establishment of carbon reduction pathway. The ultimate goal is to join the Science-Based Targets Initiative (SBTi) and set GHG reduction targets based on the 1.5°C pathway to curb industry chain emissions through partnerships with industry leaders. FEIS also signed a letter supporting the initiative formed by the China Bottlers Procurement Consortium (CBPC) and Swire Coca-Cola on June 26, 2023, committing to establishing a green and low-carbon supply chain with industry peers. With 2018 as the base year, the target is to reach 30% reduction in annual scopes 1 to 3 emissions by 2030.

The Textile Business was invited by Nike to participate in the Manufacturer Climate Action Program (MCAP) developed by the Sustainable Apparel Coalition (SAC). The plant has submitted science-based scopes 1 and 2 reduction targets, joining the global textile industry to tackle climate change.

OTIZ devotes tremendous efforts to customer engagement. Its collaborative endeavors gave birth to the 100% rPET tire cord fabric, which reduces carbon footprints by 28% compared to that of the virgin tire cord fabric. OTIZ responds to SBTi by establishing its carbon reduction targets and committing to net zero based on the 1.5°C pathway. Its emission reduction progress is also disclosed on CDP. Meanwhile, OTIZ identifies and partners with key suppliers responsible for larger shares of carbon emissions to implement emission reduction projects and reduce product carbon footprints. The goal is to reach for the overall carbon reduction targets in the automotive industry.

2. Regular Tracking of Carbon Reduction Performance by Brand Customers

FENC conducts product life cycle assessments on its major products and provides the results, including product carbon content, to downstream customers in order to guide them towards low-carbon products. To reduce product carbon footprints, FENC provides solutions that embody full circularity by converting recycled and biomass materials to meet the emission reduction needs of value chain customers. The Company also reports GHG reduction targets and progress on platforms established by CDP, Ecovadis, and its brand customers. For instance, the Textile Business is required by customers, such as Nike and adidas, to report data, such as monthly energy consumption, and develop carbon reduction strategies. Each quarter, the plant confirms the progress towards carbon reduction targets, and ensures tracking, management and inspection.

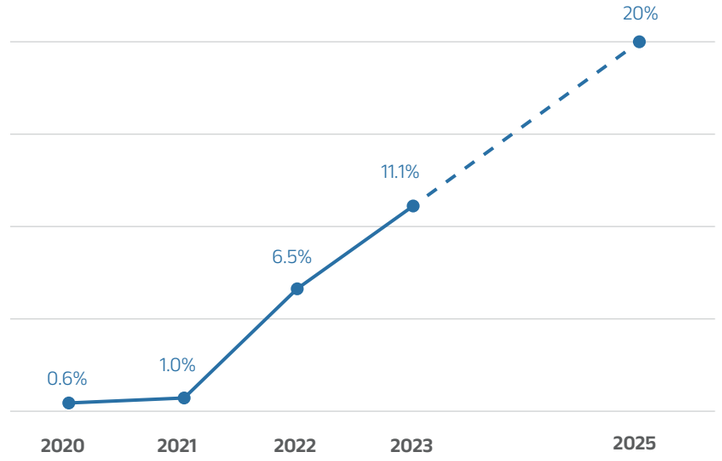
3.1.3 Renewable Energy Use

FENC has been investing heavily in renewable energy, building a wide array of power generation facilities and purchasing renewable electricity to phase up the use of renewable electricity each year. The total renewable electricity use in 2023 is approximately 180 GWh, accounting for approximately 11.1% of the total electricity consumption. The target is to reach 20% by 2025.

Installation of Renewable Energy Facilities

"Develop renewable energy" is one of the five major strategies propelling FENC forward along its

Percentage and Target of Renewable Electricity Usage



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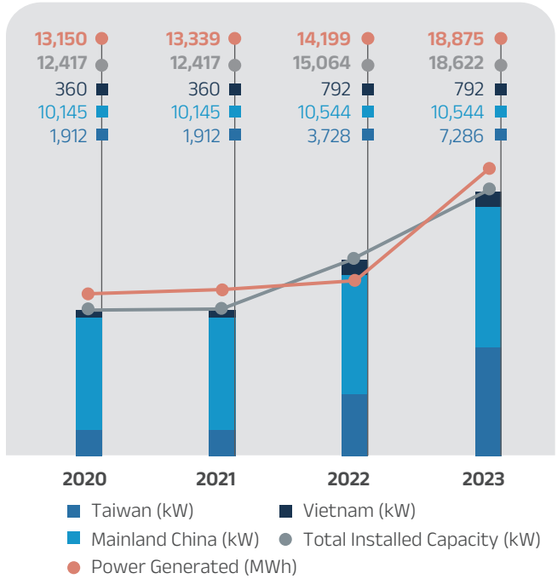
march towards net zero. The Company has been intent on investing in and installing a broad mix of renewable energy facilities. Solar, biogas and wind power generators will be installed in Taiwan, mainland China, Vietnam, Japan and the U.S. FENC is supporting renewable energy use and GHG reduction with actions while minimizing environmental impacts from its production activities.

Since 2016, FENC has been installing solar power stations at its production sites in mainland China. In 2023, a total of 18,850 MWh of solar power was generated at FENC sites in Taiwan, mainland China and Vietnam, of which 97% was consumed by FENC and a total of 9,728 tCO_2e GHG emissions were avoided. Additional solar facilities will be added at all production sites, bringing the projected installed capacity FENC-wide to 111 MW in 2025, a soaring 500% growth from 2023 that would generate 140 GWh of power annually.

Procurement of Renewable Electricity

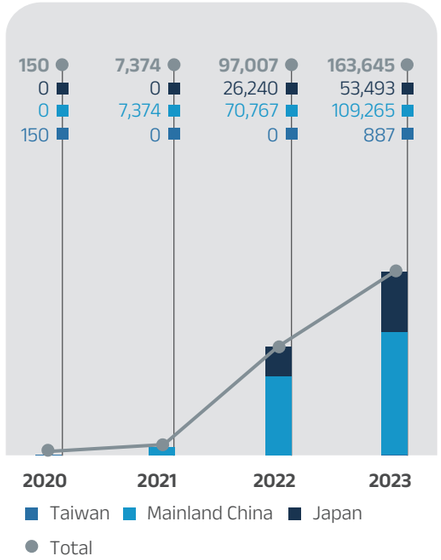
FENC has been purchasing green power since 2015. In 2023, eight FENC production sites in Taiwan, mainland China and Japan purchased 160 GWh of renewable electricity and avoided 81,103 tCO_2e of GHG emissions. FENC plans to purchase a minimum of 100 GWh of renewable electricity per year in the future to further reduce energy indirect GHG emissions.

Renewable Energy Generation and Installed Capacity



Purchased Renewable Electricity

Unit: MWh



Avid Support for Renewable Energy Development Act

The Renewable Energy Development Act stipulates that energy-heavy industries in Taiwan must build renewable energy generation facilities with the capacity equivalent to 10% of their contract capacity. FENC showed its support when the law went into effect with aggressive plans to construct new energy facilities, and by partnering with the government to promote the development of renewable energy. As of the end of 2023, FENC has installed solar power stations with 7,286 kW in capacity at its production sites in Taiwan, a 26% growth from 2022, and the expansion will continue. FENC also signed long-term power purchase agreements to increase the percentage of renewable electricity in its energy mix.

In addition to ongoing installation of solar power facilities, Plant 2 of OPTC will complete the installation of biogas generators in 2024. Utilizing the biogas generated from its own anaerobic treatment system, the plant will generate approximately 11 GWh in total annual capacity. This is a climate action that demonstrates its contribution to mitigating environmental impacts caused by global warming.

FIGP's Carbon Free Energy Purchase

At FIGP, GHG reduction strategies focus on improving energy efficiency and incorporating renewable energy. Starting from the second half of 2022, FIGP's Kanto Plant has been making monthly purchases of Non-Fossil Certificates from Tokyo Electric Power Company Holdings, Inc. The plant was powered entirely by renewable electricity in 2023, and by purchasing certificates of carbon offset, it is now the world's first carbon-neutral PET recycling and remanufacturing plant. Following the same strategies, FIGP's Kansai Plant, which was newly completed in 2023, is on track to become FENC's second carbon-neutral plant.

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3.2 Elevating Energy and Resource Efficiency

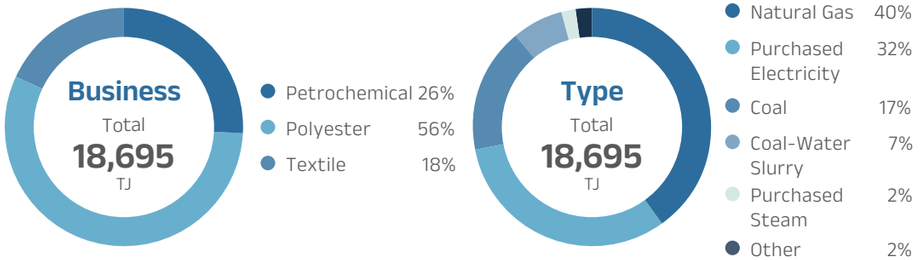
3.2.1 Energy Management

The overall energy consumption at FENC dropped by 12% from the previous year and the energy consumption per unit of production fell by 8%. The significant decrease is a testimony to the success in energy management at FENC, which implemented a total of 113 projects for the year to improve energy efficiency. The projects include production improvement, equipment enhancement and energy management. The Company will extend this approach, maximizing energy efficiency through a mix of energy conservation projects.

Energy Management System and Establishment

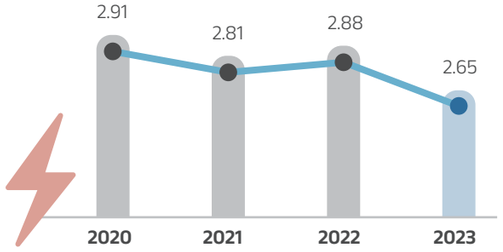
- Expand the scope governed by the ISO 50001 energy management systems.
- Implement energy management and operation.
- Continue energy efficiency improvement.
- Establish an internal incentive system for energy conservation.
- Procure energy conservation equipment and incorporat innovative technologies.
- Comply with applicable energy regulations.

Energy Consumption in 2023



Energy Consumption per Unit of Production

Unit: GJ / metric ton of production



Note: FEAZ, FEAV and FENV are not included.

FENC's total renewable energy use in 2023 amounts to 939 TJ, which accounts for 5% of its total energy consumption during the year. Of the total electricity consumption, 11.1% is renewable electricity. At the Textile Business, this percentage goes up to 18.6%.

Energy Consumption

Unit: TJ

	2020	2021	2022	2023
Purchased Electricity	6,147	6,609	5,707	**5,264**
Purchased Renewable Electricity	0	27	349	**589**
Self-generated Renewable Electricity	39	40	45	**66**
Total Electricity Consumption	**6,187**	**6,676**	**6,101**	**5,919**
Natural Gas	7,319	7,432	7,428	**7,416**
Heavy Oil	309	288	255	**74**
Diesel	27	53	47	**39**
Coal	4,886	5,112	4,482	**3,103**
Coal-Water Slurry	2,347	2,441	2,062	**1,390**
Biomass Fuel	205	201	317	**284**
Purchased Steam	696	561	505	**470**
Total Energy Consumption	**21,975**	**22,764**	**21,197**	**18,695**
Percentage of Renewable Electricity	**0.6%**	**1.0%**	**6.5%**	**11.1%**
Percentage of Renewable Energy	**1.2%**	**1.2%**	**3.4%**	**5.0%**

Note:
1. Energy consumption at FENC, which is mainly for production purposes, covers energy used for the generation of electricity, heat and steam; cogeneration; firefighting pumps; vehicles for internal transport.
2. The calorific value is based on the factors of calorific value from all production sites.
3. External energy consumption is not taken into account.
4. Data collection on energy consumption accounts for 100% of the production sites within the scope of this report.
5. Percentage of renewable electricity = (purchased renewable electricity + self-generated renewable electricity) / total electricity consumption
6. Percentage of renewable energy = (purchased renewable electricity + self-generated renewable electricity + biomass fuel) / total energy consumption.

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Internal Energy-Saving Incentives

1. Far Eastern Energy Award

To excel further in energy management, FENC is aware of the need to encourage collaboration among its affiliates. By learning from one another, these corporate entities may acquire energy conservation approaches that will inspire technological advancement and increase energy efficiency. Since 2005, the Far Eastern Group has been presenting Far Eastern Energy Awards to encourage and recognize excellence in improving energy conservation technologies and practices. In 2023, FENC submitted 21 projects, accounting for 39% of the total entries. Among them, the Energy Conservation Improvement of Tire Cord Fabric Production from OTIZ under FENC's Textile Business was recognized by Far Eastern Group with the award as a project of excellence.

2. Incorporation of Energy-Saving Performance Into Remuneration

Starting in 2016, a number of production sites have established Regulations Governing Energy Efficiency Rewards, which officially incorporates energy conservation performance into the evaluation criteria in the bonus system.

Far Eastern Energy Award for Energy Conservation Improvement of Tire Cord Fabric Production

The production of tire cord fabrics is highly energy intensive. As demand from the automotive market continues to grow, OTIZ is focusing on the improvement and innovation of the production process and equipment to lower the cost and GHG emissions during the manufacturing of this product.

OTIZ began by modifying 26 direct twisting machines to control the yarn feeding speed and reduce energy consumption. Additionally, improvements were made to the dipping process, and the numbers of ovens were reduced during the nylon and polyester production process, cutting the loss of thermal energy by controlling the exhaust during heat treatment.

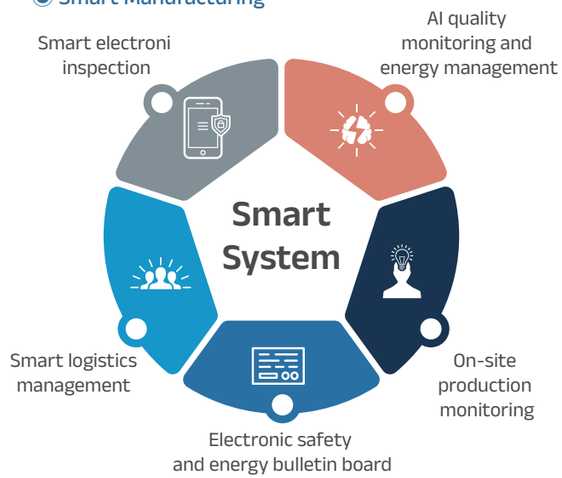
OTIZ received the Far Eastern Energy Award from Far Eastern Group in recognition of this project, which reduced approximately 2.78 GWh of electricity and 936 million cubic meters of natural gas consumption. The annual net energy savings amounts to NT$1.86 million with 3,609 tCO_2e of carbon emissions averted.

Incorporation of Innovative Technology and Equipment

1. Apply AI in Energy Management

As the 5G and AI technologies flourish and the world races towards net zero emissions, digital transformation and smart evolution are inevitable paths ahead of the manufacturing industry. FENC has committed tremendous energy into the development and application of such development. With digital transformation as the strategy, FENC production sites have gradually incorporated Industry 4.0 and used AIoT to elevate the efficiency of quality forecast and energy management to build smart factories.

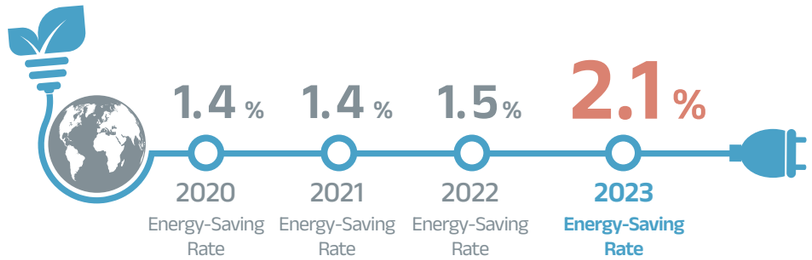
◉ Smart Manufacturing



Avid Support for Governmental Policies

FENC production sites in Taiwan subject to the 1% energy reduction mandates for energy-heavy industries from the MOEA have been reporting energy conservation rates on a regular basis. The policy period is extended to 2024. In the past nine years, all production sites have delivered higher energy-saving rates than the regulatory requirements.

◉ Energy-Saving Rate at Production Sites in Taiwan



Note: Since 2015, the annual electricity saving rate has exceeded 1%.

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3.2.2 Raw and Packaging Material Management

FENC is committed to the refinement of production processes and techniques. The Company reaches benchmarks in sustainable material management by reducing damages in raw materials and increasing the recycling rate of packaging materials through innovative technologies and systems. FENC measures itself with standards more stringent than the industry norm, and selects raw material suppliers that comply with regulatory and sustainable standards based on the procedures and operational guidelines in internal procurement management. The Company also ensures quality standards by commissioning independent agencies to conduct quality testing.

FENC has operational guidelines in place for the management of packaging materials, matching appropriate materials and packaging methods with customers' products and transport needs. Recyclable, reusable, or eco-friendly materials, such as biomass, are prioritized, and operational adjustments are made to ensure waste avoidance. Recycling targets are set for packaging materials. Each month, the Company tabulates the recycling quantity, recycling rate and achievement rate, and unmet goals are reviewed. By managing the recycling of packaging materials, the product life cycle is prolonged, which reduces consumption, costs and waste. In addition to recycling and reuse, FENC also collaborates with suppliers, customers and qualified recycling companies to recycle packaging materials from domestic customers to be reused at FENC production sites.

Raw and Packaging Material System Establishment and Management

- Conduct trainingon raw and packaging material management.
- Develop the safety management system.
- Establish goals and compile achievement rates regularly.
- Create the proposal improvement system.
- Incorporate the smart production scheduling system and optimize production scheduling to reduce losses.
- Establish the AI quality prediction model to reduce yield loss.
- Establish the real-time information system for production management and optimize the product warehousing management system.
- Adopt the automated material handling system to move the raw materials into warehouses.

FENC develops take back programs to engages customers consistently on recycling packaging materials such as pallets, paper tubes and peg boards to establish a robust recycling management system. In 2023, the average recycling rate for packaging materials from the production sites within the scope of this report reached 80%. The average recycling rate for in-house recycling is 61% while that for recycling through external programs is 100%.

There were no leakages of raw materials, oils or fuels from FENC sites in 2023.

Management Procedure for Raw and Packaging Materials

Supplier assessments and development process for Raw and Packaging Materials
- Establish annual production plans and goals.
- Reduce waste by conducting regular reviews on consumption rates of primary and secondary raw materials as well as new products and production technology, improving production efficiency as well as recycling and reusing raw materials.
- Hold a minimum of one management review meeting annually.
- Evaluate suppliers to ensure material quality and maintain yield rate by reducing substandard products.
- Reduce packaging for raw materials.

Training and Inspection
- Annual policy regarding raw material management is announced in the beginning of each year.
- At least once a year, training on raw material management is conducted in accordance with Company policy.
- During the mid-year mark, training results are examined.
- Quality control units conduct random inspections on packaging materials and improve the size and method of packaging.

Supply Chain Engagement
- Planning and preparation of packaging materials are based on customers as well as the discussions from sales and marketing meetings.
- Packaging materials are prepared with safety, environmental protection, quality assurance and efficiency as the principles.
- Engage customers on packaging reduction.

Packaging Material Recycling
- Recycling and reuse are implemented on-site.
- Packaging materials are recycled from domestic customers.
- Qualified suppliers are commissioned for off-site recycling.

Sustainable Practice for Packaging Materials

Paper Boxes
- FENC reached out to suppliers regarding the reduction of paper consumption with the use of a new type of paper cartons, which are made of 5% waste paper and weigh 7% less.

Paper Tubes
- The recycled paper tubes are sealed properly in boxes to prevent deterioration due to moisture.

PE bag/PP bag/ bulk bag
- The bags are used repeatedly as the packaging for regrind. Once unusable, they are recycled, remanufactured and reused as refuse derived fuel (RDF) rods.
- Given that bulk bags are considered valuable materials, FENC increases the recycling rate of bulk bags from domestic customers through customer engagement and by offering free bag collection service.

Pallets
- FENC recycles used wooden and plastic pallets as well as plastic side panels from domestic customers for internal use by sending deadhead trucks for pickup.
- Unusable wooden pallets are outsourced to be processed into wooden boxes.

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Promotion of Paper Tube Recycling Among Major Customers

In December 2023, Hsinpu Chemical Fiber Plant initiated a paper tube recycling project that targeted customers who purchased polyester partially oriented yarn (POY). The materials units at the plant established a chat group with the representatives from major customers overseeing the recycling of packaging materials. After multiple rounds of communication, agreements were reached for customers to collect the paper tubes using designated boxes and build canopies as rain shelters to ensure the yield. The recycling operation is expected to begin in 2024 with a 40% annual recycling rate as the target.

New Solid Waste Recycling System

FEIS-Polyester Business added a solid waste recycling system in April 2023. The production equipment is retrofitted to loop the solid waste back into the production process. The plant carefully calibrated the ratio and parameters, gradually mixing the solid waste into new materials with precise monitoring to ensure quality. The project is effective in promoting resource circularity. By converting waste into usable raw materials, the project reduces nearly NT$3 million in costs annually.

Maximization of Delivery Packaging

The polyester plant of FEPV has made enhancements to maximize the packaging and shipping for polyester chips. By expanding the volume of bulk bags from 1,100 kilograms to 1,150 kilograms, the consumption of bulk bags went down by 4.3% in 2023. Meanwhile, the plant reduced the delivery frequency. Without additional cash investments, these minor adjustments brought approximately NT$1.76 million in financial benefits while reducing the consumption of resources and energy as well as carbon emissions.

3.2.3 Water Resources Management

FENC believes that water resources should be shared and protected, and pays close attention to the health of water resources and environment in regions that house its production sites. The Company continues to lower water consumption during production by establishing reduction targets for water withdrawal per unit of production. Partnering with its customers, FENC strives to protect water resources. Its water resources management plan has 100% coverage, and takes governmental policies, corporate development, industry evolvement as well as the local needs into consideration. FENC manages, allocates and distributes water resources in a reasonable and effective manner, aiming to minimize consumption and maximize efficiency during storage and utilization. In addition, the quantity and approach of water withdrawal at FENC do not pose any significant negative impact on the water sources as well as the surrounding habitats and residents.

Water Resources System Establishment and Management

- Set reduction targets for water resources.
- Conduct water risk management.
- Implement management approaches based on water classification.
- Monitor water quality, and prevent and control spillage.
- Track water consumption and the performance of water conservation project sregularly.

Measures for water resources management

1. Water Conservation Measures

- Avoidance: Measures include adjusting the concentration ratio of cooling water, reducing the frequency of water softening and regeneration, and modifying the operation period of sand filters and softening equipment.

- Rainwater Recycling: Measures include installing additional rainwater harvesting conduits.
  - At the knitting and dyeing plant of FEPV, rainwater is harvested in a rainwater collection tank, and cycled through the rainwater recycling and treatment system. A total of 30,000 KL of rainwater was harvested in 2023.

- Reclaimed Water Reuse: Measures include the recycling of water that circulates through the boilers and production process.
  - FEDZ increased the cleaning frequency of the ultrafiltration (UF) and reverse osmosis (RO) membranes, which led to a 5% growth in the recycling rate of reclaimed water. The replacement of the filtration membrane also increased the recycling rate by 2%. The measures conserved a total of 30,048 KL of water in 2023.

  - At OGM, the water used during the rinsing process is filtered through oscillation to remove residues, and stored in the water tank to be looped back to the primary and secondary floatation tanks. The water is then filtered again and stored in a 10-metric-ton water tank as the water supply for shredders. The measure conserved a total of 46,656 KL of water in 2023.

Content

- Replacement of Dated Equipment: Measures include the replacement of filtration membranes to improve the recycling rate of reclaimed water and the incorporation of new equipment to improve water efficiency.
  - –Kuanyin Dyeing and Finishing Plant purchased three low liquor ratio dyeing machines in 2023, which conserves 45,828 KL of water annually.

- Production Refinement: The refinement of production process is ongoing with production parameters adjusted based on professional expertise to improve water conservation.
  - –OGM established wastewater treatment processes and thresholds for reclaimed water quality. By maintaining consistent effluent quality from the membrane bioreactor (MBR) and keeping the chemical oxygen demand (COD) and conductivity within the standards, the plant increased the use of reclaimed water during production. The water reclaimed grew by 7.7% in 2023.
  - –Kuanyin Dyeing and Finishing Plant increased the cloth capacity of the printing and dyeing machine by 2.6%, which saved 10,800 KL of water.
  - –In September 2023, FIGP decreased the water flow rate when cleaning the rinser in the recycling system, which reduced water withdrawal by 6,180 KL.

2. Emergency Water Supply Backup Plan

FENC has implemented response measures based on the water shortage warnings issued by local governments. In Taiwan, this would refer to the water level signals issued by the Water Resources Agency. All production sites have established contingency plans to provide backup water supply during emergencies. In 2023, there were no occurrences of production interruption caused by water shortages. FENC's emergency responses for water shortages are as follows:

- Adjust the discharge flow from water towers and the air-conditioning system to reduce the need for discharge and replenishment.
- Activate effluent recycling and the RO membrane filtration system as a backup water source.
- When the water level in the retention pond reaches the lowest permitted level, evaluation is initiated to assess the need for activating backup water supply within the production site, which includes the well water or groundwater.
- Make price inquiries regarding water tankers and delivery distance periodically, and formulate contingency plans as emergency responses.

3. Real-Time Water Consumption Monitoring

Water meters are installed to record daily consumption, track areas with unusual water usage, and perform timely repairs.

4. Incorporation of ISO 46001 Water Efficiency Management System

FENC conducts water consumption review and performance evaluation, and optimizes the daily management of major water facilities based on the international standards of ISO 46001:2019 water efficiency management systems-requirements and usage guidelines. The Company incorporates Plan-Do-Check-Act (PDCA) regarding the response strategies and actions addressing water risks and opportunities, as well as the establishment, implementation, operation and control of the water efficiency targets.

In March 2022, Plant 2 of OPTC was among the first ten entities in Taiwan to obtain the ISO 46001 certification. The plant also passed the reassessment in 2023. In the future, FENC will continue to incorporate water efficiency management systems at all production sites and with additional production sites certified.

Water Use Planning Procedure of ISO 46001

Input	Review	Output
• Type of water use • Environmental factors affecting water source • Past and president water use, activities and functions • Variables affecting major water use • Water efficiency performance	• Water use analysis • Definition of major water use activities and variables • Definition of opportunities improving water efficiency	• Water use and consumption trend • Forecast of future water use • Opportunity for improving water efficiency • Major water use • Water efficiency indicator and baseline • Target and action plan

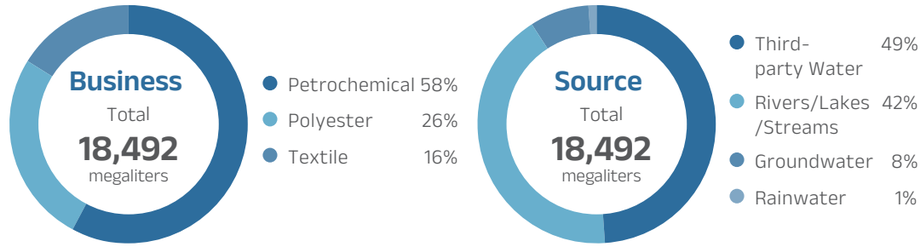
Water Risk Management

FENC regularly assesses the level of water risks in areas where FENC production sites are located using the Aqueduct Water Risk Atlas from the World Resources Institute (WRI). The tool assesses the overall water risks, such as water stress, riverine flood risk as well as regulatory and reputational risks. When the overall water risk score is between 3 and 4, which indicates "high risk," the production site is considered to be located in an area with high water risks.

According to the assessment for the fourth quarter of 2023, 1/3 of FENC production sites are located in high-risk areas. The Company responded by strengthening its adaptation strategies, such as improving water efficiency during production, establishing rainwater harvesting systems and increasing the reclaimed water recovery rate. The details are included in "3.2.3 Water Resource Management-Water Risk Adaptation and Mitigating Actions".

Water Consumption Performance

Water Withdrawal in 2023



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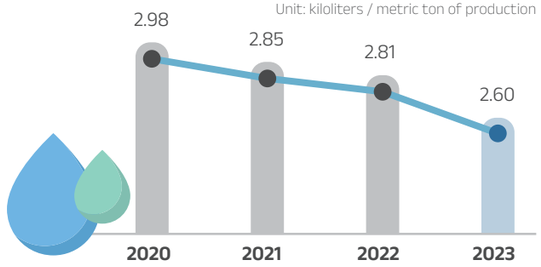
Water Withdrawal per Unit of Production

Unit: kiloliters / metric ton of production



Note: FEAZ, FEAV and FENV are not included.

The total water withdrawal in 2023 dropped by 12% from the previous year, the total water consumption was down by 5%, and water withdrawal per unit of production decreased by 8%. The performance is the fruit of efforts from the water conservation projects at all FENC production sites. These projects and measures will be fine-tuned on an ongoing basis to optimize water efficiency.

Water Withdrawal and Water Consumption

Unit: megaliter

	2020	2021	2022	2023
Rivers/Lakes/Streams	10,469	9,218	8,263	**7,675**
Third-party Water	10,044	11,925	10,695	**9,129**
Groundwater	2,001	1,937	1,804	**1,554**
Rainwater	185	205	154	**134**
Total Water Withdrawal	**22,699**	**23,285**	**20,916**	**18,492**
Total Water Consumption	**10,712**	**10,707**	**9,433**	**8,927**

Note:
1. Rivers, lakes, streams and rainwater are surface water. Third-party water refers to tap water as well as wastewater from external organizations. Groundwater includes well water.
2. The difference between water withdrawal and effluent discharge is considered water consumption, which is mainly the result of evaporation at the cooling tower. Loss during production is a minor contributor.
3. The concentration of total dissolved solids (TDS) across the water withdrawal categories are under 1,000 mg/L.
4. No quarry water, seawater, or produced water that enters an organization's boundary because of extraction (e.g., crude oil), processing (e.g., sugar cane crushing), or use of any raw material, and has to consequently be managed by the organization is used at any of FENC production sites.
5. In 2023, Plant 2 of OPTC used the water recycled by Plant 1 of OPTC (247 megaliters), which is categorized under wastewater from external organization within the third-party water.
6. Data collection on water resources management accounts for 100% of the production sites within the scope of this report.

In 2023, water withdrawal from FENC sites in water-stressed areas was down by 13% and water consumption by 5% compared to 2022. Moving forward, FENC will continue its efforts to improve water efficiency, promote reasonable water allocation and utilization, and fulfill the sustainability of water resources.

Water Withdrawal and Water Consumption of Production Sites Within Water Stress Zones

Unit: megaliter

	2020	2021	2022	2023
Rivers/Lakes/Streams	647	0	0	**0**
Third-party Water	4,911	5,529	5,087	**4,388**
Groundwater	0	0	0	**0**
Rainwater	36	53	28	**37**
Total Water Withdrawal	**5,594**	**5,582**	**5,115**	**4,425**
Total Water Consumption	**2,971**	**2,945**	**2,505**	**2,369**

Note:
1. According to the Aqueduct Water Risk Atlas from the World Resources Institute, an area is considered to be faced with water stress when the ratio of total annual water withdrawal to total available annual renewable water supply is 40% or higher.
2. The boundary of data collection includes the five FENC production sites located in water-stressed areas. The concentrations of total dissolved solids (TDS) tested across all water withdrawal categories are equal to or lower than 1,000 mg/L.

Water Recycling and Reuse

The water recycled in 2023 is down by 8% from 2022. The main contributing factor is decreased production at the Petrochemical Business, which led to a 15% decline in the use of cooling water. The water recycling rate remains at 98%.

Water Recycled and Reused

Unit: megaliter

		2020	2021	2022	2023
Circulating Water	Cooling Water	1,239,261	1,239,475	1,231,627	**1,123,253**
	Other	16,470	16,903	15,527	**29,173**
Recycled Water	Recycled Water Excluding Reclaimed Water	2,252	2,142	1,393	**1,046**
	Reclaimed Water	3,165	3,365	2,898	**2,184**
Other		392	266	262	**142**
Total Water Recycled and Reused		**1,261,540**	**1,262,150**	**1,251,707**	**1,155,798**
Water Recycling Rate		**98%**	**98%**	**98%**	**98%**

Note:
1. Recirculating water refers to water that cannot be discharged after being used within a water unit and is recirculated within the same water unit for reuse.
2. Recycled water refers to water units recycled after being used, discharged and recycled.
3. Other recirculating water includes water from the boiler, production process, turbine condensate and low pressure condensate. Recirculating water at Hsinpu Chemical Fiber Plant and OPTC is from the boiler. At OPTC and WHFE, the recirculating water is recovered from the production process. At FEIS-Petrochemical Business, the turbine condensate and low pressure condensate are the sources of recirculating water.
4. The "Other" category includes produced water which enters the company premise as a result of the production process.

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Transforming Effluent Into Purified Water

After going through the water treatment system, effluents from FEIS-Polyester Business meet the quality standards as replenishment for the cooling tower. The demand for water is high in summer but low in winter, therefore, while the treated effluent is fully utilized in summer, the utilization rate drops in winter. In October 2023, the plant launched a project to purify the effluent through ceramic membranes, RO and ultraviolet disinfection, and use it to supply on-site production. FEIS-Polyester Business invested approximately NT$2 million, and the project conserves 24,000 KL of water annually, equating to approximately NT$510,000 in financial benefits.

Measures for effluent management

Effluents Management Policy

- Obtain the effluent discharge permit.
- Inspect effluent treatment facilities regularly to ensure proper functioning.
- Monitor effluent discharge quality regularly.
- File effluent discharge with the authority in accordance with regulatory requirements.
- Promote water pollution prevention and control.
- Conduct regular training for management personnel and obtain applicable professional certification.

1. Effluent source management

The discharge of oil agents and surfactants is minimized by modifying and optimizing the production process.

2. Treatment efficiency management

Dated equipment is phased out with new replacements, filtration membranes are changed regularly, and the centralized smart control system is established to facilitate real-time management. During production changes, the system makes synchronized adjustments for the operation parameters across the wastewater treatment facilities.

3. Environmental impact management

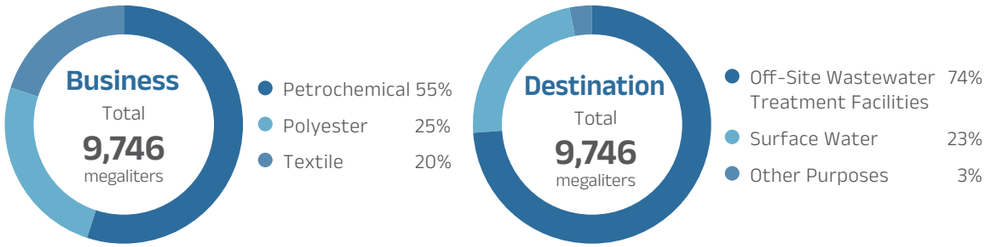
FENC continues to build extensive effluent treatment facilities that minimize noise, odor and pollution, and increase reclaimed effluent across the Company to fully implement resource recycling and reuse.

Wastewater that is ultimately discharged as effluent undergoes a comprehensive set of procedures governed by pollutant treatment guidelines. FENC conducts regular self-assessments regarding a wide range of water pollutants to ensure the compliance of effluent quality. The effluent is discharged to water bodies permitted by law after industrial effluent permits are obtained in accordance with regulatory requirements. Recycled effluent from FENC is for internal use only and not for external organizations.

A water consumption fee for users exceeding 9,000 KL of monthly water consumption during the dry season in Taiwan was enacted on February 1, 2023. As a response, FENC will keep implementing a mix of water conservation measures, utilizing reclaimed water and increasing water recycling rates to gain eligibility for reductions or deductions.

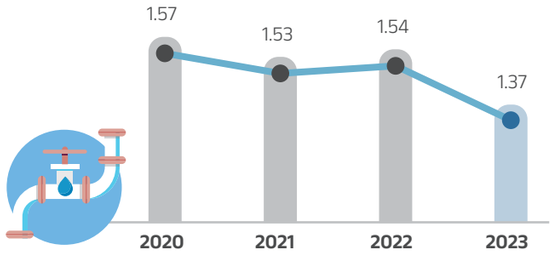
The total effluent in 2023 is down by 15% compared to 2022, and the effluent per unit of production is cut by 11%. The Company will install additional effluent recycling and reuse systems to increase water efficiency per unit of production.

Water Discharge in 2023



Water Discharge per Unit of Production

Unit: kiloliter / metric ton of production



Note: FEAZ, FEAV and FENV are not included.

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Water Discharge

Unit: megaliter

		2020	2021	2022	2023
TDS	Fresh Water	1,671	1,813	1,716	**2,526**
	Other Water	10,316	10,765	9,767	**7,220**
Destination	Surface Water	3,683	3,848	2,974	**2,289**
	Off-Site Wastewater Treatment Facilities	8,304	8,556	8,340	**7,210**
	Other Purpose	0	174	169	**247**
Total Water Discharge		**11,987**	**12,578**	**11,483**	**9,746**

Note:
1. FENC does not discharge effluent directly to the seawater or groundwater / well water. Please refer to the table, Effluent Treatment Methods and Final Discharge Destination.
2. "Other Purpose" refers to: In 2023, Plant 1 of OPTC recycled a portion of the effluent. After being treated at the in-house wastewater treatment facility and meeting water quality standards, the water is supplied to Plant 2 of OPTC.
3. "Fresh Water" means total dissolved solids ≤1,000mg/L; "Others" means total dissolved solids >1,000mg/L.

Water Discharge of Production Sites Within Water Stress Zones

Unit: megaliter

		2020	2021	2022	2023
TDS	Fresh Water	680	729	752	**780**
	Other Water	1,943	1,908	1,858	**1,456**
Destination	Surface Water	0	0	0	**0**
	Off-Site Wastewater Treatment Facilities	2,623	2,637	2,610	**2,236**
	Other Purpose	0	0	0	**0**
Total Water Discharge		**2,623**	**2,637**	**2,610**	**2,236**

Note:
1. According to the Aqueduct Water Risk Atlas from the World Resources Institute, an area is considered to be faced with water stress when the ratio of total annual water withdrawal to total available annual renewable water supply is 40% or higher.
2. The boundary of data collection covers the five FENC production sites located in water-stressed areas. The wastewater is processed at the internal wastewater treatment plant. Once reaching the effluent standards, all wastewater enters the municipal sewer system to be treated at the municipal wastewater treatment plant and then discharged.
3. "Fresh Water" means total dissolved solids ≤1,000mg/L; "Others" means total dissolved solids >1,000mg/L.

Effluents Treatment and Final Discharge Destination

Business	Production Sites	Effluents Treatment and Final Discharge Destination
Petrochemical	**OPTC**	Wastewater at Plant 1 of OPTC goes through biotreatment, including anaerobic and super deep aeration treatments and discharged into Shulin River once it meets the effluent standards. At Plant 2 of OPTC, wastewater goes through biotreatment, including anaerobic and high-efficiency aeration treatments. Once reaching the sewage connection standards, the wastewater is discharged into the sewage system operational center in Kuanyin Industrial Park and finally discharged into Shulin River.
	FEIS	Wastewater is treated internally until reaching the required standards, and then discharged through the municipal pipelines to Fengxian District East Wastewater Treatment Plant. Once fully treated, the wastewater is discharged into Hangzhou Bay.
Polyester	**Hsinpu Chemical Fiber Plant**	Wastewater goes through biotreatment internally. Once reaching effluent standards, it is discharged into Fengshan River.
	Kuanyin Chemical Fiber Plant	Wastewater goes through biotreatment internally. Once reaching effluent standards, it is discharged into Shulin River.
	FEFC	Industrial and domestic wastewater goes through biotreatment (contact oxidation) and sedimentation internally. Once the water reaches the effluent standards, it is discharged into Shulin River.
	OGM	Wastewater is first treated in house. Once reaching the effluent standards, it is discharged to the wastewater treatment plant in the industrial park for further treatment, and then discharged into Shulin and Dajue Rivers.
	FEIS	Wastewater is treated internally until reaching the required standards, and then discharged through the municipal pipelines to Fengxian District East Wastewater Treatment Plant. Once fully treated, the wastewater is discharged into Hangzhou Bay.
	WHEF	Treated in the internal wastewater treatment facility first, the wastewater then goes through the municipal wastewater treatment facility. Once fully treated, it is discharged into the Yangtze River.
	FEPV	Wastewater is treated internally until reaching the required standards (through online testing), and then discharged into ecological pond no. 1 in Bau Bang Industrial Park. Once fully treated, the water is discharged to Thị Tính River.
	FIGP	Wastewater is treated internally until reaching the required standards and then discharged to Tone River.
	APG Polytech	Wastewater is treated internally until reaching the required standards and then discharged to Ohio River.
Textile	**Kuanyin Dyeing and Finishing Plant**	Wastewater is treated in house, discharged to the wastewater treatment plant in the industrial park for further treatment, and then discharged into Shulin River.
	Hukou Mill	Wastewater goes through biotreatment (oxidation and aeration) internally and then discharged into Desheng River.
	OTIZ	Wastewater is treated internally until reaching the required standards, and then discharged through municipal pipelines to Hedong Wastewater Treatment Plant. Once fully treated, the water is discharged to the Jing-Hang Grand Canal.
	FEIW	Wastewater goes through Wuxi municipal sewage pipelines to the wastewater treatment facility. Once treated, the water is discharged into the Jing-Hang Grand Canal.
	FEDZ	Wastewater is treated internally until reaching the required standards, and then discharged through municipal pipelines to Hedong Wastewater Treatment Plant. Once fully treated, the water is discharged to the Jing-Hang Grand Canal.
	FEAZ	Wastewater is treated internally until reaching the required standards, and then discharged through municipal pipelines to Chengnan Wastewater Treatment Plant. Once fully treated, the water is discharged to the Jing-Hang Grand Canal.
	FEAV	Wastewater is treated at the treatment center within the industrial park and then discharged to Saigon River.
	FENV	Wastewater is treated at the treatment center within the industrial park and then discharged to Song Be River.
	FEPV	Wastewater is treated internally until reaching the required standards (online monitoring), discharged to the wastewater treatment plant in the the No. 1 ecological pond of Baopeng Industrial Zone, and finally discharged to the Thị Tính River.

Note:
1. There is no significant impact from wastewater discharge on the water bodies and related habitat.
2. Wastewater at FEIS-Petrochemical Business includes wastewater from the manufacturing process, domestic wastewater, lab wastewater and wastewater from the cooling tower. Wastewater at Hsinpu Chemical Fiber Plant, Kuanyin Chemical Fiber Plant, FEFC and FEIS-Polyester Business is from the manufacturing process, cooling tower, domestic wastewater and cleaning water. Wastewater at OGM, WHFE, FEDZ the polyester plant of FEPV and APG Polytech is from the manufacturing process, domestic wastewater and lab wastewater. Wastewater at Kuanyin Dyeing and Finishing Plant, OTIZ and FENV is from the manufacturing process and domestic wastewater. Wastewater at OPTC is from the manufacturing process and the cooling tower. Wastewater at Hukou Mill, FEIW, FEAZ and FEAV is from domestic wastewater. Wastewater at the textile plant of FEPV and FIGP is from manufacturing process.
3. Calculation of wastewater at Hukou Mill also includes the biomedical business unit of Oriental Resources Development Limited.
4. There is no significant impact caused by the effluent on water bodies and adjacent habitats.
5. Minimum wastewater discharge standards have been established at all production sites in accordance with local regulations and industry characteristics.
6. The discharge water treatment method and final discharge location have not changed in the past three years.

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Water Risk Adaptation and Mitigating Actions

Water scarcity is among the risks brought by the climate change. To mitigate and adapt to this risk, FENC implemented a host of water conservation projects. These water conservation projects include the reduction of evaporation and wind losses from the cooling tower; increase of the concentration ratio for the water circulating through the cooling system under controlled production conditions; establishment of water recycling and reuse systems that incorporate membrane technologies to treat wastewater.

In 2023, FENC devoted approximately NT$27.98 million to projects that avert water-related risks, saving a total of 779,700 KL of water, which translates to NT$12.9 million in annual financial benefits. In 2024, FENC is devoting NT$12 million in capital budget to the mitigation of water-related risks.

Water Conservation Project in 2023

	Actual Investment (NT 1,000)	Water Saved (kiloliter / year)	Percentage of Water Saving in Water Withdrawal
Petrochemical	9,800	303,528	3%
Polyester	5,708	113,952	2%
Textile	12,472	362,220	12%
Total	**27,980**	**779,700**	**4%**

Note: Water saved is calculated by before the project with the same facility and same production procedure.

Tap Water Leak Detection Across FEDZ

Tap water is the main source of water supply at FEDZ. In 2023, the plant launched a plant-wide tap water leak detection project to take stock of water usage points, prepare the plumbing diagram, classify the tap water usage into production and domestic purposes, and install water meters. The readings are recorded daily to identify points with unusual activities with plans formulated to identify leakage, which is repaired immediately once identified. A plan for system retrofit is also established if immediate repair is not viable. The project identified leakage in the domestic pipelines, of which the majority are underground. The repair was completed at the end of November 2023, and the domestic water consumption went down dramatically by 80%, equating to NT$1.1 million in annual financial benefits.

Avid Support for Governmental Policies

1. Switch to smart meter to provide real-time data on water resources

FENC supports the government's policies on water conservation by reducing water consumption and installing smart water meters. Once the meters are installed, the system may automatically detect and alert unusual occurrences, such as water leakage, to facilitate early notification for any anomalies, which helps FENC reach the water conservation goals set by the authority.

2. Commit to including domestic reclaimed water as source of water withdrawal

OPTC signed the recycled water use contract with the Taoyuan City Government for a three-phase project to utilize reclaimed water, and the completion of phase one is expected in 2025. The reclaimed water will go through the UF membrane and RO, reaching a quality surpassing that of tap water and meeting industrial water standards. Phase one will produce 40,000 KL of reclaimed water daily, and approximately 15,000 KL will be utilized by OPTC. This project is the exemplification of FENC's commitment to water conservation and its answer to the governmental policy on the circular economy and water reclamation.

3.3 Steering Environment Management

3.3.1 Air Pollution Management

FENC adopts a stream of technologies to prevent and control air pollution. Regular reviews are conducted over existing facilities and production flow to ensure compliance with all emission standards. The Company uses online monitoring systems and equipment to record real-time conditions and keep tabs on any unusual occurrences with a priority focus on mitigating environmental risks in production design and minimizing pollution caused by the production process. All pollutant emission data is in compliance with regulatory standards and filed with the authority.

Air Pollution System Establishment and Management

Continuous Emission Monitoring Systems (CEMS)	CEMS is installed to conduct the quarterly relative accuracy test audit (RATA).
Reporting Mechanism and Procedural Training	The internal reporting mechanism and procedural training are established for the reporting of unusual occurrences.
Stabilizing Production Operation	Equipment inspection and maintenance are performed regularly to ensure stabilized operation and prevent excessive emissions caused by malfunctions. The Company adopts advanced emission control technologies and uses desulfurization towers to reduce pollutant emissions. Operation parameters of the control equipment are inspected daily to stabilize the efficiency of air pollutant removal.
Improving Boiler Combustion Efficiency	The air-fuel ratio of the combustion chamber in the boiler is adjusted to achieve complete combustion and improve combustion efficiency, which reduce air pollutants such as NOx and SOx.
Boiler Stack Sampling by Qualified Testing Agencies	Qualified testing agencies are commissioned to perform the quarterly general testing and biennial testing for equipment components. Leakages identified in the result are addressed in a timely manner.
Employee Training	Equipment component training is conducted and volatile organic compound sensors are purchased for production personnel to help them identify and repair possible leakage with precision.
Supply Chain Management and Training	Supplier audits are conducted on a random basis to ensure compliance with applicable local air pollution regulations, and awareness training targeting air pollution prevention and control is provided for suppliers.

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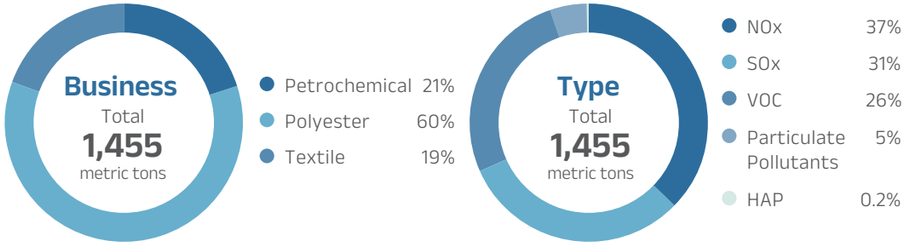
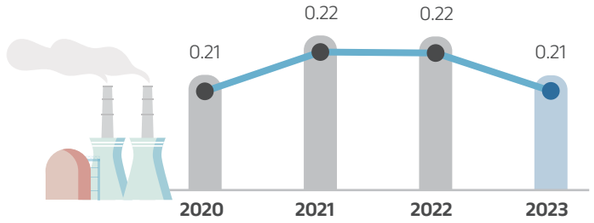
Air Pollutant Emissions in 2023



Air Pollutant Emissions per Unit of Production

Unit: kg / metric ton of production



Note: FEAZ, FEAV and FENV are not included.

In 2023, the total air pollutant emissions dropped by 8% compared to the previous year, and the air pollutant emissions per unit of production decreased by 5%. Efforts will continue to enhance the equipment, monitoring and efficiency of air pollution prevention and control.

Air Pollutant Emissions

Unit: metric ton

	2020	2021	2022	2023
NOx	735	810	699	**544**
SOx	336	365	369	**458**
VOC	460	486	425	**382**
HAP	1	1	1	**3**
Particulate Pollutants	74	82	88	**68**
Total	**1,606**	**1,744**	**1,582**	**1,455**

Note:
1. Only emitted gases are listed.
2. Particle pollutants include suspended particle matters (PM), dust and smoke.
3. The collected data covers 3 categories, actual measured value, annualized sampling value and estimates.
4. Data on hazardous air pollutants (HAP) are collected at APG Polytech in the U.S. and FIGP in Japan. The 3 HAPs identified at APG Polytech are ethylene glycol, acetaldehyde and 1,4-Dioxane, which are regulated by U.S. Environmental Protection Agency. Acetaldehyde, which is on the list of HAPs regulated in Japan, is identified at FIGP.
5. Data collection on air pollutant management accounts for 100% of FENC production sites in the scope of this report.

Incorporation of Innovative Technology and Equipment

1. FENC uses the open-path Fourier transform infrared (OP-FTIR) spectrometer system to monitor the concentration of pollutants around the plant perimeter in real-time with methods announced by the Environmental Protection Administration. In addition to measuring the concentration of chemical compounds with speed, unique advantages of OP-FTIR include its low detection limit and ability to detect multiple chemical compounds simultaneously. The system is ideal for industrial parks, where the emission sources in tend to be more complex. With long periods of continuous testing, the system is able to identify the pattern of changes in the concentration of polluting gases and their emission characteristics. When the data transmitted back to the control center suggests unusual activities, and production staff address the leakage immediately.

2. Kuanyin Chemical Fiber Plant replaced heavy crude oil boilers with the natural gas models, which began operating in 2023. The project has delivered remarkable results by cutting the plant-wide air pollutant emissions by 61% compared to 2022.

Supply Chain Management and Training

1. Hsinpu Chemical Fiber Plant promoted environmental awareness among the drivers working for transport suppliers, reminding them to shut off the engine instead of idling. Plant staff were assigned to make sure that idling engines were shut off in order to minimize air pollution and the emission of carbon dioxide.

2. FEIS invited the suppliers of automatic monitoring equipment to participate in a training course organized by the Shanghai Municipal Bureau of Ecology and Environment in 2023, and four representatives participated.

3.3.2 Waste Management

General Waste and Hazardous Industrial Waste Management Policies

1. Waste Management Goal and Principle

FENC strives to optimize waste management by improving resource efficiency in production activities, reducing waste through avoidance, and boosting the recycling and remanufacturing rates of production waste. The principle governing waste management is “classification to reduction; waste to earnings; earnings to valuables.”

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2. Waste Disposal and Recycling

Qualified waste treatment companies are selected to ensure the recycling and reuse of valuable waste, and the proper disposal of valueless waste.

3. Compliance and Social Responsibility

Waste treatment is conducted in accordance with all applicable regulations and the quantity is filed with the authority as required by law. FENC will strengthen the control of hazardous waste, and track the type, quantity, destination, storage, utilization and treatment of outsourced hazardous waste to ensure compliance.

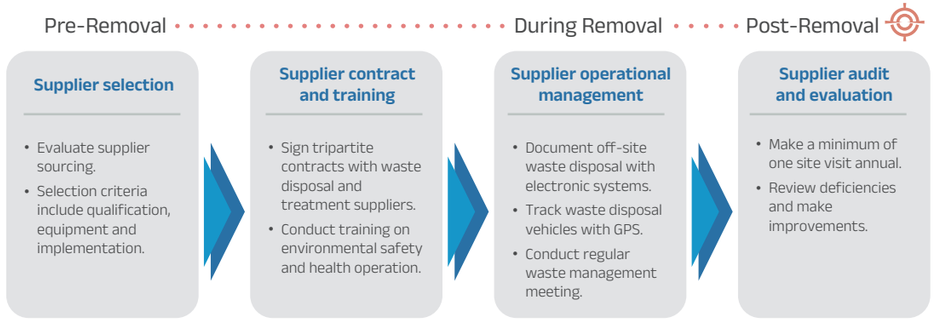
There were no occurrences of waste leakage at FENC in 2023, and the waste treatment did not pose any substantial and significant impact on the environment.

Waste Impact Assessment

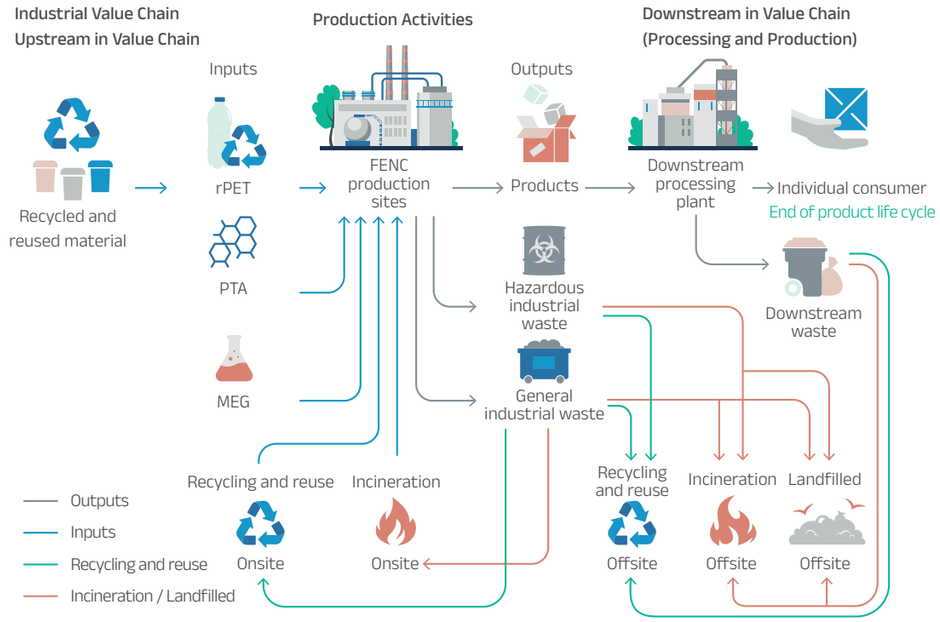
Waste materials generated from the business activities at FENC can be broken down into 89% regular industrial waste and 11% hazardous industrial waste. The hazardous industrial waste includes used chemical bottles for testing, lubricant/oil and light tube/electrical batteries, which are stored in hazardous waste storage facilities and processed 100% by qualified waste management companies.

Upon the request its customer, toxic chemicals were used during testing at Plant 1 of OPTC in 2022, and the waste liquid was considered hazardous industrial waste. The request was no longer needed in 2023, and the plant submitted an application to the Department of Environmental Protection, Taoyuan City Government to cancel the permit for toxic chemical substances. The application was approved on July 26, 2023, and the waste liquid was disposed of on October 13. At OGM, the waste liquid derived from the testing conducted at the quality control laboratory is considered hazardous industrial waste and must be disposed of once a year as mandated by law. The disposal was completed on March 18, 2023.

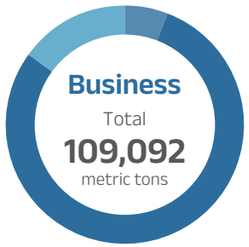
Management Procedure for Waste Disposal Suppliers



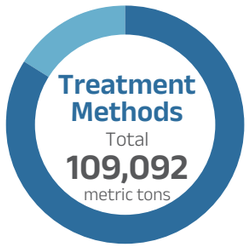
Waste Treatment Process Flow



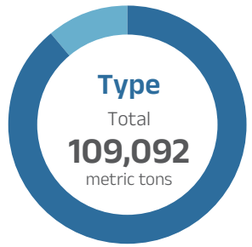
Waste Generated in 2023



- Petrochemical 6%
- Polyester 79%
- Textile 15%



- Recycling and Reuse 84%
- Non-Recycling and Non-Reuse 16%

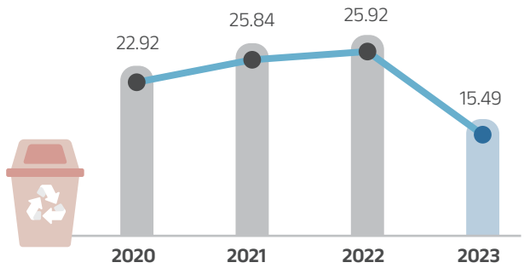


- General Industrial Waste 89%
- Hazardous Industrial Waste 11%

Content

Waste Generated per Unit of Production

Unit: kg / metric ton of production



Note: FEAZ, FEAV and FENV are not included.

Waste Generated

Unit: metric ton

		2020	2021	2022	2023
Treatment Method	Recycling and Reuse	149,527	189,318	174,492	**91,634**
	Non-Recycling and Non-Reuse	23,238	19,271	15,718	**17,458**
Type	General Industrial Waste	155,444	191,109	178,071	**96,608**
	Hazardous Industrial Waste	17,321	17,480	12,139	**12,484**
Total Waste		**172,765**	**208,589**	**190,210**	**109,092**

The total waste generated in 2023 was down by 43% compared to 2022. The main contributing factors are the production decrease and the replacement of coal-fired boilers with the natural gas models, which reduced the generation of waste such as coal slag. The total waste per unit of production in 2023 dropped by 40% compared to the previous year, which is mainly attributed to the decrease in total waste. Through various management and improvement measures, FENC will continue to reduce, recycle and reuse waste, and achieve circularity.

Supply Chain Management and Education Training

FENC conducts safety training for waste treatment suppliers. The training raises their environmental awareness by covering safety precautions when loading waste materials and the plant security management system. A total of 275 participants, representing 31% of the 33 general waste treatment suppliers, attended the training in 2023; a total of 250 participants, accounting for 53% of the 18 hazardous waste treatment suppliers, were also in attendance.

Data of Waste

Unit: metric ton

				2020	2021	2022	2023
Recycling and Reuse	General Industrial Waste	Production Waste	On-Site Recycling and Reuse	73,860	103,992	96,857	**32,188**
			Sold	25,395	30,006	27,333	**17,818**
			Off-Site Disposal	36,420	38,646	37,709	**30,045**
		Domestic Waste	On-Site Recycling and Reuse	3	2	0	**0**
			Sold	167	155	411	**140**
			Off-Site Disposal	1,390	1,242	1,103	**558**
	Hazardous Industrial Waste	Production Waste	On-Site Recycling and Reuse	0	0	0	**0**
			Sold	719	740	557	**865**
			Off-Site Disposal	11,573	14,536	10,522	**10,021**
	Total			**149,527**	**189,319**	**174,492**	**91,635**
Non-Recycling and Non-Reuse	General Industrial Waste	Production Waste	Incineration With Energy Recovery (On-Site)	0	0	0	**2,344**
			Incineration With Energy Recovery (Off-Site)	1,337	1,604	1,658	**1,185**
			Incineration Without Energy Recovery	8,876	7,488	5,063	**2,811**
			Landfilling	343	134	0	**28**
			Other Disposal Operations	2,265	2,537	2,423	**4,034**
		Domestic Waste	Incineration With Energy Recovery (On-Site)	0	0	0	**0**
			Incineration With Energy Recovery (Off-Site)	373	361	215	**332**
			Incineration Without Energy Recovery	1,014	1,187	1,131	**1,694**
			Landfilling	2,661	2,249	2,336	**1,757**
			Other Disposal Operations	1,340	1,507	1,833	**1,675**
	Hazardous Industrial Waste	Production Waste	Incineration With Energy Recovery (On-Site)	0	0	0	**0**
			Incineration With Energy Recovery (Off-Site)	0	53	25	**59**
			Incineration Without Energy Recovery	4,939	2,085	1,007	**1,523**
			Landfilling	2	0	0	**1**
			Other Disposal Operations	88	65	27	**14**
	Total			**23,238**	**19,270**	**15,718**	**17,457**
Total Waste				**172,765**	**208,589**	**190,210**	**109,092**

Note:
1. Waste materials are classified based on local governmental regulations. For instance, sludge generated from wastewater treatment is deemed hazardous industrial waste based on the definitions of Chinese and Vietnamese governments while it is deemed as general industiral waste in Taiwan.
2. Non-recycling and non-reused waste disposal are handled off-site by qualified waste treatment companies.
3. The data collection on waste management accounts for 100% of FENC production sites in the scope of this report.

Content

Replacing MEG Boiling with High-Temperature Hydrolysis Furnace for Spinneret Cleaning

The polyester filament division at FEIS-Polyester Business uses hydrolysis furnaces, which integrate vacuum combustion and steam hydrolysis, to remove macromolecular compounds attached to the spinneret and nozzle interior. The process, which reduces hazardous waste, replaced the original MEG boiling method. The wastewater generated from the hydrolysis furnace contains a minimal concentration of contaminants, which can be recycled and reused once processed through the wastewater treatment system. This project reduces approximately 60 metric tons of waste MEG residue annually, and saves nearly NT$1 million in the cost of hazardous waste treatment.

Ultrasonic Sludge Reduction and Sludge Recycling and Reuse

Plant 2 of OPTC uses ultrasound to break down the microbial cells in organic sludge, which is then returned to the wastewater treatment plant. While increasing biogas generation, this process also achieves sludge reduction. Biogas is a form of biomass fuel and an alternative to purchased fossil fuels. It also reduces carbon emissions, sludge accumulation and sludge treatment costs while cutting emissions resulting from sludge transport.

The sludge generated from the wastewater treatment system at FEDZ is considered general solid waste. To achieve zero-waste production, FEDZ collaborates with subcontractors to recycle, process and reuse the sludge. With 30% moisture content, the sludge is dried or incinerated, and mixed with the bottom ash derived from the process along with additional materials. The mixture is then made into building bricks, completing the zero-sludge/waste process.

3.3.3 Ecological Protection

System Establishment and Management

All production sites completed environmental impact assessments in accordance with the regulatory requirements prior to plant construction. Plant 2 of OPTC conducted an environmental monitoring report during operation in the second quarter of 2023. Among the monitored categories are air quality, water quality and ecology. No unusual occurrences were identified, and the monitoring will continue. Among the categories monitored, groundwater quality is not impacted by activities that take place at FENC production sites. Rather, the influencing factors include regional hydrogeological and environmental conditions. The monitoring will be ongoing and the Company will fulfill all commitments identified in the environmental impact assessments.

Biodiversity and No Deforestation Commitment

Goal	FENC aims to minimize the impact on biodiversity to the greatest extent throughout the production process while protecting local natural resources and ecosystems.
Measures	1. When selecting locations for production sites, developed or low-biodiversity areas are prioritized to prevent impacts on protected or high-biodiversity areas. 2. All FENC sites adhere strictly to local environmental regulations during the entire production process, controlling waste emission and discharge, reducing water and soil pollution, and adopting renewable raw materials and energy. 3. During the later production stages, FENC conducts biodiversity monitoring and assessment with regular reports on performance and improvement plans to applicable stakeholders.
Commitment	FENC aims for no net loss (NNL) and zero deforestation for its own operation, striking a balance and seeking harmony between production activities and biodiversity. FENC also maintains rapport with local communities and environmental organizations, forming a coalition to safeguard ecological health on Earth.

All FENC production sites are located in industrial development areas permitted by the local government. These areas are not within the protected natural habitat or nature reserve, and without species on the Red List of Threatened Species and from International Union for Conservation of Nature (IUCN) and national lists of endangered and protected species.

Value Chain Collaboration

FENC has been partnering with adidas since 2016 to transform waste PET bottles purchased from Parley for the Oceans into new products. The bottles, which were collected during beach cleaning from the island nations, are pressed into PET bales after processing, and shipped to OGM for recycling and further processing. They are ultimately transformed into recycled ocean polyester filament, and become the material for high-value products such as athletic footwear and functional apparel.

Avid Support for Governmental Policies

In 2022, the Office of Coast and Resource Circulation, Taoyuan City Government formed the Taoyuan Blue Ocean Recycling Alliance with corporate entities and technical teams. OGM, as a member of this alliance, is responsible for processing the waste PET bottles collected by the Taoyuan City Government. After rinsing and shredding, the bottles are turned into flakes and chips, ready for the spinning process at the filament units. The remanufacturing then takes place, transforming the bottles into eco-friendly textile products such as apparel, shoes, bags and blankets, which are gifted to the participants or volunteers during beach cleaning. According to the governmental statistics, a total of 24.1 metric tons of ocean waste PET bottles have been given second lives as eco-friendly clothing as of the end of September 2023.