



LCY

2022 ESG Report



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• About this Report

LCY Chemical Corp. discloses its 2022 Environmental, Social, and Governance (ESG) initiatives in its fourth ESG report. The report, following the GRI Standards, covers actions taken by LCY Chemical Corp. and its affiliated business units (hereinafter: LCY) from January 1, 2022, to December 31, 2022, emphasizing commitments to ESG principles. LCY commits to releasing ESG reports every one to two years, with downloadable versions in both Chinese and English accessible on the official LCY website.

• Reporting Period

- Date of 1st publication: August 2012 (CSR Report)
- Publication date of the last report: November 2022
- Publication date of the current report: December 2023

• Reporting Scope

The financial figures in this document correspond to the financial data boundary in the consolidated financial report of LCY and are presented in New Taiwan Dollars (NT\$). The environmental and social aspects of this report cover the operations of LCY with the addition of Huizhou LCY Advanced Rubber Corp. (AR Plant) as compared to the 2021 report. The scope of the report includes the Taipei Office, the Corporate R&D Center in Nanzi, the factories in Taiwan (Dashe, Kaohsiung, Copper Foil, Xiaogang, and Linyuan Plants), the Kaohsiung Terminal Station, and the factories in China (Huizhou, Zhenjiang, and AR Plants) as well as the US plant in Baytown. Any inconsistencies in the scope of reporting are detailed in the report. Related financial information for LCY Biosciences Inc. is not yet material and is therefore excluded from the 2022 non-financial disclosures.

• Reporting Standard & Third-Party Assurance

This report follows the GRI Standards, SASB Standards, and TCFD recommendations. The assurance engagement was conducted by DNV Business Assurance Co., Ltd., in accordance with DNV VeriSustain™ Protocol. Refer to the appendix for the independent assurance statement.

Guideline/Standard	Organization
 GRI Standards	Global Sustainability Standards Board, GSSB
 Sustainability Accounting Standards - Chemicals	Sustainability Accounting Standards Board (SASB)
 Task Force on Climate-Related Financial Disclosures (TCFD)	Financial Stability Board (FSB)

• Please see the appendix for the GRI index, SASB index, and TCFD index

• Material Changes

In response to the Chinese government's formal implementation of the Yangtze River Protection Law on March 1, 2021, which mandates the strict transformation of factories along the Yangtze River, LCY's Zhenjiang Plant ceased methanol solvent production and related sales activities at the end of 2022. Since then, the Zhenjiang Plant has only maintained activities related to the production and sales of electronic-grade solvent purification.

• Material Changes in ESG Disclosure

Disclosure Standards	Adopted GRI 1: Foundation 2021
Analysis of Material Topics	Inclusion of GRI 3: Material Topics 2021. Stakeholders have been re-invited to participate in the identification of material topics. For more details, please see "Identifying Stakeholders & Material Topics."
Disclosure Scope	The financial figures in this document correspond to the financial data boundary in the consolidated report of LCY. The information collection boundary for sustainability issues includes the AR Plant in China.

LCY Service Locations



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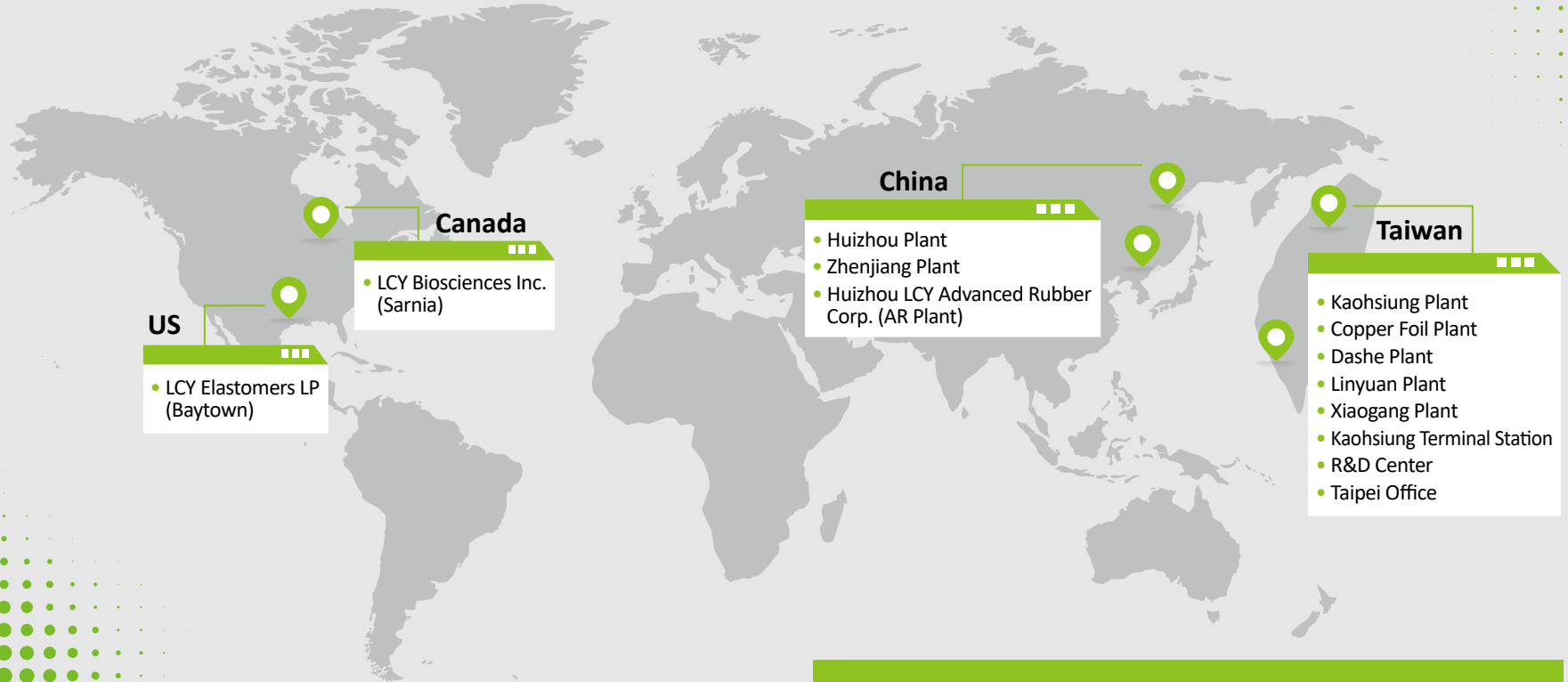
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Contact us

For any suggestions or questions about this report, please contact us.

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2022 was a pivotal year in the face of the global challenges of energy shortages and environmental issues. As a key player in the global materials and chemicals sector, LCY is committed to achieving more sustainable development. In the coming era of carbon pricing, carbon reduction is not only a company's social responsibility but also a key competitive advantage. To this end, we have taken proactive measures by establishing the Green Transformation Team (GTT) and investing in advanced systems such as steam injectors, heat pumps, and mechanical steam compressors. By working closely with our suppliers and procuring green energy, we expect to significantly reduce emissions, with a goal of a 30% reduction by 2030. This concerted effort demonstrates our commitment to environmental sustainability and gives us a distinct competitive advantage in the marketplace.

Green Transformation Team Reshapes Reduction Goals

In pursuit of the 2050 global carbon neutrality goals, LCY has taken a proactive approach, not only dedicating to the research and development of low-carbon products, but also leveraging material science innovation as a cornerstone in addressing climate change. To spearhead these efforts, the Green Transformation Team (GTT) was established in 2021 under the ESG Sustainability Strategy Committee (ESG SSC). Joey Lin, Vice President of Research and Development, has been appointed to chair this important initiative. This interdisciplinary team works across departments and business units to orchestrate comprehensive carbon reduction efforts. The focus is not only on fostering internal research and innovation, but also on cultivating collaborative partnerships to move the company and its employees toward net-zero carbon emissions.

Collaborating with Partners for a Green Energy Shift

In addition to making significant investments, LCY is actively working with suppliers to achieve our reduction goals. Data shows a steady decline in the coefficients of various energy sources purchased by LCY, including electricity and steam, indicating a successful transition to green energy and resulting reduction in emissions. Given these trends, LCY is confident that through continued investment and collaboration, we can achieve an additional 30% reduction in emissions.

In addition, green energy procurement is a key initiative for LCY. While this involves a thorough evaluation of pricing and energy sources by all team members to determine the optimal combination for a green energy plan, initial estimates indicate a 30% reduction in emissions by 2030. We anticipate the internal commitment will also inspire the development of other green energy solutions within the supply chain.

ESG Beyond Rhetoric: A Fundamental Pillar of LCY's Future

For LCY, ESG has moved from a cost center to a profit center. A case in point is LCY's active participation in the 2022 Sustainability Forum: Plastics in a Circular Economy, which highlighted our commitment to a sustainable future through discussions on high-performance recycled composites. The introduction of the "LCY Sustainable 6R" concept (Renewable, Recycling, Replace, Reduce, Repurpose, Recovery) aims to create a circular economy ecosystem that fosters collaborative efforts for a sustainable future. In the spirit of innovative chemistry, LCY employs recycling technologies for its electronic-grade isopropyl alcohol (EIPA). This process separates lower-purity, industrial-grade IPA from semiconductor wastewater for general industrial use. At the same time, the purification of this wastewater produces EIPA for semiconductor manufacturing, closing the loop and realizing a cradle-to-cradle circular vision.

81% Employee Engagement in 2022 & Supporting Young Talent with Scholarships

In addition to strengthening sustainable energy development and product innovation, we believe that employees are the foundation of a company's competitiveness. LCY conducts an employee engagement survey every two years, and the 2022 report highlights a global employee engagement rate of 81%, a notable 5% increase from 2020. The survey reveals three key attributes - a competitive compensation structure, international rotations with integrated cross-departmental training, and an uncompromising commitment to safety. In the current global landscape of talent acquisition challenges and widespread labor shortages, effective retention of key talent has emerged as a critical element of LCY's core competitive advantage in talent sustainability.



/ Message from the Chairman

LCY is also committed to giving back to the society. In November 2022, LCY Chairman Bowei Lee received an honorable distinction as one of the 2022 Industrial Technology Research Institute (ITRI) laureates. Taiwan's President Tsai Ing-wen personally presented medals and plaques to the newly appointed laureates in recognition of their outstanding achievements in technology innovation and industrialization. In his acceptance speech, Chairman Lee underscores the vital role of talent development, pointing out that the emerging generation of green-collar professionals is fundamental to both economic and sustainable growth. He pledges continued support through the LCY Education Foundation, which offers scholarships, sponsors youth-led research projects, and hosts forums with Nobel laureate-level discussions. These initiatives aim to inspire students to pursue scientific research and help young scientists build international networks.

Given the global momentum toward sustainability and talent development, companies today must navigate the delicate balance between sustainable energy practices and employee well-being. LCY is committed to redoubling its efforts to enhance business capabilities and competitiveness, collaborating across sectors to adopt cutting-edge technologies, while reinforcing the central role of its workforce. This commitment is consistent with the vision of achieving both global sustainability and business growth.

Chairman Tsai-Hsing Hung

TH Hung



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Stakeholders (Stakeholder Communication Channels)

LCY's ESG Sustainability Strategy Committee (ESG SSC) has conducted internal meetings to evaluate company operations and referenced the AA1000 Stakeholder Engagement Standards 2015 (AA1000 SES2015) to, thereby, identify nine major stakeholders: employees, customers, government agencies, communities, suppliers, investors, banks, the media, and academic institutes. We've collected feedback from all major stakeholders to understand their concerns and respond to their needs.



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Stakeholders	Communication Channel	Frequency	Topics of Concern
 Employees	Labor-management meetings	Quarterly	<ul style="list-style-type: none"> Information Security & Data Protection Business Ethics & Transparency Management of the Legal & Regulatory Environment Occupational Safety & Health Employment
	Employee Welfare Committee	Quarterly	
	Occupational Safety and Health Committee	Quarterly	
	Internal announcements: Emails, posters, digital bulletins	When necessary	
 Customers	Product consultation	Project-based	<ul style="list-style-type: none"> Business Ethics & Transparency Supply Chain Management Hazardous Waste Management Management of the Legal & Regulatory Environment Occupational Safety & Health
 Government Agencies	Official correspondences	When necessary	<ul style="list-style-type: none"> Chemical & Environmental Management Occupational Safety & Health GHG Emissions Hazardous Waste Management Business Ethics & Transparency

/ Identifying Stakeholders & Material Topics



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Stakeholders	Communication Channel	Frequency	Topics of Concern
 Communities	Meetings	When necessary	<ul style="list-style-type: none"> Chemical & Environmental Management Air Quality Green Products
	Factory visits for visitors including local residents and school groups	When necessary	<ul style="list-style-type: none"> Hazardous Waste Management Community Relations
 Suppliers	Audits for existing suppliers	When necessary	<ul style="list-style-type: none"> Hazardous Waste Management Chemical & Environmental Management Business Ethics & Transparency Occupational Safety & Health GHG Emissions
	Reviews for existing suppliers	Annually	
 Investors	Annual shareholders' meeting ¹	Annually	<ul style="list-style-type: none"> Supply Chain Management Business Ethics & Transparency Management of the Legal & Regulatory Environment Occupational Safety & Health Hazardous Waste Management
	Investor conference ¹	Annually	
	Financial performance report	Twice a year	
	Sustainability report	Annually	
 Banks	Meetings	Annually	<ul style="list-style-type: none"> Chemical & Environmental Management Energy Management Green Products Business Ethics & Transparency Management of the Legal & Regulatory Environment
 Media	Interviews (personal, written, phone)	When necessary	<ul style="list-style-type: none"> Hazardous Waste Management Chemical & Environmental Management Green Products Energy Management Water Management
 Academic Institutes	Meetings Factory visits for external visitors including school groups LCY Education Foundation scholarships & events	When necessary	<ul style="list-style-type: none"> Green Products Employee Training, Human Rights, Diversity & Equal Opportunities Chemical & Environmental Management Air Quality Water Management

¹ The subsidiary LCY Technology Corp. (LCYT) is a listed company. The annual shareholders' meeting and investor conference refer to that of LCYT.



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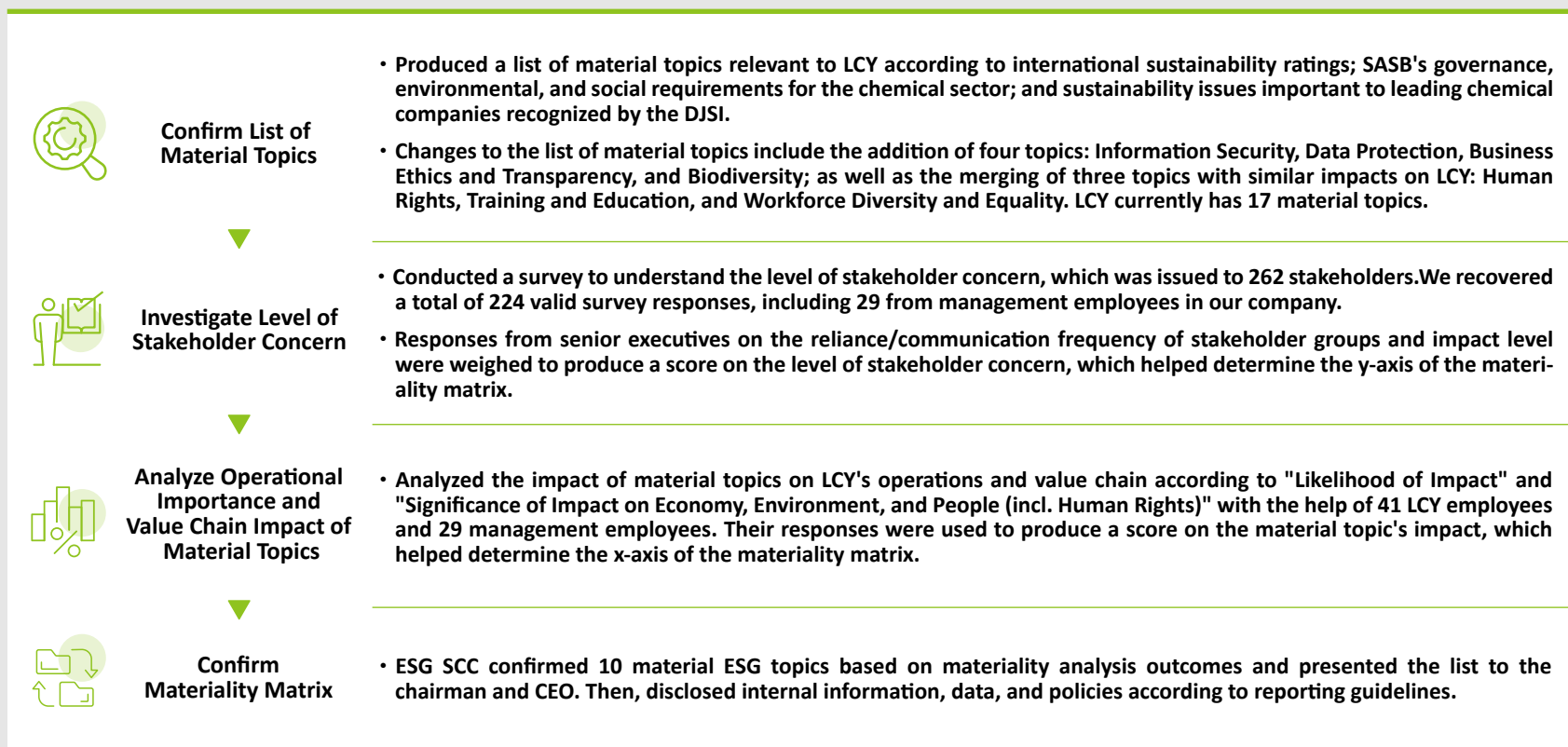
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Identification & Disclosure of Material Topics

LCY continues to keep a pulse on global sustainable development trends. To identify the following list of material topics relevant to LCY, we referred to the GRI Standards published by Global Reporting Initiatives (GRI) and the guidelines for the chemical sector set forth by the Sustainability Accounting Standards Board (SASB) for material topics of concern. In addition, we also looked at international sustainability ratings and industry benchmarks. In 2022, we re-evaluated material topics through our identification process, which was confirmed by our

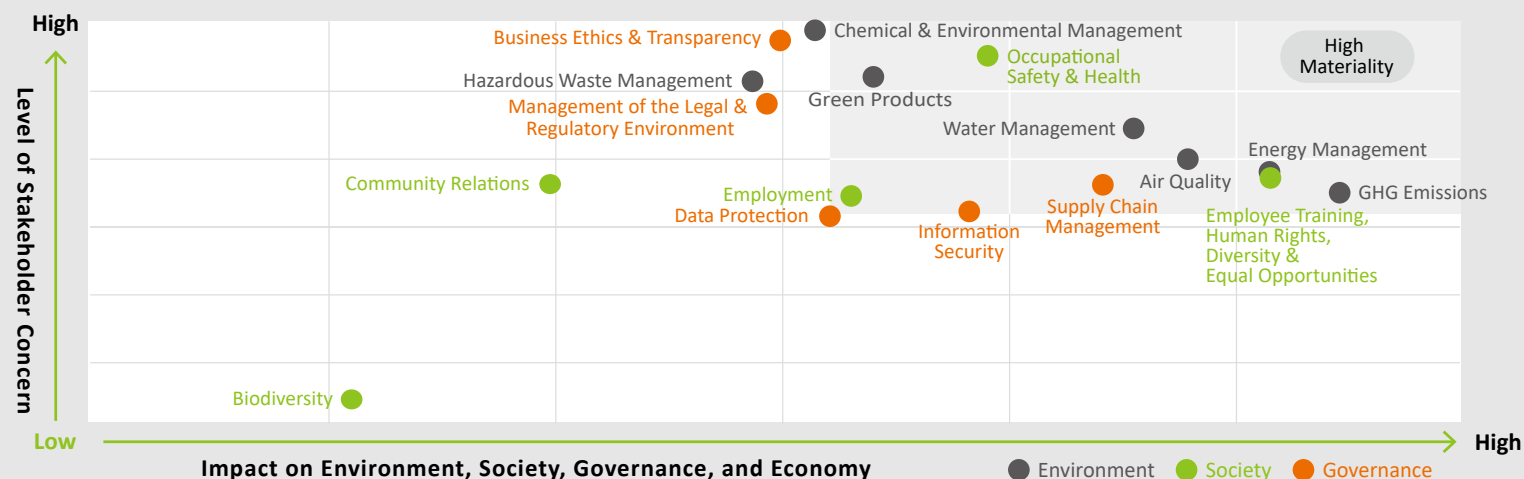
ESG Sustainability Strategy Committee (ESG SSC). For this identification process, a total of 262 stakeholders were invited to fill out a survey, and a total of 224 valid survey responses were recovered. This report elaborates on the policies and relevant actions of these topics in corresponding chapters based on their relevance. LCY will regularly evaluate material topics every two to three years. During this period, LCY will continue to collect and respond to stakeholder feedback and suggestions through diverse communication channels.

Identification Process



Identifying Stakeholders & Material Topics

Materiality Matrix



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Explanation of Changes to the Material Topics Disclosed in 2022

Survey Topic	Material Topic		Reasons
	2021	2022	
G Supply Chain Management	X	✓	Added Stakeholders, especially Customers and Investors, have shown an increased level of concern for a reliable source of raw materials. LCY will continue to optimize management systems to stabilize raw material supplies and sources in compliance with regulatory requirements.
S Employee Training, Human Rights, Diversity & Equal Opportunities	X	✓	
E Hazardous Waste Management	✓	X	Removed LCY has systems in place to manage, handle, and reduce all waste produced throughout our operations. We also work with our value chain to recycle and reuse waste across different industries. As such, this year's analysis shows that this is no longer a material topic but we will continue to observe its impacts.
E Chemical & Environmental Management	✓	X	
G Management of the Legal & Regulatory Environment	✓	X	

Note: Economic performance is result-oriented and included in general disclosures. It is also regularly disclosed in our sustainability report and annual reports and was therefore omitted from our survey topics.

Explanation of Material Topics and Its Boundary



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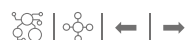
Material Topics ¹	Significance to LCY	Significance of Impact			Potential Impacts from LCY & Value Chain on Economy, Environment, and People (incl. Human Rights)	Related Topic(s)		Major Policies (Related Chapters)
		Suppliers	LCY	Customers		SASB	GRI	
E GHG Emissions	Increasing global emphasis on climate change, stricter control imposed by government regulations, and impacts from the upcoming CBAM in the EU and carbon fees in Taiwan mean that GHG emissions and energy management will now have financial implications beyond existing environmental impacts. GHG emission audits, energy audits, and reducing energy consumption and GHG emissions have become essential tasks on LCY's journey towards sustainable operations and enhanced resilience.	○	●	○	GHG emissions lead to environmental impacts such as climate change and global warming. In addition, when government agencies start collecting carbon fees and carbon taxes for GHG emissions, there may be added operating costs to companies, resulting in economic and financial impacts. If companies can engage with value chain partners for reduction measures, they can effectively mitigate environmental impacts and generate a better reputation for the company and its value chain.	GHG Emissions RT CH 110a.1 RT CH 110a.2	305: Emissions	3.3.1 Carbon Management
E Energy Management			●	○	Anomalies in power or energy supply may disrupt the operation of prevention and control equipment and have environmental implications. Additionally, such disruptions can lead to halts in production, erode customer confidence in placing orders, result in financial losses for the company, and adversely impact the company's reputation.	Energy Management RT CH 130a.1	302: Energy	3.3.2 Energy Management
S Employee Training, Human Rights, Diversity & Equal Opportunities	Strengthening the company's competitiveness and building a strong team is critical for achieving development goals and supporting growth for business scale. Employees are valuable assets. As such, we care about safeguarding employee interests, preventing injuries and poor health, valuing human rights, providing comprehensive training, offering career development goals, and ensuring diversity and equal opportunities so that employees find room for growth in their work and personal lives.		●		A robust training mechanism, a human rights-oriented environment, diversity, and equal opportunities for development can attract more talented individuals to join the company. This not only enhances employee morale and collaboration but also elevates the company's overall creativity, presenting opportunities for operational growth.	-	404: Training and Education 405: Diversity and Equal Opportunity 408: Child Labor 412: Human Rights Assessment	4.1 Human Rights Policies 4.4.1 Talent Cultivation Policies
S Employment			●	○	A lack of emphasis on employee welfare and the absence of communication channels for employees may lead to labor disputes, subsequently affecting company operations and causing financial losses.	-	401: Employment	4.3 Employee Welfare
E Air Quality	Failure to properly manage pollutants generated during manufacturing processes may impact surrounding environments. In 2015, Taiwan launched phase one of the "Kaohsiung-Pingtung Air Quality Total Quantity Control Plan." Failure to comply with the total quantity control requirements may lead to impacts on company operations.		●		Improper operation or malfunctions in air pollution control facilities that result in the emission of pollutants exceeding regulatory standards may have negative impacts on the environment. This not only exposes the company to potential penalties but also jeopardizes its reputation, leading to financial losses.	Air Quality RT CH 120a.1	305: Emissions	3.4.1 Air Quality Policies
E Water Management	In recent years, climate change has severely impacted our planet, with growing reports of heavy rainfall and droughts around the world. Water risks may have serious impacts on company operations. Effective water management is therefore a critical task for sustainable operations.		●	○	Anomalies in water supply may potentially impact production capacity, leading to a halt in production. This, in turn, can erode customer confidence in placing orders, result in financial losses for the company, and have an adverse impact on the company's reputation.	Water Management RT CH 140a.1 RT CH 140a.2 RT CH 140a.3	303: Water and Effluents	3.5.1 Water Policies

Explanation of Material Topics and Its Boundary

Material Topics ¹	Significance to LCY	Significance of Impact			Potential Impacts from LCY & Value Chain on Economy, Environment, and People (incl. Human Rights)	Related Topic(s)		Major Policies (Related Chapters)
		Suppliers	LCY	Customers		SASB	GRI	
G Supply Chain Management	To ensure the sustainable operation of our supply chain, we employ Environmental Standards to screen new suppliers and assess the entire supply chain. We require suppliers to collaboratively establish environmental, health, and safety (EHS) management systems, and to adhere to ethical practices such as anti-corruption and anti-bribery measures. This is aimed at minimizing potential impacts on the environment and society.	●	●	○	Disrupted supply chains and inconsistent raw material quality may potentially result in restricted production capacity and products failing to meet standards. This, in turn, can lead to financial losses and a loss of customer trust. Implementing effective supply chain management to maintain sustainable operations can stabilize the company's long-term performance, ensuring production continuity and boosting customer confidence, thereby yielding positive financial benefits.	-	308: Supplier Environmental Assessment 414: Supplier Social Assessment	1.4.2 Supply Chain Management Procedures
S Occupational Safety & Health	Potential risks to occupational safety and health in production processes or factory environments that, if not controlled, may result in injuries, fatalities, and other hazards. Ensuring workplace safety, developing safe, healthy, and comfortable labor environments, and continuing to reduce occupational incidence rates are the priorities for safe operations.	○	●		Failure to implement occupational safety regulations may potentially lead to occupational accidents, illnesses, and subsequent impacts on production and operations, resulting in financial losses.	-	Workforce Health & Safety RT CH 320a.1 RT CH 320a.2 403: Occupational Health & Safety Operational Safety, Emergency Preparedness & Response RT CH 540a.1 RT CH 540a.2	4.5.1 Occupational Safety Management
G Information Security	To safeguard sensitive data within the company, as well as data exchanged with customers and the supply chain, information security has become a crucial aspect of sustainable development. Failures in information security management may result in operational losses for the company and could even impact long-term competitive research and development capabilities.	○	●	○	Cyber attacks, employees inadvertently clicking on malicious links leading to the download of malware, or uploading confidential company information externally may result in the leakage of proprietary corporate secrets. This could impact the company's technological competitive advantage and lead to financial losses.	-	418: Customer Privacy	1.5.1 Information Security Policies
E Green Products	Progressively reducing environmental impact at all stages of the product's life cycle and creating economic value for customers are important pathways for the upstream industry chain toward a sustainable chemical future.	○	●	●	Committing to improving existing processes, developing green products, or fostering collaboration and actions with value chain partners may present innovative business opportunities in the face of climate change. This approach reduces environmental impacts from the value chain, generates positive financial benefits, and enhances the company's reputation.	-	Product Design for Use-phase Efficiency RT CH 410a.1 301: Materials 303: Water and Effluents	2.1.1 Innovative Management 2.2.1 LCY's Sustainability 6R

● Direct Impact ○ Indirect Impact

¹ The order of material topics is based on stakeholders' scores from highest to lowest.



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Governance



54 billion **Consolidated Revenue**

NT\$54 billion in consolidated revenue in 2022.

6% **Green Revenue**

Revenue from green products reached NT\$3,259,627,000, accounting for 6% of overall revenue.

↑ 88% **Innovative Materials**

The proportion of annual sales from innovative material products increased by 88% from the baseline year.

Environmental



↓ 14.0% **Carbon Emissions**

Carbon emissions from LCY locations in Taiwan, China, and the US decreased by 10.1% compared to the baseline year (2019), and 14.0% compared to the previous year (2021).

↓ 8.9% **Energy Consumption**

Energy consumption from LCY locations in Taiwan, China, and the US decreased by 8.9% compared to the previous year (2021).

Air Quality

↓ 14% **NOx Emissions**

Total NOx emissions from LCY locations in Taiwan, China, and the US decreased by 14% compared to the previous year (2021).

↓ 44% **SOx Emissions**

Total SOx emissions from LCY locations in Taiwan, China, and the US decreased by 44% compared to the previous year (2021).

↓ 10% **PM Emissions**

Total PM emissions from LCY locations in Taiwan, China, and the US decreased by 10% compared to the previous year (2021).

Social



> 59,000 **Employee Training**

Employee training reached 59,000 hours, with an average increase of 12.7% per employee from the previous year (2021).

146 **Flu Vaccinations**

A total of 146 employees received flu vaccines, fully funded by LCY, on a voluntary basis.

100% **Employee Health Checks**

In 2022, 100% of employees underwent health checks.

16% **Master's Degrees**

16% of employees have a master's or higher degree, which increased by 1% from the previous year (2021).

100% **Return Rate from Parental Leave**

100% employee return rate and 89% retention rate after parental leave.



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Strong Sustainable Governance

We are committed to establishing a strong corporate governance system, complying with laws and regulations at all of our locations, and implementing honest and ethical business practices. We are committed to building a corporate culture based on integrity and accountability. We will continue to implement the highest standards of business integrity at the operational level while formulating an effective governance mechanism. We aim to serve the long-term interests of the company and its shareholders while fulfilling the group's social responsibilities. Due to rising operational and transportation costs and a depreciated New Taiwan Dollar in the post-pandemic economic environment, LCY reported a consolidated revenue of NT\$54 billion and a consolidated after-tax profit of \$560 million in 2022.

54 Billion

NT\$54 billion in consolidated revenue

SDGs

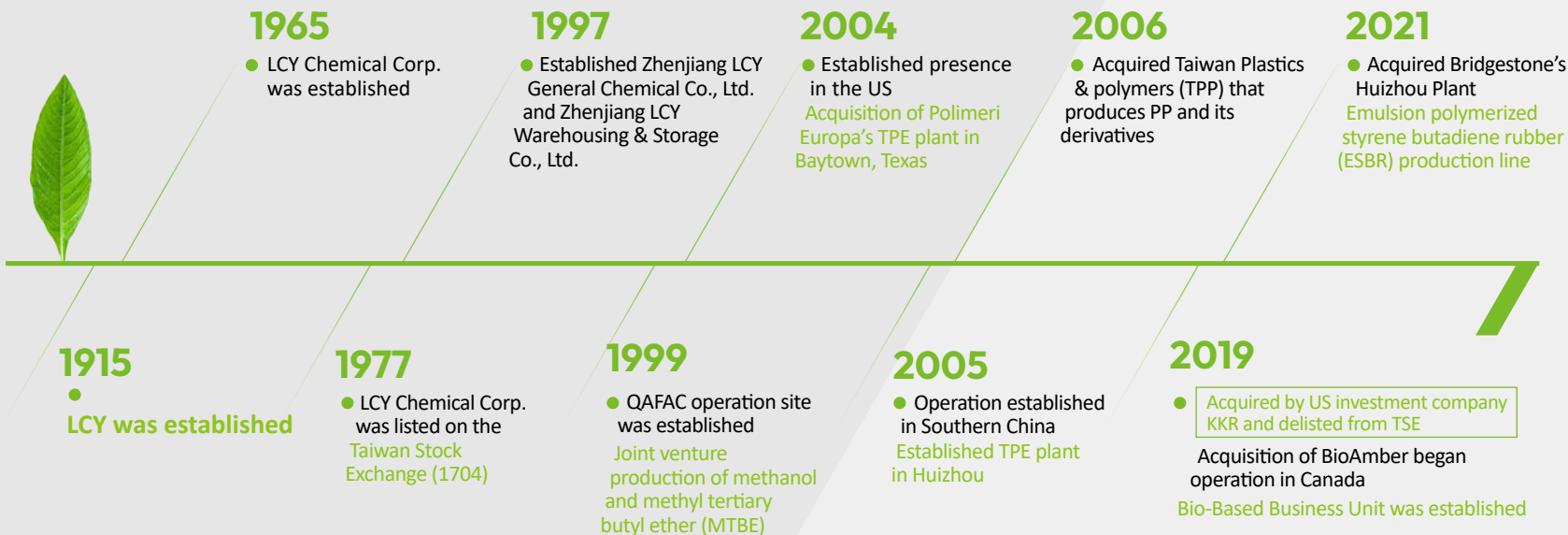


Supply Chain Management
Information Security

1.1.1 About Us

LCY is committed to value creation through scientific innovations. The Company's operational strategy is consolidated into the following six business units: Thermoplastic Elastomers, Performance Plastics, Methanol & Solvent & Water, Electronic-Grade Solvent Products, Bio-Based, and LCYT (Copper Foil Plant). LCY continues to expand in the field of materials science through corporate values centered on integrity, teamwork, innovation, and accountable leadership. Our operations

span Asia, North America, and the Middle East. Looking ahead, LCY will leverage our continued growth momentum to cultivate future materials science talent and lead industry transformation. To ensure a steady supply of raw materials for the US semiconductor industry, we maintain collaborative efforts with our value chain partners to establish a resilient supply chain.



\$ The Qatar location is a financial investment and is therefore not included in the disclosure report.



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Six Business Units



Performance Plastics

LCY is committed to developing unique and differentiated market-driven products. We strive to serve our customers in all aspects, including technical support, application development, new product R&D, market intelligence, and sales services.

- Polypropylene
- High-performance composite material



Thermoplastic Elastomers

LCY GLOBALPRENE™ is a styrenic block copolymer, also known as SBC. It is a type of TPE that is produced from styrene-butadiene or styrene-isoprene. SBC products have a wide range of applications.

- Thermoplastic elastomers
- Thermoset rubber



Electronic-Grade Solvent Products

LCY is the only manufacturing company in Taiwan that offers vertically integrated production of isopropanol (IPA) and acetone (DMK) for electronics manufacturers. LCY offers a high-purity product portfolio (control limit < 0.1 ppb) and recycling service for EIPA and EDMK.

- EIPA
- EDMK



Methanol & Solvent & Water

LCY has achieved a global presence in the production of pentaerythritol, paraformaldehyde, and isopropanol, solidifying its position as a key player in the international chemical industry. In 2016, LCY initiated research and development on MBR, facilitating 100% recycling of wastewater from the manufacturing process. Advancing water recycling technology remains a focal point of LCY's ongoing efforts.

- Solvent
- Methanol
- EPPA-MBR



Bio-Based

LCY uses renewable feedstock rich in sugars and fatty acids to replace fossil fuels. We use proprietary yeast to produce the desired products through biotechnology.

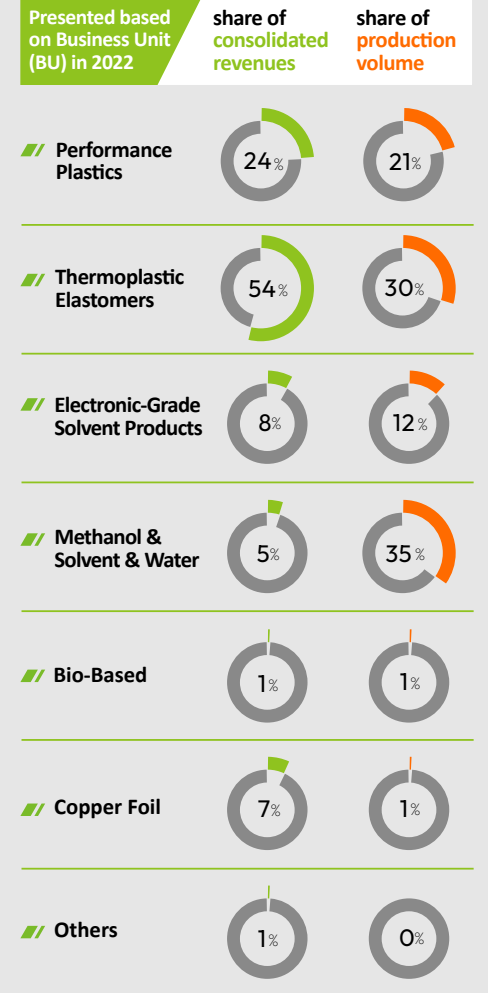
- Carotenoid
- Succinic acid



Copper Foil

We are the upstream material supplier for the printed circuit board (PCB) industry. LCY uses 100% reclaimed wire and cable as manufacturing raw materials. We have mastered key processes and technologies to develop next-generation copper foil with high density, thinness, and high heat resistance.

- High-quality thin foil technology



Note: The data includes Sarnia Plant in Canada

1.1.2 Company Performance

Due to rising operational and transportation costs and a depreciated New Taiwan Dollar in the post-pandemic economic environment, LCY reported a consolidated revenue of NT\$54 billion and a consolidated after-tax profit of \$560 million in 2022, a YoY decrease of 6% and 91% respectively.



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2022



292
Capital



1,124,877
Corporate income tax



(132,395.20)
Net asset value per share
(Unit: NT\$)



53,974,148
Consolidated revenue



562,726
Consolidated after-tax earnings



3,310,884
Employee salary and benefits



8,107,796
Gross profit



56,272.6
After-tax earnings per share

Unit: Thousand

- Capitalization and after-tax EPS also changed in 2022 due to changes in the financial reporting boundary.
- The negative net asset value per share in 2022 is mainly attributed to unrealized losses stemming from financial assets assessed at fair value through other comprehensive income.

1.2.1 Corporate Governance

LCY is committed to establishing a strong corporate governance system, complying with laws and regulations at all of our locations, and implementing honest and ethical business practices. We are committed to building a corporate culture based on integrity and accountability. We will continue to implement the highest standards of business integrity at the operational level while formulating an effective governance

mechanism. We aim to serve the long-term interests of the company and its shareholders while fulfilling the company's social responsibilities. By establishing an appropriate internal control system, we can ensure that the company's internal rules are consistent with external regulations and are thoroughly implemented. This approach will reduce operational risks and achieve sustainable corporate governance.



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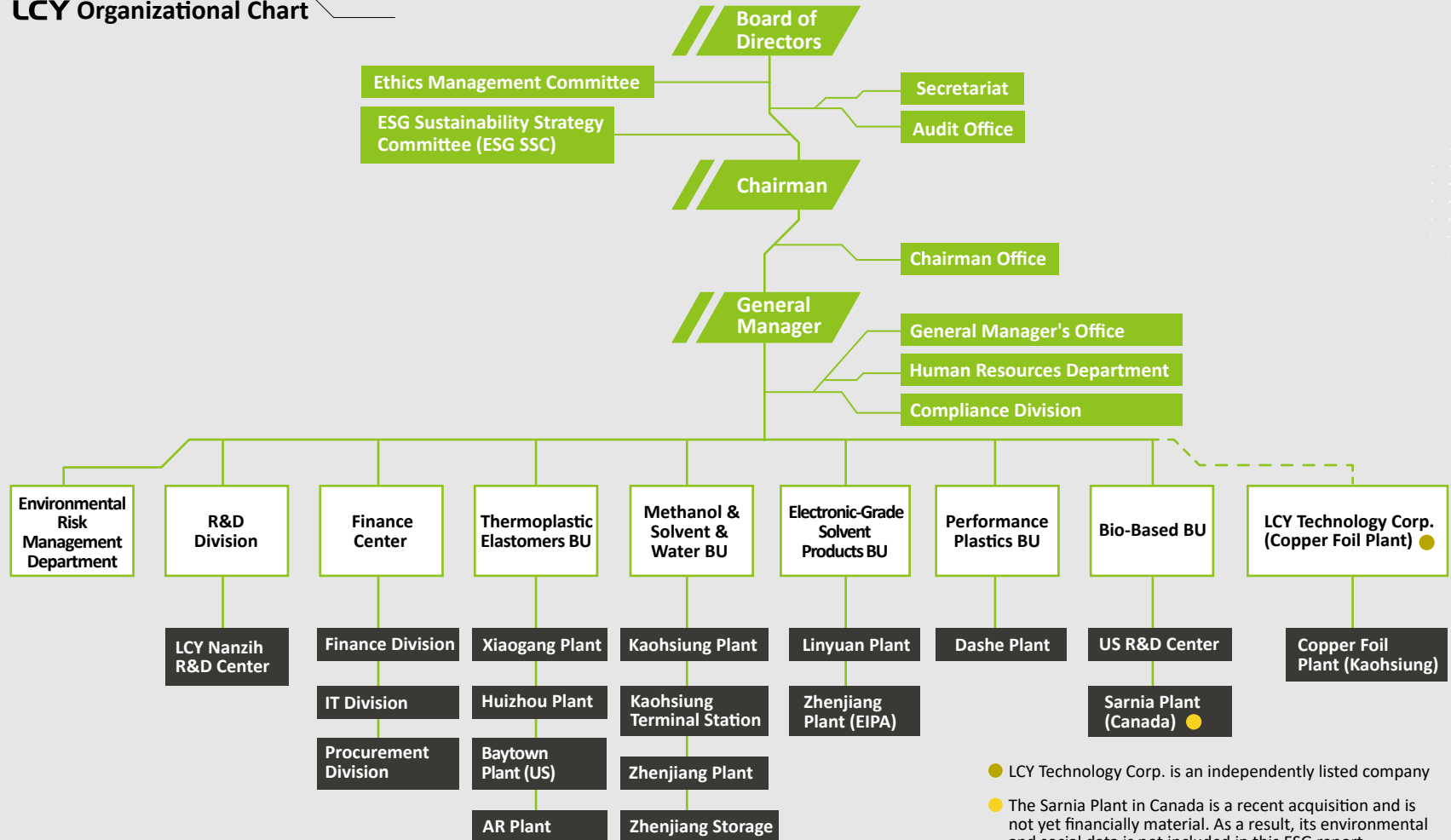
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LCY Organizational Chart



- LCY Technology Corp. is an independently listed company
- The Sarnia Plant in Canada is a recent acquisition and is not yet financially material. As a result, its environmental and social data is not included in this ESG report.

Board of Directors

The functional duties and powers of the shareholders' meeting of LCY Chemical Corp. are exercised by its Board of Directors. The Board is the highest governing body that is responsible for overseeing the overall operational responsibilities and evaluating the results of management's policy implementation. To ensure a robust and effective Board, the Board meets at least once a quarter to review business strategies and operational reports. The Board consists of three directors, each serving a three-year term. The directors are appointed by the company's juristic person shareholders and bring diverse expertise in business, law, finance, and accounting. In addition to their deep industry knowledge, the Board includes individuals of different nationalities, strategically selected to capitalize on their different perspectives on global market

trends. This diversity aims to cultivate a breadth of decision-making and perspectives. The chair is unanimously appointed by all directors and represents the company in carrying out various business functions. The directors must adhere to LCY's Codes of Ethical Conduct and Anti-Bribery Policy. As of 2023, they have collectively signed the Anti-Bribery Management Compliance Statement and are prohibited from participating in situations that could pose a conflict of interest with the company. The directors undergo comprehensive corporate governance training, including Anti-Corruption and Anti-Bribery Advocacy, as well as Prevention of Insider Trading, Changes in Insider Shareholding, and Short-Term Trading. The Board convened eight times in 2022, with an average attendance rate of 100%.



Chairman **T. H. Hong**
Education MBA, Preston University, US
Gender Male
Age > 51



Director **Zhen Ji**
Education BS, Indiana University of Pennsylvania; MS, New York University; MBA, Kellogg School of Management, Northwestern University
Gender Male
Age > 51



Director **Charles Wei**
Education Bachelor of Business Administration, Fu Jen Catholic University
Gender Male
Age > 51



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/ 1.2 Sustainable Governance

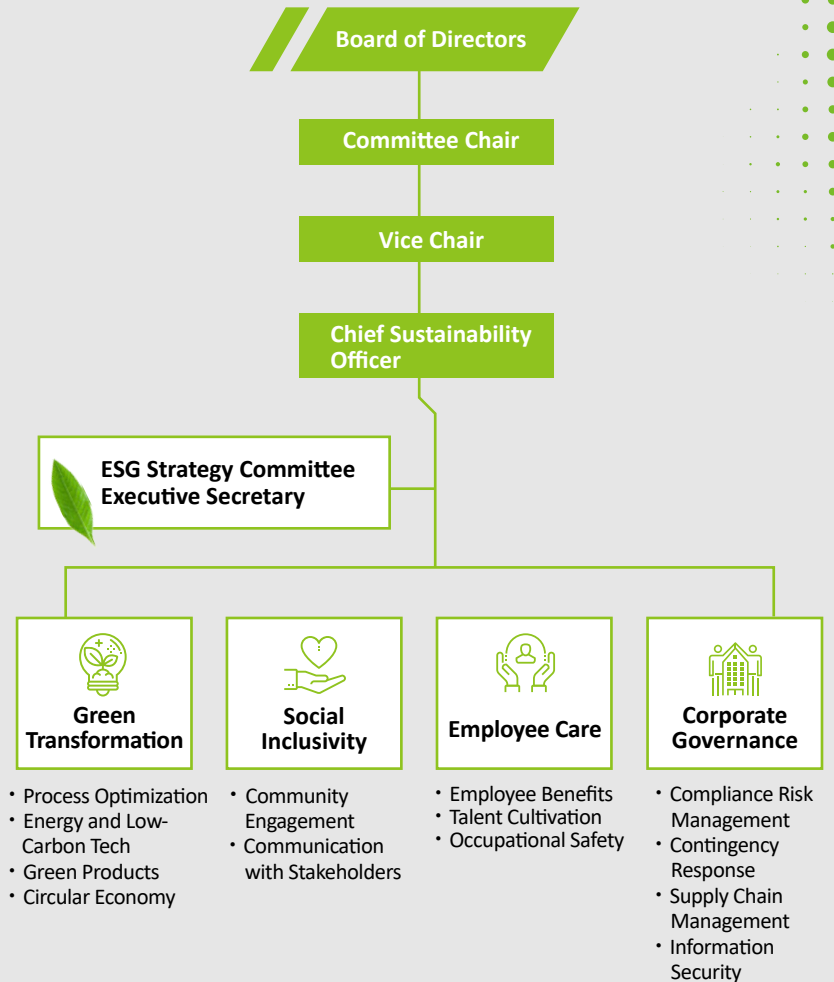
1.2.2 Sustainable Operations

LCY has established the ESG Sustainability Strategy Committee (ESG SSC) and the Ethics Management Committee, both of which report directly to the Board. These committees provide regular updates to the board and operate under its oversight. In addition, in order to enhance resource allocation and ensure efficient use of resources, the Board has the authority to establish additional functional committees as needed and deemed appropriate.

By establishing the ESG SSC, we oversee and manage areas such as environment, health and safety, corporate social responsibility, governance, sustainable development, and other relevant public policy issues. The committee is chaired by the chairman and vice-chaired by the chief executive officer. In 2022, the chief operating officer assumes the role of chief sustainability officer, providing regular updates to the Board and receiving oversight and input from the Board. The ESG SSC aligns our sustainable development plan with the core capabilities of the business. The directors further enhance their understanding, skills, and experience in sustainable development issues through regular updates provided by the ESG SSC. In 2022, the committee provided one report to the Board detailing the annual ESG plan formulation and its outcomes, which encompassed aspects such as carbon management and green transformation strategies related to carbon reduction.

The ESG SSC oversees four key cross-functional working groups: Green Transformation, Social Inclusivity, Employee Care, and Corporate Governance. These working groups bring together teams from sales, R&D, and manufacturing sites to collaborate on carbon reduction targets to mitigate climate risks. The ESG SSC has set mid-term targets to reduce carbon emissions by 30% by 2030 and long-term targets to achieve net-zero emissions by 2050. These targets have been approved by the Board of Directors. In 2023, the ESG SSC initiated the development of a carbon management platform, anticipated to be finalized by 2024. This platform will comprehensively monitor short-, mid-, and long-term objectives, emissions management, and carbon reduction projects. The ESG SSC remains committed to advancing green transformation and will consistently refine and evaluate ESG issues and strategies as part of its ongoing progress.

ESG Sustainability Strategy Committee (ESG SSC)



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In January 2022, the Board voted to establish the Ethics Management Committee, in line with international standards and the United Nations' advocacy for ethical corporate governance. This initiative is central to supporting LCY's sustainable development. The committee, which reports to the Board, is tasked with developing integrity management policies, anti-corruption/anti-bribery strategies, and overseeing the enforcement of the provisions set forth in Article 17 of the Ethical Corporate Management Best Practice Principles. The committee is required to report annually to the Board and to meet as needed.

The Ethics Management Committee is composed of heads from the Finance Division, the Human Resources Department, and the Compliance Division. The committee chair is elected by mutual recommendation of its members and is tasked with appointing a secretary to support its work. In 2022, the committee was chaired by the head of the Finance division. The committee held two meetings in 2022, with an average attendance rate of 100%.

Ethical management is an integral aspect of LCY's identity, ingrained in our corporate DNA. We uphold a firm zero-tolerance stance against bribery and corruption. LCY has made its "Ethical Corporate Management Best Practice Principles" publicly available on the official website, and internally, we've implemented measures such as the "Donation and Sponsorship Management Policy." In 2022, we took further strides by publishing the "LCY Employee Guidelines" and "LCY Regulations of Whistleblowing System" on our official website. This disclosure serves to inform and guide employees, subsidiaries, and external stakeholders in aligning their actions with the established guidelines. Additionally, LCY conducts ethics training for directors, employees, and external consultants, accumulating approximately 3,000 person-hours in 2022 with a 100% pass rate in assessments.

The company provides a reporting channel for individuals to disclose violations of ethical conduct, inappropriate behavior and bribery. Whistleblowers are encouraged to provide specific evidence and may choose to report anonymously or disclose their identity. The company encourages reports based on good faith or reasonable belief and ensures the confidentiality of the whistleblower's identity and the content of the report. It also guarantees that whistleblowers will not face undue consequences for their disclosures. Upon receipt of a report of unethical behavior, the CEO will direct the formation of a cross-departmental investigation team, including, at a minimum, the head of Internal Audit. The results of the investigation are then presented to the Ethics Management Committee for review.



By letter :

Ethics Management Committee, 3F, No. 85, Section 4, Bade Road, Songshan District, Taipei

By e-mail : gm@lcygroup.com

-  [LCY Ethical Corporate Management Best Practice Principles](#)
-  [LCY Trade Sanctions Compliance Policy](#)
-  [LCY Employee Guidelines](#)
-  [LCY Regulations of Whistleblowing System](#)
-  [LCY Human Rights Policies](#)
-  [LCY Anti-Bribery Policy](#)



1.3.1 Compliance Culture

LCY's Compliance Division, in accordance with the 2021 plan for the establishment of a compliance management system, has set 2022 as the first year for the implementation of compliance management systems at its operating sites in Taiwan. Based on the guidance of external consultants, the Compliance Division identified no more than 35 compliance risk areas to focus on. The division then initiated the "Review and Optimization Project of Existing Internal Regulations and External Legal Requirements," which covers a one-year period beginning in June 2022. This project mandates each responsible unit to optimize internal procedures and management measures related to compliance risks within its area of responsibility. To drive the project forward, the company conducted more than five large-scale seminars and workshops in phases. LCY consistently monitors domestic and international guidelines and regulations at all of its locations and has embedded compliance into the core of its corporate culture. Through regular sharing of regulatory updates, training, advocacy, and announcements, employees are kept informed and encouraged to comply, moving towards the goal of zero violations.

Concerning risk areas including anti-money laundering and trade sanctions, privacy and personal data protection, and fair trade compliance risks, the Compliance Division is closely working with the relevant units to review and optimize the electronic approval process for internal reporting. With a specific focus on LCY's operations in Taiwan, the division organized six seminars in 2022. These sessions, which featured both internal compliance experts and external lawyers as speakers, aimed to provide clear and explicit legal guidance to the company's employees to promote compliance implementation. Notably, there were no reported compliance incidents in these three risk areas in 2022.

In terms of corporate social and governance management, all units should conduct regulatory identification within their jurisdictions to discuss and formulate relevant operational management procedures. LCY subscribes to e-newsletters from government ministries and participates in external seminars to provide the latest regulatory trends, activities, and information to the relevant business units. The company also provides training and information updates to employees. With respect to EHS compliance, each unit is responsible for identifying EHS regulations. Regulatory identification, including collection, logging, identification, verification, and filing, must be performed in accordance with the facility's environmental and occupational safety management system. Responses to significant changes in regulations should also be implemented. Echoing the global net-zero trend, Taiwan's Climate Change Response Act and Renewable Energy Development Act are becoming increasingly stringent. LCY continues to strengthen the EHS regulatory management system of our domestic plants and conduct regular internal audits. Furthermore, LCY continues to support and participate in global sustainability initiatives to establish an international EHS regulatory management system.

LCY's Taiwan-based operational sites follow the ISO 27701 Privacy Information Management System (PIMS). The Personal Data Management Committee conducts the following tasks on an annual basis: (1) supervise each division to conduct departmental personal data inventories, (2) hire third-party vendors to conduct internal audits and risk assessments, (3) conduct emergency response drills, (4) provide educational training, and (5) present annual execution reports to management during review meetings. In 2021, the company successfully established the Anti-Money Laundering System (AML system) in Taiwan. Following this, the system was gradually implemented across physical entities in China, the United States, and Canada throughout 2022.



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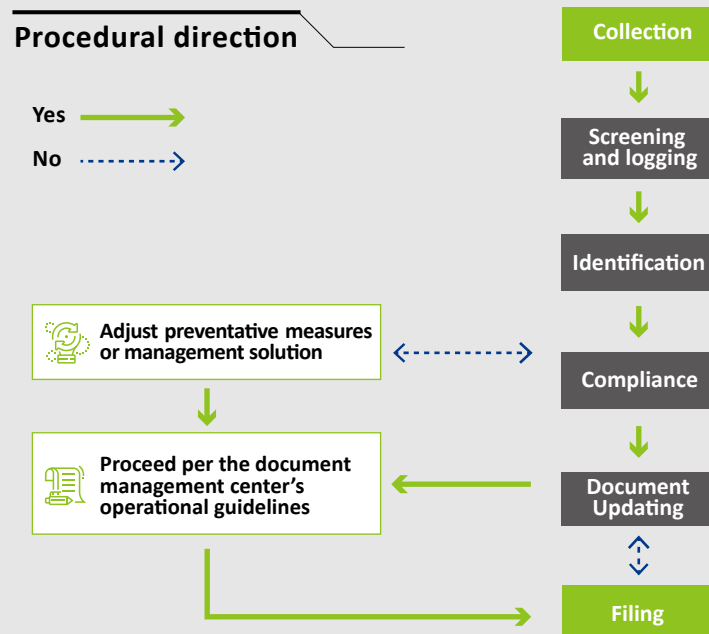
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Regulatory Compliance

In keeping with our core value of being compliant while providing high-quality products and services, LCY ensures that our operations are adjusted in accordance with regulatory changes to meet the latest policy trends. In recent years, regulatory authorities have strengthened their oversight of harmful air pollutants by implementing new emission limits for stationary pollution sources. They have also raised standards for water discharge and established more rigorous targets for energy conservation and carbon reduction. In response, our facilities have adopted a range of measures. These include transitioning to cleaner fuels, such as replacing heavy oil with natural gas, installing enclosed hoods to collect emissions in production lines, optimizing processes, and upgrading to more energy-efficient equipment. In addition, all of our facilities comply with the Regulations of the Labor Health Protection, which require plants with more than 50 employees to appoint dedicated medical personnel to provide on-site clinical services. In 2022, there were four cases EHS regulations violation, all of which have been resolved. Out of the four cases, three were related to the environmental aspect, while one was related to the socio-economic aspect. Please refer to [3.1.2 Environmental Regulatory Compliance](#) for further information regarding the three environmental-related violations and their subsequent improvement measures. Please refer to [4.5.1 Occupational Safety Management](#) for further information regarding the socio-economic-related violation.

1.3.2 Risk Management










LCY prioritizes meeting the needs of stakeholders and ensuring the quality of our services. Our commitment extends to identifying and promptly responding to both internal and external risks. To support the company's growth and maintain sustainable operations, we have implemented a comprehensive risk management system. Emphasizing the significance of risk assessment, our Environmental Risk Management Department, overseen by the Board of Directors, takes charge of presenting and managing all risk-related matters at the highest management level. Urgent crises that have become the focus of global attention are also listed as a material emerging risk, with necessary response measures implemented. In early 2022, the onset of conflict between Russia and Ukraine, coupled with China's rigorous implementation of its "zero-COVID" policy, caused disruptions and shortages in the global supply chain. These disruptions led to significant price volatility for key commodities such as metals, grains, and crude oil. Procurement responded by closely monitoring trends in

raw material prices and supply factors, considering logistics conditions, and maintaining close communication with factories. In order to adapt to the evolving situation, safety stock levels were adjusted in a timely manner. In addition, negotiations were initiated with suppliers to ask them to reserve inventory in advance or explore additional sources for alternative materials. These actions were taken to proactively mitigate the risk of material shortages in a complex global environment.

In the post-pandemic period, we implemented rigorous measures to ensure plant safety in terms of epidemic prevention. Operating within the approved workforce bandwidth, we adopted initiatives such as COVID screening before the conclusion of long holidays and facilitated remote work for Taiwan factories to minimize headcount and reduce operational disruptions. Utilizing our internal reporting and tracking system for effective management, we regularly convened meetings of the epidemic prevention team to devise strategies and made adjustments in response to the evolving situation.



Risk Categories and Audit Mechanism

Risk Category	Management Procedure	Audit Frequency	Highest Level of Risk Management
 Assets	<ol style="list-style-type: none"> 1. Finance Division's regular meetings 2. Board of Directors convenes quarterly 	Perform audits in accordance with the annual audit plan and daily audit activities. Track remediation of anomalies. Before issuing the report, communicate with the audited unit to verify audit-related matters. If found to be a material issue, it may be reported directly to the Chairman (quarterly/annually)	Finance Division's highest level of leadership
 FX Transaction			
 Investment	The Finance Department convenes quarterly		
 Regulatory Compliance	The Board of Directors convenes quarterly		Board of Directors
 Information Security	<ol style="list-style-type: none"> 1. The Information Technology Department meets twice a year 2. The Information Security Committee meets once a year 	Executed by the Information Technology Department; the Audit Office performs audits on the department's implementation and on-site sampling review (quarterly/annually)	Information Security Committee
 Environmental And Occupational Safety	The Environmental Risk Management Department meets on a monthly and quarterly basis.	The Environmental Risk Management Department carries out ad hoc inspections of the plants and conducts on-site sampling review	Environmental Risk Management Department's highest level of leadership
 Emerging Infectious Disease	Hold review meetings	ISO 45001 management review meeting	Environmental Risk Management Department & Human Resources' highest level of leadership
 Climate Change	Conduct consistent target reviews and risk assessments in conjunction with the ESG SSC	Consolidate the daily management activities of each plant related to climate change and energy issues, ensuring the quality and effectiveness of plan implementation. Provide a report to the Chairman every six months.	Board of Directors
 Ethical Management	The Board of Directors convenes annually	The Ethics Management Committee reviews and supervises the reported incidents	Board of Directors



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Risk Management Mechanism



Chairman (including Audit Office)

- Define risk management policy, structure, and culture.
- Ensure the effectiveness of risk management mechanisms and allocation of resources.



Senior leadership

- The general manager and vice manager of each business unit form the implementation coordination group.
- Implement the risk management policy as defined by the Board of Directors.
- Facilitate cross-departmental risk management interaction and communication.



Headquarter management offices

- The Environmental Risk Management Department is responsible for risk assessment, planning, and execution.
- Consolidate risk management activities' implementation results.
- Support and monitor the risk management activities of the company's branches and subsidiaries.
- Determine the risk categories and recommended risk assumptions based on environmental changes.
- Conduct risk-adjusted performance measurement and alignment.



Specialized staff

- Implement daily risk management activities.
- Conduct self-assessments of risk management activities.

Internal Audits

LCY refers to the “Regulations Governing Establishment of Internal Control Systems by Public Companies” to establish our internal control system. This is to reasonably ensure the effectiveness and efficiency of our operations, as well as the reliability, timeliness, transparency, and compliance with relevant laws and regulations. In response to mid-to-high-risk internal controls, departments are required to perform internal control self-assessments. The purpose of this process is to confirm the effectiveness of internal control systems and the reliability of corporate governance. Each year, the Audit Office determines the risk levels based on the actual audit results and the self-assessment results for the year. It then formulates the audit plan for the following year. On a quarterly basis, the Audit Office reports to the Board of Directors on the execution of the audit plan and the handling of significant anomalies.



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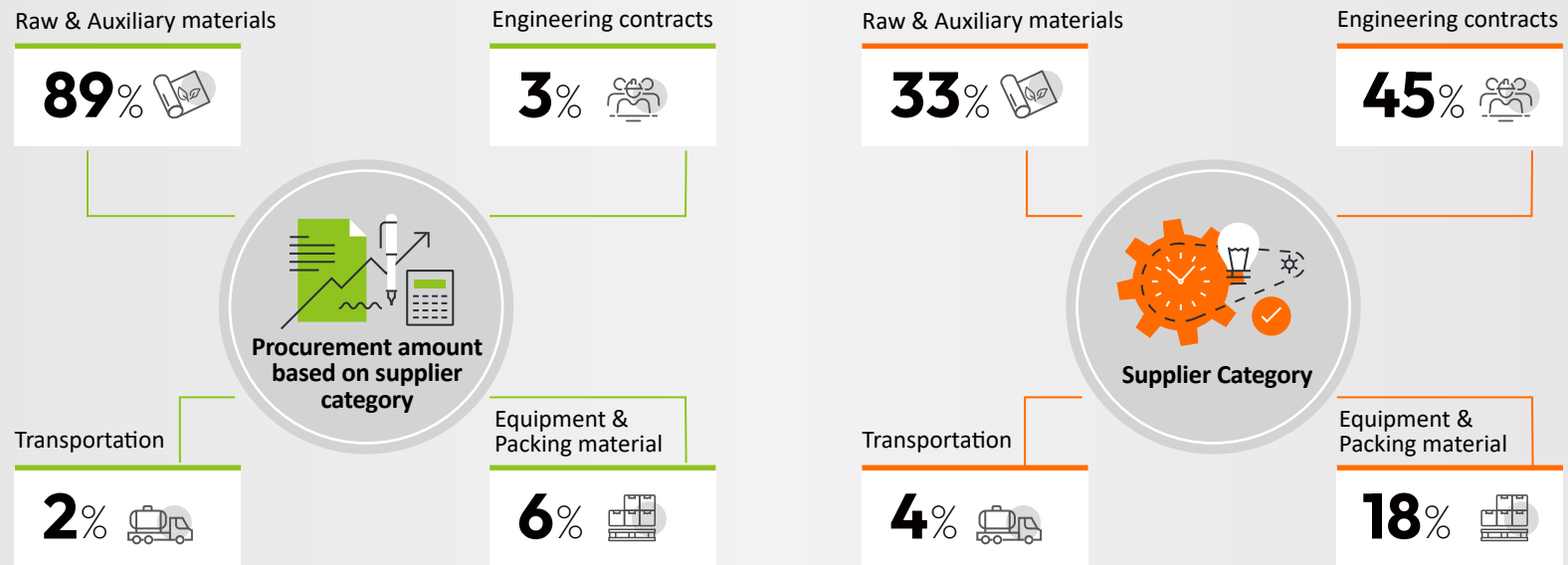
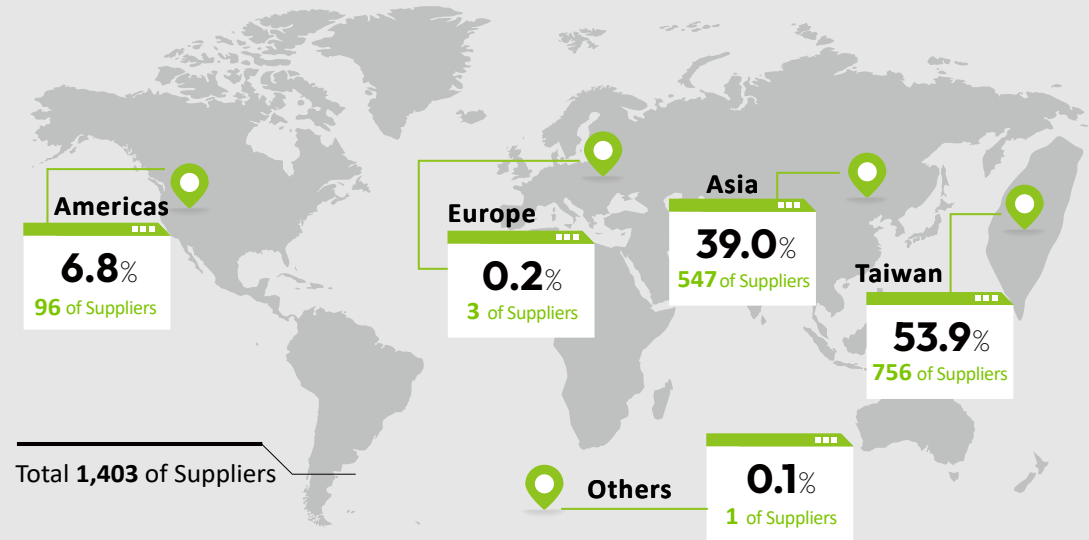
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1.4 Supply Chain Management

1.4.1 Supply Chain Overview

There are 1,403 suppliers providing products and services to LCY in its operations in Taiwan, China, and the United States. These suppliers can be categorized into four main categories: raw and auxiliary materials, equipment and packaging materials, engineering contracts, and transportation. The total procurement amount in 2022 was NT\$30,903,195,000, with "raw and auxiliary materials" being the largest procurement category, accounting for more than 90% of the total procurement amount. Local procurement accounts for nearly 90%, mainly concentrated in Taiwan, Asia and the Americas.



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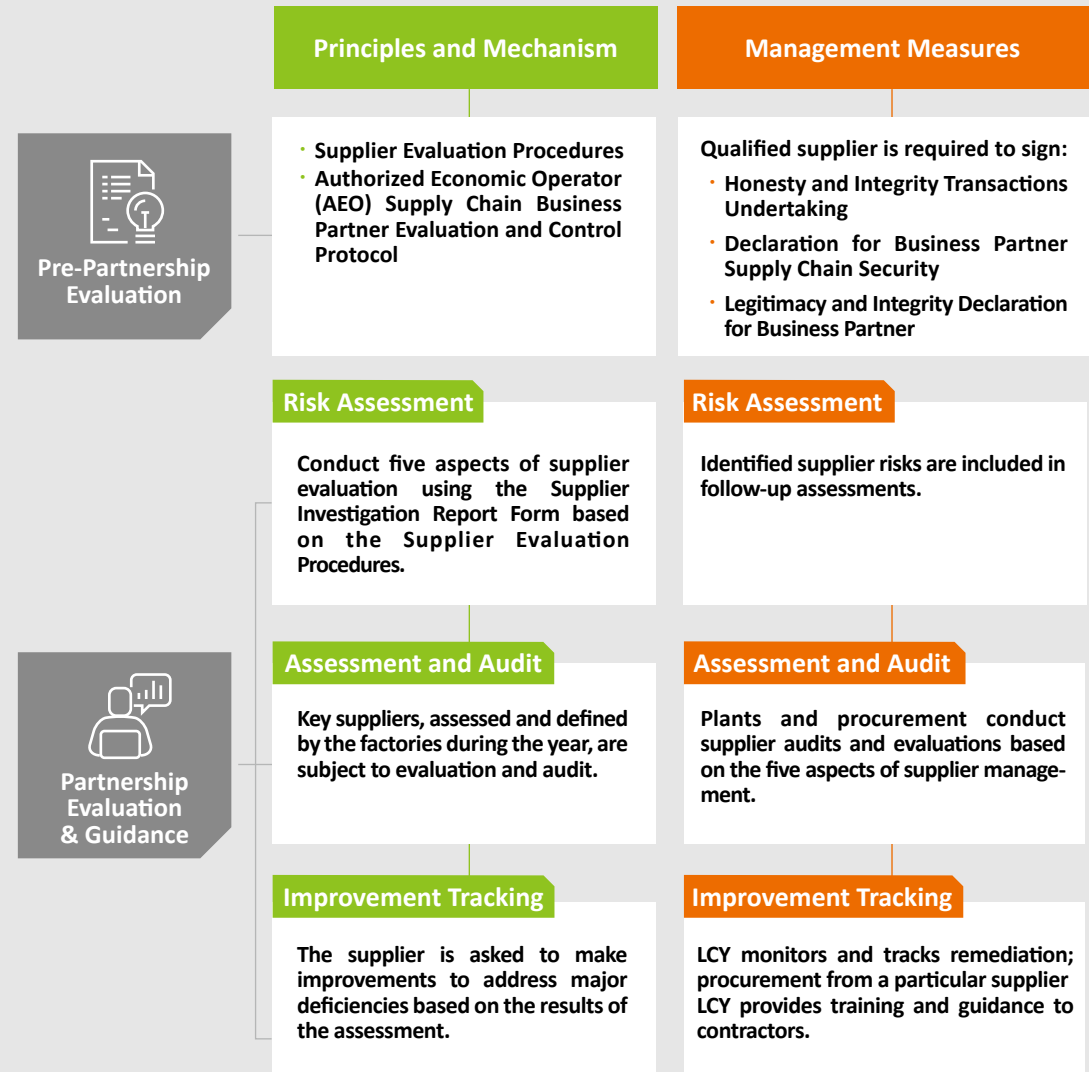
1.4.2 Supply Chain Management Procedures

Prior to formalizing agreements with suppliers, LCY conducts a thorough evaluation and communication process to assess supplier status and expectations. Suppliers are also required to sign the “Declaration for Business Partner Supply Chain Security” and the “Honesty and Integrity Transactions Undertaking.” Once the partnership is established, LCY maintains an open communication channel with suppliers through an annual audit and evaluation process to ensure the integrity of the supply chain operation. Throughout the partnership, LCY’s plants can report any issues related to quality, quantity, industrial safety, environment, and other aspects to LCY’s supplier management unit through internal communication channels for prompt resolution. In cases where employees are found to be disrupting procurement discipline, suppliers are encouraged to disclose such misconduct to LCY’s relevant management unit via mail or email, providing the supplier’s official name, contact information, and supporting records and evidence of the misconduct.



Reporting mailbox :
 P.O.BOX 36-587 Taipei Guangfu,
 Taipei City 105936 (Audit Office)
Email : gm@lcygroup.com

Supplier Evaluation and Management Protocol



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Evaluation of New Suppliers

LCY actively seeks new suppliers each year in response to user, policy, and product demand, as well as the departure of former suppliers. LCY serves more than 400 companies worldwide, many of which are world-class global manufacturers. As our customers strive to improve product and supply chain security, we are also committed to providing guaranteed services to our customers. LCY has established an internal "Authorized Economic Operator (AEO) Supply Chain Business Partner Evaluation and Control Protocol" in accordance with the "Regulations Governing the Certification and Management of Authorized Economic Operators" by the Customs Administration of the Ministry of Finance, which initiated the AEO mechanism in 2013. While integrating our internal principles to properly implement the AEO policy, we also conduct risk assessment and planning for new suppliers and apply the same standards to existing suppliers to fully implement our supply chain security management system. Preference will be given to suppliers with international standard certifications (including ISO 9001, ISO 14001, IATF 16949, ISO 45001, etc.) to improve the service standards of our supply chain. Additionally, considering the impacts of climate change on energy, greenhouse gases, and resources, we will continue to focus on suppliers with relevant international standards certifications (including ISO 50001, ISO 14064, ISO 14067, etc.) as means of evaluating the prioritization of partnership. For major raw material suppliers in the Copper Foil Plant, apart from completing the Supplier Social Responsibility Self-Assessment Questionnaire, suppliers should also provide a Declaration on Environment and Social Responsibility and an Agreement of Non-Use of Conflict Minerals.



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Evaluation Process of New Suppliers







Management of Carriers

Much of LCY's supply chain involves the transportation of chemical feedstocks and products. As a result, we emphasize the safety management of our partner carriers to ensure they are compliant. In accordance with our Management Guidelines for Transportation Operations, inspection procedures are in place to ensure the safety of product loading and unloading operations; the procedures cover transportation safety from the arrival of the carrier vehicle at the designated plant or location for pick-up/unloading to departure, as well as the notification process for transportation outside of our facilities.

Important Transportation Regulations

- 1 / Designated Routes for Tank Cars Transporting Hazardous Goods
- 2 / Regulations on the Professional Training for Personnel Road Transporting Hazardous Goods
- 3 / Regulations on the Management of Emergency Responders of the Toxic and Concerned Chemical Substances
- 4 / Regulations on Highway and Expressway Traffic Control
- 5 / Regulations for the Labeling and Hazard Communication of Hazardous Chemicals
- 6 / Regulations for Labor Safety of High-pressure Gas

Unit	Responsibility
 <p>Carrier</p>	<ul style="list-style-type: none"> • Ensure that industrial safety personnel and qualified drivers (certified with Hazardous Goods Delivery Personnel Training-Certificate) are in place • Conduct regular safety meetings between management and drivers • Conduct blood pressure and alcohol tests before each driver's assignment • Use GPS and CCTV to check the drivers' on-the-job performance • Conduct regular vehicle inspection and maintenance • Orientation and on-the-job training • Conduct an emergency drill every six months
 <p>LCY Factory - Facility Department</p>	<ul style="list-style-type: none"> • Inspect driver qualifications and vehicle equipment upon entry to the plant • Responsible for inspection before, during, after loading, and before leaving the factory
 <p>LCY Factory -Industrial Safety Division</p>	<ul style="list-style-type: none"> • Convene advisory organization meetings • Conduct driver training • Security guard observes if carrier driver is drinking and driving • Audit incoming vehicles
 <p>LCY Procurement Division</p>	<ul style="list-style-type: none"> • Conduct annual audits and evaluations on carriers



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Management of Engineering Contracts

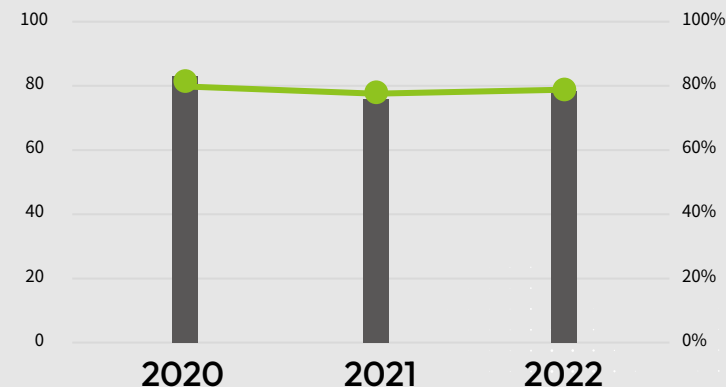
In 2022, LCY's Engineering Contracting Department started to develop an Engineering Information Management (EIM) platform that integrates electronic procurement approaches with the Engineering Project Management Information System (EPMIS) to improve operational efficiency. This initiative aims to establish transparent competition, foster trust among stakeholders (contractors), and subsequently strengthen safety and health management on projects. The platform is scheduled to go live by the end of 2023. Through this development, the company aims to cultivate a collaborative and trustworthy relationship with internal and external partners, fostering value creation.

In pursuit of environmental sustainability, LCY works closely with suppliers to build a green and sustainable chemical supply chain. We uphold shared ethical values and responsibilities throughout the procurement process and carefully select environmentally friendly raw materials. Adhering to the ISO 20400 Sustainable Procurement Guidelines, we aim to mitigate environmental risks and meet corporate sustainability responsibilities and goals. In 2022, two interior renovation projects were carried out using green building materials. These projects included the interior renovation and infrastructure construction of the PCMA plant at the Dashe Plant and the renovation of the restaurant and occupational safety training room at the Xiaogang Plant.



1.4.3 Supply Chain Audit

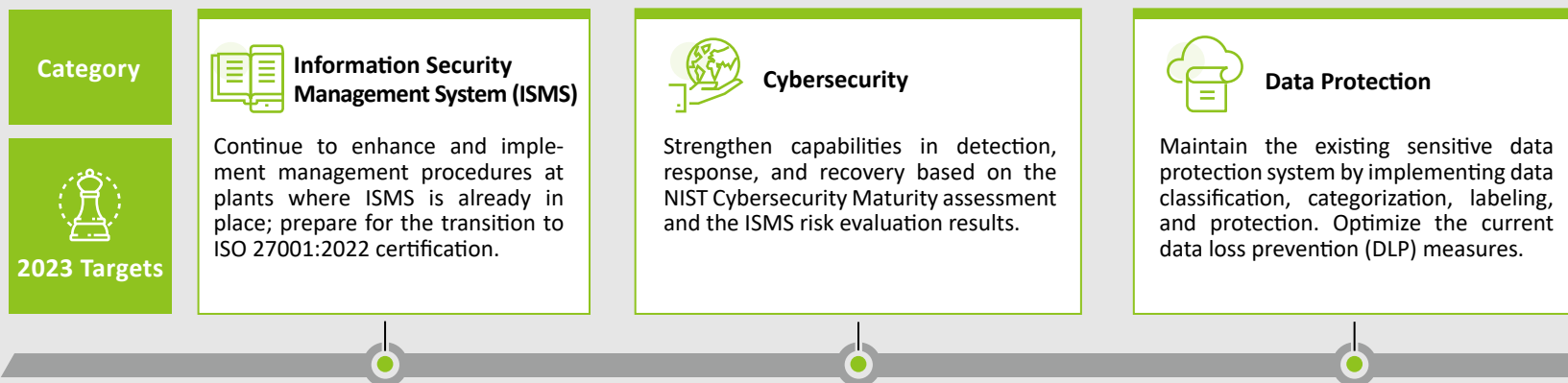
The Procurement Division is tasked with coordinating the annual supply chain audit for major suppliers. The determination of major suppliers is a collaborative effort involving the factory, quality control section, and procurement, considering the feedstock used throughout the year. All feedstock suppliers for medical-grade products fall under the category of major suppliers. The audit, assessing the five aspects of supply chain management, is conducted by the factory, quality control section, and procurement. In the event of significant deficiencies, immediate improvements are mandated from the supplier, closely monitored and tracked by LCY. No further procurement is allowed until the necessary improvements are implemented. Meanwhile, supplier assessments are conducted for the top 10% of suppliers with significant purchasing volumes at the Baytown Plant (US). In 2022, a total of 99 key suppliers were identified, of which 78 were audited, resulting in an audit rate of 79%. This represents a 1% increase from the previous year (2021). In 2023, there will be a continued emphasis on the supervision and management of suppliers to enhance the audit rate. We also aim to encourage suppliers to obtain ISO 9001 and ISO 14001 certifications to improve the quality of overall supply chain management.



No. of Audited Suppliers	83	76	78
Audit Rate	80%	78%	79%

1.5.1 Information Security Policies

Information security and the protection of sensitive data have always been a priority for LCY, one that is continually emphasized and strengthened. This commitment is a testament to our dedication to our clients and partners. LCY establishes and enhances systems and deploys information security tools based on differential analysis and risk assessment. This includes implementing information security governance, establishing protocols, integrating processes, deploying technology, and reinforcing staff training to ensure the security, effectiveness, and continuous availability of information.



1.5.2 Information Security Management Procedures

Our goal is to align information security governance with the organization’s vision and goals. We integrate information security management across four key dimensions, starting with project implementation and establishing a security organization and framework. This enables us to meet our management commitments and provide adequate resources. By incorporating risk management and integrating resource processes, we can assess the most cost-effective approach to achieving organizational goals and enhancing customer confidence. To enhance personnel awareness of information security, LCY conducts annual cybersecurity awareness training for all employees. This training aims to promote company policies, increase understanding of current trends and techniques in cyber attacks, and enhance employees’ ability to recognize social engineering attacks and phishing websites. The goal is to reduce the harm caused by errors in clicking, using, or entering information, ultimately boosting our defense against cyber threats. The company also elevates its ability to respond to cybersecurity risks through personnel and equipment upgrades. Regular social engineering drills, incident response exercises, and backup drills are conducted to

enhance corporate resilience, shorten response times, and improve the company’s ability to handle unexpected cybersecurity incidents. In an ongoing effort to continuously improve and adapt to evolving information technologies and the overall business environment, LCY plans to undertake the ISO 27001:2022 revision process in 2023, with a target completion date of 2024. This initiative is designed to meet current corporate information security requirements and objectives, ensuring the ongoing protection of both corporate and customer information.

Since 2021, LCY has been proactively identifying and managing business-sensitive data/documents from a data lifecycle perspective. Continuous efforts have been made to improve data identification, labeling, and protection. In addition, LCY has implemented DLP measures to achieve effective protection, detection, and response. This approach aims to protect both corporate and customer-sensitive data, ensure competitive advantage, and foster customer trust. Notably, the company reported zero incidents or complaints related to data breaches or loss of customer data in 2022.



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/ 1.5 Information Security

Four Areas of Information Security Management



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01 Establish InfoSec Organizational Structure

- Establish an Information Security Committee, with the Chairman/CEO serving as chair and deputy director, respectively. Convene regular committee meetings.
- Establish an Information Security Response Team and conduct annual drills.



02 InfoSec Risk Management

- Conduct regular audits and improvement tracking for the ISMS.
- Perform risk assessment.
- Conduct regular information security oversight meetings.



03 Enhance InfoSec Communication

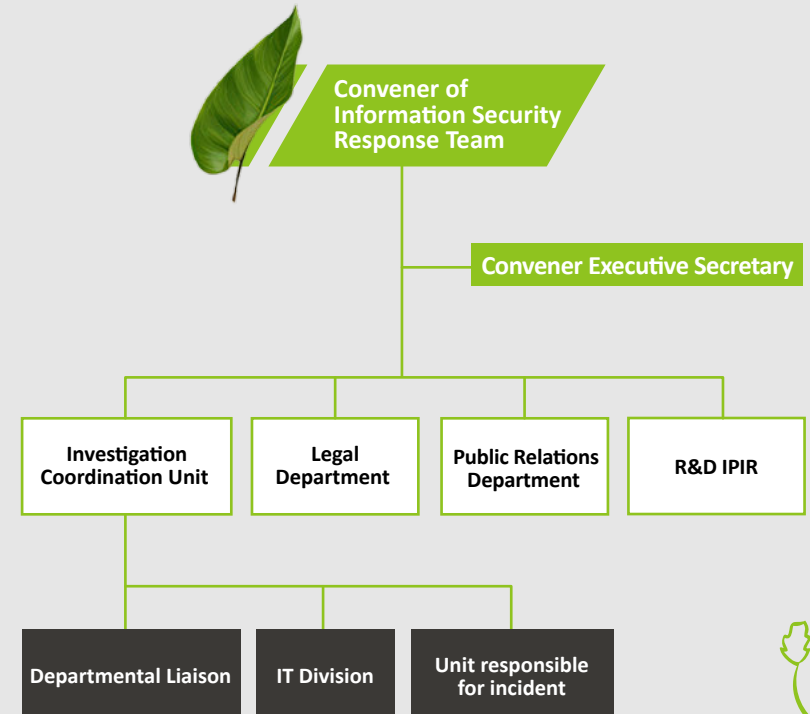
- Appoint an information security liaison in each department; strengthen cybersecurity promotion and project execution.



04 Personnel InfoSec Training

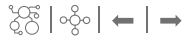
- Conduct annual cybersecurity awareness training for all employees.
- Evaluate and improve results through social engineering drills.

Information Security Response Team Organizational Structure



/ 1.5 Information Security

1.5.3 Information Security Implementation Results



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InfoSec newsletters and policy promotion

>180 times/year

Social engineering drills

10 times

Education and training

1 once a year

Cybersecurity response drills

100% unit participation rate

Education and training participants

>1,500

Information security liaison

>100

Social engineering drills

>2,500 accounts





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Leading Circular Innovation

LCY set up the first innovation hub in Asia for recycled materials in Nanzih, Kaohsiung as a platform for innovation, inspiration, and creativity. Devoting great effort to R&D innovation and increasing investments in equipment and facilities, we establish LCY Nanzih R&D Center as an international-grade innovation hub. At the same time, LCY also fosters R&D talent and employs almost 150 R&D professionals from fields such as chemistry, materials, chemical engineering, analysis, and even market development. Roughly 40% of the R&D Center staff hold doctorate degrees. Our employees aim for sustainability and circularity within the economy and the environment, and they are devoted as a whole to creating an industry value chain within the circular economy to ensure our vision for a greener future.

6%

Revenue from green products reached NT\$3,259,627,000, accounting for 6% of overall revenue

↑ 88%

The proportion of annual sales from innovative material products increased by 88% from the baseline year



SDGs



Green Products



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Achievements

	Short-term: 2020-2022 Targets	2022 Achievements
Proportion of annual sales from innovative material products	↑ 24%	↑ 88%
Annual sales of solvent recycling services	↑ 15%	↑ 47%
Total water recovery from using MBR products on the market	↑ 160%	↑ 167%

● Baseline year: 2019

Goals & Targets

As the previous short-term goals have expired, a new set of short-, mid-, and long-term goals have been redefined in this report:

	Long-term: 2050 Targets	Mid-term: 2030 Targets	Short-term: 2023 Targets
Proportion of annual sales from innovative material products	↑ 400%	↑ 290%	↑ 33%
Annual sales of solvent recycling services	↑ 115%	↑ 66%	↑ 27%
Total water recovery from using MBR products on the market	↑ 3,800%	↑ 1,160%	↑ 240%

● Baseline year: 2019

2.1 Cornerstone of Innovation

2.1.1 Innovative Management

Products R&D is primarily overseen by the LCY R&D Center. In addition to product development, the R&D Center also includes subunits developing other branches of the product series. Innovative products aim to enhance resource efficiency for clients through product, process, and business model innovation. Our R&D management, spanning six stages, integrates considerations like environmental health and safety, technological development, market assessment, patent risks, and compliance. This approach fulfills the fundamental requirements for managing the schedule, budget, and compliance of product development. In addition to the six-stage R&D management process, LCY has set up an intellectual property (IP) management system. As products progress in development, team members have the opportunity to submit patent and trade secret applications through LCY IP management for innovations with patentability and commercial value. This not only safeguards LCY's R&D achievements but also rewards inventors with bonuses. As of 2022, the number of total patent applications has reached 120, and from 2014 to 2022, over a hundred employees have received IP bonuses.

The Six Stages of LCY's R&D Management

- 0/ **Concept & Analysis**
 - Conduct preliminary market research, competitive analysis, and capability alignment to understand customer needs and market opportunities.
 - Perform Real-Win-Worth assessment analysis.
- 1/ **Market & Technology Concept Validation**
 - Conduct detailed market research and competitive analysis to understand customer needs and preferences, and identify the target market and positioning of the product.
 - Perform initial technical assessment and feasibility analysis.
 - Conduct preliminary business assessment and financial analysis, forecasting indicators such as product cost, price, sales volume, and revenue.
- 2/ **Product Development & Optimization**
 - Conduct prototype production, testing, modification, etc., to meet the customer's requirements for product specifications and performance.
 - Optimize the product, including improving quality, safety, production costs, etc.
 - Assess the feasibility of scaling-up production.
 - Conduct business model, value chain, and other analyses.
- 3/ **Trial Production Verification**
 - Initiate trial production and obtain customer verification. Determine product specifications and confirm the design and feasibility of scaling up the production process.
 - Develop a plan for commercialized production.
 - Formulate market entry and launch plans.
- 4/ **Commercialized Mass Production Validation**
 - Initiate commercialized mass production of the product and validate through customer verification.
 - Establish production facilities adhering to commercialized specifications (depending on the project).
 - Validate the market launch plan and establish a robust value chain.
- 5/ **Product Market Realization**
 - Commercialize the product and submit the product project to the BU.
 - The sales team devises a revenue acceleration plan.
 - Monitor whether sales revenue meets projected targets and conduct corresponding reviews.

Asia's First R&D Center for Recycled Materials

LCY has always been a proponent of innovation and the entrepreneurial spirit, and we prioritize value creation as our operational strategy to revolutionize resource use. LCY R&D innovation is also driven by significant momentum, with a team of nearly 150 experts spanning chemistry, materials, chemical engineering, analysis, and market development. From 2019 to 2022, accumulated R&D expenditure surpassed NT\$2 billion, including the inauguration of the LCY Nanzih R&D Center in 2019.

The design philosophy of the LCY Nanzih R&D Center incorporates safety, friendliness, creativity, and interactivity, serving as LCY's hub for circular material innovation. Over half of the research and development personnel are stationed here, with approximately 40% holding domestic and international doctoral degrees. With a focus on sustainable economic and environmental cycles, they contribute to creating value in the circular economy industrial chain, embodying the vision of a green future.

Platform for Innovation, Inspiration, and Creativity

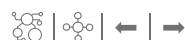
In addition to R&D management, LCY initiated a Platform for Innovation, Inspiration, and Creativity to encourage creative contributions from R&D personnel. This platform serves as a space for sharing innovative ideas, and concepts that pass the platform can enter the six-stage R&D management process. The continuous process of experimentation and implementation in product development is challenging but equally filled with innovation and enjoyment. Furthermore, incentives are provided to individuals who submit creative ideas to the platform. Researchers collectively vote for the best creative proposal every year. In 2022, award-winning proposals were TPV Outsole and a water-soluble formulation.

>>> TPV Outsole, Yi Han-Liou's Team

Through LCY's unique TPV dynamic vulcanization technology, we have created a green, eco-friendly, and safe thermoplastic rubber outsole material. It retains the characteristics of vulcanized rubber and exhibits plastic processing properties at high temperatures. This design allows for easy recycling of rubber materials, addressing the long-standing challenge in the footwear industry of difficult recycling due to the use of thermoset rubber outsoles. It opens up a new solution pathway, aligning with the concepts of green environmental protection, low carbon, and circular economy.

>>> Water-soluble formulation, Hsieh Cheng-Huan's Team

Developing a new generation of water-soluble formulation with the concept of green environmental protection and low toxicity. Through the physical properties and chemical reactions of solvents and additives, we formulate characteristics with high selectivity and exceptionally high purity. This meets the requirements of customers for advanced applications.



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2.2.1 LCY Sustainable 6R

LCY incorporates LCA (life cycle assessment) into fundamental product design. In accordance with universal standards or guidelines used in Taiwan and abroad, e.g.: Sustainability Accounting Standards Board (SASB), Restriction of the use of Hazardous Substance (RoHS), Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), etc., and in consideration of the characteristics and development of products at various departments, LCY has created the 6R Sustainability Strategy: Renewable, Recycling, Replace, Reduce, Repurpose, and Recovery. The 6R's are in order to ensure full utilization of resources during our manufacturing processes. Not only do we seek to minimize the environmental impact of our products, but we are also extending our impact to the consumer cycle as well. With our considerable capacity for R&D, LCY redesigns sustainable products that meets the needs of end users and successfully redefines our position and role within the industry. Revenue from green products reached \$3,259,627,000 in 2021, accounting for 6% of our total revenue.

Repurpose, and Recovery. The 6R's are in order to ensure full utilization of resources during our manufacturing processes. Not only do we seek to minimize the environmental impact of our products, but we are also extending our impact to the consumer cycle as well. With our considerable capacity for R&D, LCY redesigns sustainable products that meets the needs of end users and successfully redefines our position and role within the industry. Revenue from green products reached \$3,259,627,000 in 2021, accounting for 6% of our total revenue.



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Renewable

- Bio-succinic acid
- Carotenoid



Recovery

- Converting steam waste from China Steel Corporation (CSC) into heat energy for LCY



Repurpose

- Expanded Polypropylene (EPP)
- Thermoplastic vulcanisates (TPV) as a lightweight material for automobiles
- SBS GP-3760 for bitumen modification



Recycling

- EIPA Dual Cycle manufacturing creates a circular economy to reduce waste for the semiconductor industry
- Post-Consumer Recycled (PCR) Plastics
- PENTA-T1603
- TPV Outsole



Replace

- SEP GP-8501U for 5G communication
- Medical-grade SEBS GP-9645D



Reduce

- Energy-saving polypropylene ST860K, ST868K, ST869K
- Membrane Bio-Reactor (MBR)

2.2.1 LCY Sustainable 6R



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Renewable

Biomass

- Derived from natural and renewable resources such as plant starch, carbohydrates, and fibers
- Polymeric materials synthesized via direct microbial fermentation
- Waste that is biodegradable (to yield carbon dioxide or organic matter) under certain conditions
- Compostable



Recovery

- Use energy recaptured from the manufacturing process
- Convert energy waste (e.g., steam) into a product



Repurpose

- Make end products more lightweight
- Extend the life of end products
- Increase energy efficiency during product use
- Minimize environmental impact of manufacturing



Recycling

Converting waste into resources

- Materials or technologies for recycling or reuse
- Designing recyclable processes



Replace

Replace/avoid/reduce the use of risky materials

- Use of raw materials abides by international directives on banned or restricted substances, e.g.: RoHS, REACH, etc.
- R&D, replacing/avoiding the use of toxic substances.



Reduce

Reducing the environmental impact of manufacturing

- Reduce emissions of air pollutants such as sulfur dioxides (SO_x), nitrogen oxides (NO_x), and hazardous air pollutants (HAPs)
- Reduce water consumption or improve water utilization
- Reduce waste
- Reduce energy consumption

/ 2.2 Sustainable Products and Services

2.2.2 Innovation in Green Materials

Renewable Materials

- **Bio-Based Succinic Acid: Plant-Based Plastic Made Without Fossil Fuels**

LCY bio-based succinic acid can replace traditional plastics as it is fully degradable under normal temperature and pressure conditions. The material can be used in coffee cup lamination or packaging materials to reduce the carbon emitted when disposable coffee cups are incinerated. The world's largest coffee chain, major global brands, and worldwide coffee chains have all begun using succinic acid to laminate their disposable coffee cups. Bio-based succinic acid, unlike traditional chemical manufacturing processes, is created by bio-fermentation of

corn syrup. Specifically designed yeast converts corn syrup into succinic acid, which is further crystalized and purified from the fermentation solution. LCY bio-based carotenoids are used to create all-natural and plant-based Astaxanthin, which can serve as a natural vitamin or antioxidant as it is created from natural fermentation processes. Astaxanthin can also be used as a colorant for cosmetics and is already widely used in animal feed, food, and nutritional supplements.



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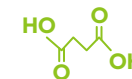
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Manufacturing Process of Bio-Based Products

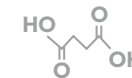
Bio-fermentation

Different types of yeast create different products

STEP 01 Cultivate corn STEP 02 Harvest corn STEP 03 Grind corn STEP 04 Fermentation STEP 05 Succinic acid



STEP 01 Crude oil extraction STEP 02 Naphtha cracking STEP 03 Butane oxidation STEP 04 Chemical processes STEP 05 Succinic acid



Synthesis via Traditional Fossil Fuel Manufacturing Processes

/ 2.2 Sustainable Products and Services

Upstream on the Industry Supply Chain (LCY)

Downstream on the Industry Supply Chain (Use of Raw Materials)



Plant-based renewable raw materials

Fermentation with specific yeast

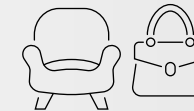
Succinic acid



1 Degradable food packaging



2 Shoe soles



3 Synthetic leather



4 Degradable fibers



Plant-based renewable raw materials

Fermentation with specific yeast

Carotenoids



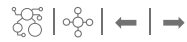
1 Beta carotene



2 Nutritional supplements



3 Natural Astaxanthin (colorant)



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Recycling

- **EIPA Dual Cycle manufacturing creates a circular economy to reduce waste for the semiconductor industry**

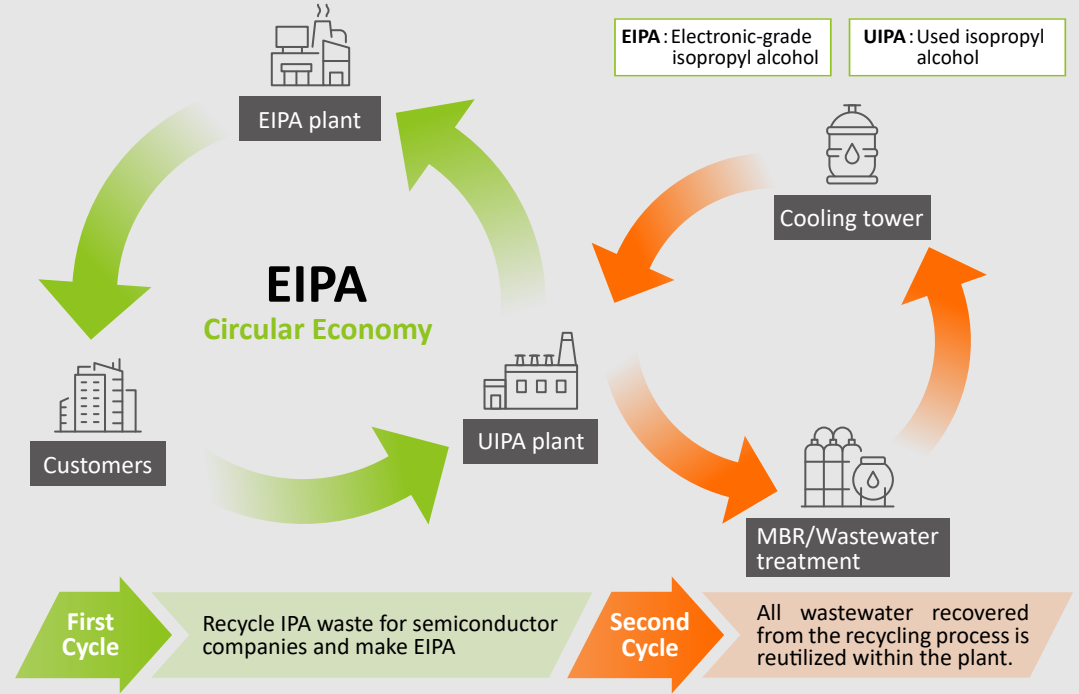
LCY is the largest manufacturer of EIPA (electronic-grade isopropyl alcohol) in Taiwan and the first to create a dual cycle system to recycle IPA waste liquid used in wafer rinsing. Isopropyl alcohol waste consists of 10wt% IPA and 90wt% water. Through LCY's proprietary process, used IPA can be repurified into electronic-grade IPA. LCY has also developed a special membrane bioreactor (MBR) and wastewater treatment system that filters and yields water for industrial use. LCY has successfully developed a revolutionary new waste recycling technology to assist downstream clients with recycling and reusing IPA waste. IPA is purified and reclaimed from waste liquids, then repurposed into new products. Water produced from the purification process supplies the cooling towers at LCY's Linyuan Plant to maximize resource utilization.

- **TPV Outsole - Recyclable, Next-Generation Sole for Footwear**

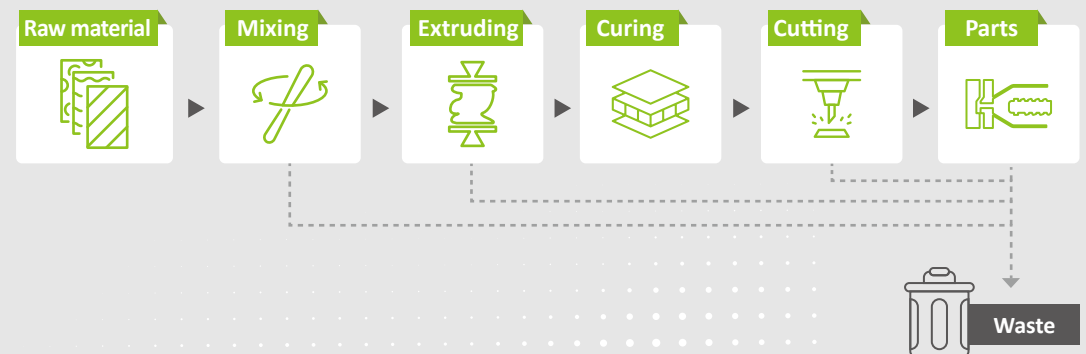
LCY has developed an eco-friendly rubber, Thermoplastic Vulcanizate (TPV), with a process that allows for the recycling of production waste, effectively reducing it by 5-10%¹. When footwear reaches the end of its life cycle, TPV material components can be recycled, estimated to reduce resource waste by 30%, saving approximately 50% of energy consumption². Unlike traditional thermoset rubber materials, TPV can be shaped through continuous injection molding, creating products with complex shapes and diverse colors, significantly reducing equipment and labor costs, and saving energy.

¹ National Taxation Bureau of the Central Area, Ministry of Finance (April 18, 2019). Material consumption levels in the footwear industry for the 2018 fiscal year.

² Soochow Securities Research Institute (April 10, 2017). In-depth report on thermoplastic elastomer.



Traditional Thermoset Rubbers — Linear Value Chain





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Replace

- **SEP GP-8501U for 5G Communications - A Safe Alternative for Chloroprene Rubber**

SEP GP-8501U is used in 5G infrastructure, specifically within fiber optical cable filling gels and special polymer thixotropy. It is also commonly used as a better substitute for animal-based thickeners to thicken and modify the rheological properties of grease. SEP GP-8501U can maintain function under harsh environmental conditions and has outstanding

heat resistance, thereby imparting the end product with desirable characteristics such as a longer life cycle, lower energy consumption, and less waste generation. SEP GP-8501U is also used as a modifier to improve the impact strength and low-temperature properties of commonly used plastics, establishing itself as a replacement for chloroprene rubber (CR) and polyolefin elastomers (POE). Chloroprene rubber contains halogens, which can pose as a health risk, and therefore, SEP GP-8501U is a safer substitute. Please refer to the following table for successful substitutions:

>>> Development of PFAS-free CPI Material for flexible displays

LCY's CPI is synthesized using alicyclic monomers instead of traditional fluorine-containing monomers to create a transparent substrate for transparent polyimide. It boasts excellent optical performance, high heat resistance, and outstanding mechanical strength without generating PFAS, making it eco-friendly. It can be used to replace traditional glass substrates in displays, particularly in applications like foldable and flexible displays.

>>> TMAH-free, low toxicity electronic - grade cleaners

TMAH can be absorbed through the skin and cause respiratory depression, making it highly lethal and there is currently no known antidote. In Taiwan, there have been several instances of improper use of TMAH leading to death. LCY developed a Non-TMAH Poly-Siloxane Remover, a TMAH-free cleaner that eliminates the risk of exposure to TMAH and has better cleansing properties.

>>> Replacement of toxic Potassium Dichromate, Potassium Chromate to reduce health risks

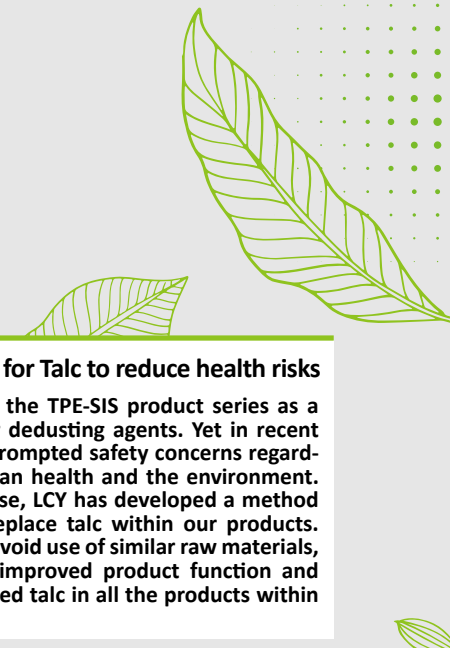
High concentrations of hexavalent chromium compounds, which are characterized as carcinogens, are commonly used in analytical formulations. The Linyuan Plant adjusted the analytical methods to avoid the use of listed toxic substances, effectively replacing their usage.

>>> Substitute for Talc to reduce health risks

Talc is added to the TPE-SIS product series as a raw material for dedusting agents. Yet in recent years, Talc has prompted safety concerns regarding risks to human health and the environment. To ensure safe use, LCY has developed a method to completely replace talc within our products. Not only do we avoid use of similar raw materials, but we've also improved product function and have fully replaced talc in all the products within the SIS series.

>>> Alternative for traditional PVC medical materials

Rubber products made with SEBS GP-9645D possess high transparency and excellent elasticity and can be used in medical tubing and films (e.g., IV bags). As it is halogen-free and does not require plasticizers, SEBS GP-9645D products can replace traditional PVC medical materials. The material is not easily degradable and exhibits excellent resistance to UV and ozone, as well as outstanding chemical stability.





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Reduce

- **New Catalyst - For Reducing Activation Energy in Reactions**

For more efficient chemical conversions, LCY is currently developing a new generation of catalysts with the goal of reducing usage to a tenth of the original amount. In addition to reducing the amount of catalyst added, improved conversion efficiency also simplifies the purification steps, leading to savings in materials and energy usage.

- **SBC Series - Rheology Modifiers**

SBC products can be added to recycled plastics to promote multiple recycling. GLOBALPRENE™ SEPS is a hydrogenated styrenic block copolymer with isoprene segments. After hydrogenation, the copolymer is composed of polystyrene(S) - polyethylene(E) - polypropylene (P)- polystyrene(S) and thus, abbreviated as SEPS. Hydrogenation SEPS virtually eliminates the double bonds in the diene molecules, significantly reducing degradation caused by O₂, O₃, and UV and improving the application temperature and transparency.

Reduce

- **LCD Display Alignment Films (TCA/TCAA) - Innovative Low-Carbon Rechnology**

LCY is actively developing electronic materials and relevant products with high technology thresholds. The R&D team has successfully developed mass production of TCA and TCAA, which are important raw materials for the application of alignment films in LCD displays. Our innovative process utilizes petrochemicals of lower economy value as starting materials and yields a 21% reduction in the amount of waste liquid produced during manufacturing compared to other processes (results from an LCY study). Also, special monomer design and patented formulation means that the transparent polyimide products that are produced do not require storage at low temperatures. It also can reduce the operating temperature for the customer, greatly decreasing energy consumption.

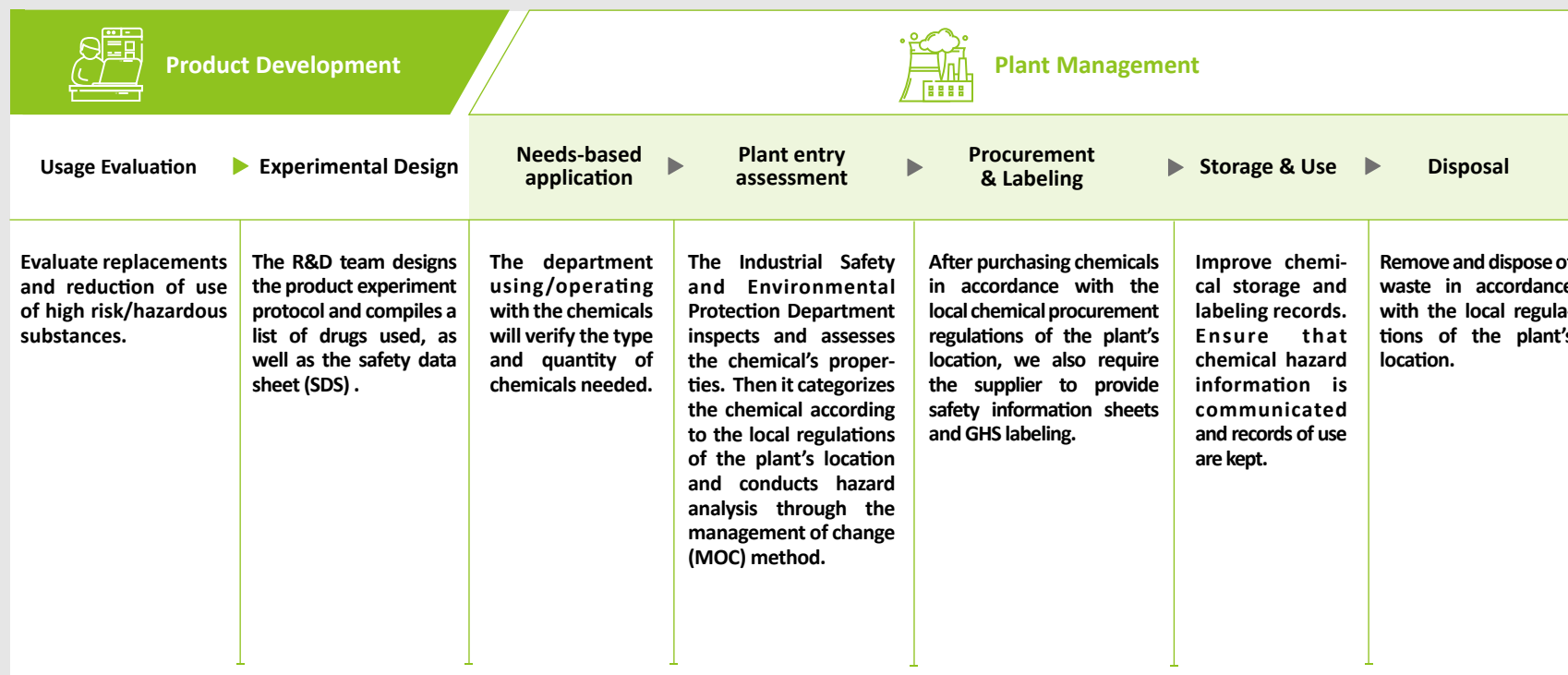


2.3.1 Chemical Management Protocols

Chemical management can be divided into two major management mechanisms: product development and plant management. Through these mechanisms, LCY is able to evaluate replacements and reduction of use of high risk/hazardous substances before the product enters official mass production. We also cooperate with the Industrial Safety and Environmental Protection Department to assess the hazards, health, and safety of our manufacturing environment and processes to ensure that LCY's operations and production will not be impacted in any way. LCY's Environmental Risk Management Department and the Industrial Safety and Environmental Protection Departments at each individual plant are the units primarily responsible for plant management. The Environmental Risk Management Department sets forth chemical management guidelines that begin when the chemical

enters the plant and encompasses the entire duration of its life cycle. The guidelines include five major management stages, from needs-based application, plant entry assessment, procurement labeling, storage and use, to disposal. LCY continuously monitors regulatory updates from the competent authority to understand the impact thereof within our plants, as well as to discuss response measures, to ensure that the chemical operations at each plant and relevant departments are carried out in accordance with local regulations. These efforts also safeguard the health and safety of our employees when using chemicals. In 2022, revenue from GHS Category 1 and 2 chemicals reached \$10,028,702,000, accounting for 18.6% of LCY's total revenue. All of these products must fully (100%) comply with LCY's requisite hazards and risk assessment.

Chemical Management Procedures



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LCY manufactures a wide range of products. Aside from various solvents and basic chemical materials for methanol derivatives, LCY also offers other product lines such as performance plastics, thermoplastic vulcanizates (TPV), and copper foils. These products do not pose a major risk to human health or the environment in and of themselves. Therefore, the assessment of hazard and risks of these chemicals are primarily focused on plant management, and risk management mostly addresses chemical properties, EHS risks, and process hazards, etc.

Chemical Hazards and Risk Assessment



Chemical Properties

- Categorize and manage chemicals according to chemical control banding (CCB) and risk levels.
- Compliance assessment of international banned/restricted substances directives such as RoHS, REACH, etc., safety data sheet update check, and chemical incompatibility check.



EHS Risks

ISO 45001 Risk Assessment and ISO 14001 Environmental Consideration: We regularly assess the risk level of possible sources of risks in our daily operations every year and prepare corresponding management measures.



Process Hazards

Process Hazards Analysis (PHA): We use the HAZOP (hazard and operability analysis) method to identify, assess, and control process hazards associated with the manufacturing, use, and storage of hazardous substances within plants.

2.3.2 Responsible Chemical Research

The use of chemical substances has become inextricably tied to every aspect of our daily lives. In the face of concerns with the safety of using various chemicals, LCY hopes to tap into our incredible R&D capacity to gradually reduce the use of high risk and highly controversial substances at our plants and in our products. We expect to do so through two major strategies: developing alternatives and substitutes, as well as innovating our manufacturing processes. Also, we will work with our clients and assist them with developing alternatives to decrease the potential impacts of various substances to human health or the environment.

2.3.3 Smart Chemical Management

The R&D Center adopted an online chemical management system in 2019 and has been steadily expanding system functions every year. The system utilizes AI technology and currently holds information on the properties of over 20,000 chemicals, allowing users to quickly look up the latest status and management of all chemicals held within the R&D center. The system's PDA and APP functions allow for quick and easy access to records, queries, and reviews of chemical operations, and a QR code function allows users access to information on the type, quantity, distribution, and hazards of all laboratory chemicals, anywhere at any time. By integrating this system with chemical control banding (CCB), we can effectively manage chemicals and exposure risks. We are streamlining the management hierarchy to have a more direct and real-time understanding of chemical operations within the factory, aiming to enhance productivity and allow the company to adapt swiftly to dynamic market environments. The early warning system allows us to monitor chemical manufacturing parameters in real-time.



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2.4.1 Digital Transformation Strategy

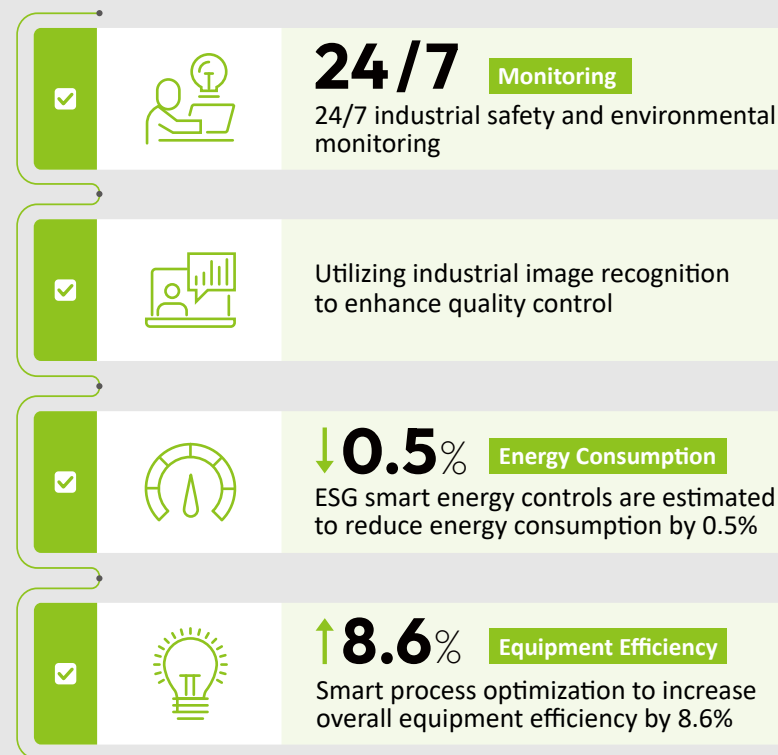
LCY has been actively making the digital transformation since 2014, focusing on cultivating top-down change in the digital mindset of our employees to integrate technological tools and conduct digital analysis. During the transition, we adopted the LCY Insights project and LCY AI School.

The LCY Insights project is tasked with implementing company-wide digital transformation and is dedicated to building a brand-new smart factory strategy platform. The platform shall gradually decrease dependency on manual information gathering, building a digital operational cycle: Data → Insight → Decision. This strengthens information visualization, automates reporting, and enhances real-time monitoring, promoting the company's goals of process safety, energy efficiency, carbon reduction, process optimization, and stable quality. It also aims to reduce operational risks, enhance resilience, and propel the company towards sustainable development. The annual LCY Insights Users Conference is an important driver for the company's digital transformation. It considers the maturity of digital applications across LCY's factory platforms, aligns with the company's operational strategy, and dynamically formulates corresponding themes. This conference leads employees to brainstorm together, facilitating the repetition of successful experiences through internal sharing and learning, maximizing the value derived from digital transformation. In response to the undeniable trend of ESG, the company integrates information from years of independently implementing greenhouse gas inventories, utilizing the reporting and analytical capabilities of Power BI. Through simulations, the company formulates a series of future carbon reduction strategies and directions. In 2022, the company has adopted the theme of Smart Manufacturing, AI Assistance, and Safety Culture Shaping, creating an action plan that balances intelligent production with factory safety.

Through a series of LCY AI School courses, we have delved deep into key areas of intelligent manufacturing in the chemical industry. These courses showcase the construction and application of smart machinery, with a particular focus on the strategic methods for AI implementation. In 2022, we trained 36 outstanding AI seed engineers, equipping them with enhanced capabilities to apply AI within the company. Through gradual guidance, we have deeply instilled the core values of big data and smart factories in each employee, inspiring creative solutions for the continuous cultivation of smart management solutions across plants. During the training process, active participation from each plant resulted

in every team completing specific AI projects. Employees gained new insights from the training, proposing more AI integration practices for factories and also doubling the number of proposals. We have integrated advanced and mature AI technologies to transform real-time process parameters into accurate predictions for product quality and optimal operating parameters, allowing for predictive maintenance of equipment and energy-efficient smart control of processes. Additionally, we have implemented projects such as anomaly detection and operational safety image recognition in the production process. This series of innovative applications not only enhances production safety but also brings significant energy-saving benefits. It ensures stable product quality and increased production capacity. Building on this foundation, we have created a smart manufacturing optimization solution that prioritizes safety, energy efficiency, and quality stability. We are incorporating more AI technologies into chemical manufacturing, guiding the future development direction of the company.

2.4.2 Digital Innovation & Application





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24/7 industrial safety and environmental monitoring

We are committed to enhancing safety monitoring and warning systems in industrial areas to ensure the safety of the production environment and the well-being of employees while maintaining environmental quality. Initially, for the propylene unloading area, we utilize image recognition technology to safeguard the safety of unloading operators. Automatic detection of individuals not wearing protective clothing triggers immediate alarms and records, significantly improving overall safety in the plant. Similarly, we have initiated a fire image recognition project at the Linyuan Plant. Utilizing surveillance cameras 24/7, we monitor fire situations continuously and promptly issue alarms when a fire is detected, ensuring timely response during critical moments and preventing significant losses. Beyond safety concerns, we also place a strong emphasis on environmental quality monitoring. We have established an air quality monitoring and warning system by obtaining real-time air quality information from external sources such as the Environmental Protection Agency and municipal governments, integrating it into our database. If the air quality exceeds regulatory standards, the system immediately issues alerts, ensuring the quality of the production sites.

Utilizing industrial image recognition, to enhance quality control

We are committed to leveraging advanced image recognition technology to drive the upgrade of quality control in the industrial sector, aiming to enhance product quality, efficiency, and safety. In a defect recognition project for semi-finished membrane products at the water business unit, where defects are small and require intense light exposure, current human-eye assessments are not reliable. We plan to introduce AI image recognition technology to replace the human eye, ensuring more accurate defect detection and simultaneously reducing employee health risks. In the bubble recognition project for touch panel films, our goal is to achieve rapid and automated bubble analysis, replacing the complex and time-consuming manual steps of the past. This will enhance analysis efficiency and accuracy, simultaneously improving the research and development process for new materials. Additionally, we initiated the label recognition project for chemical bottles at the Linyuan Plant to enhance the quality control of product labels. Through image recognition technology, we are able to swiftly detect unlabeled bottle bodies on the package line and promptly notify on-site personnel for resolution, thereby reducing customer complaints and enhancing the quality of our products upon delivery. These projects exemplify our continuous efforts in quality control and production efficiency, ensuring the optimization of production processes and the improvement of product quality.

ESG smart energy controls are estimated to reduce energy consumption by 0.5%

We continuously engage in innovative technology development and application, focusing on intelligent energy management to optimize industrial processes, improve efficiency, and concurrently reduce energy consumption. In the energy-saving operation of distillation towers, we leverage data-driven insights to conduct in-depth analyses of atmospheric variables, such as temperature fluctuations and rainfall, and their impact on operations. Additionally, we implement optimized operational strategies aimed at stabilizing product quality and achieving energy-efficient operations, with a particular focus on steam usage and cooling fans. In terms of quality prediction, our system can instantly forecast and issue alerts with operational recommendations when operators modify parameters, anticipating a 0.5% reduction in energy consumption in the event of quality abnormalities.

Moreover, for compliance control of the RTO outlet gas concentration, we train models targeting VOC emissions and provide real-time recommendations for the minimum temperature. Furthermore, we've established another training model for temperature settings. Through a reverse modeling strategy, we've revealed the correlation between fuel (liquefied petroleum gas) and temperature, allowing for the optimization of fuel (liquefied petroleum gas) flow. Through the implementation of these projects, we have not only ensured the high efficiency of the production process but also significantly reduced energy consumption and environmental impact, creating sustained value for the company and society.

Smart process optimization to increase overall equipment efficiency by 8.6%

We focus on smart process optimization and operational guidance to enhance production efficiency and quality. In optimizing the plant crystallization process for the Kaohsiung Plant, the accumulation of crystallization among batches may lead to poor thermal conduction, affecting the intended temperature target. Our goal is to find an appropriate cooling curve through data analysis to stabilize quality while maximizing energy savings. Additionally, we aim to predict the future cleaning date of the crystallization tank to ensure the sustainability of crystallization efficiency and avoid unnecessary downtime in production. Similarly, in the project that compares efficiency between two crystallization tanks, we aim to use smart analytics to assist on-site assessment and compare the efficiency and yield of different crystallization tanks, ensuring optimal production. Through data analysis, model predictions, and operational guidance, we are committed to achieving the optimization of industrial processes and continuous improvement in production.

2.4.3 Impact of Digital Innovation

In this era of rapid technological development, LCY actively bridges AI and academia, integrating practical AI experience with academic research.



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Department of Computer Science and Information Engineering at National University of Kaohsiung

Deepening cooperation, bringing together over 80 elite students for mutual exchange, learning, and progress.



Department of Information Technology & Communications at Shih Chien University

Since 2020, we have proudly collaborated with nearly 200 rising stars in information technology, working together to advance towards the future.

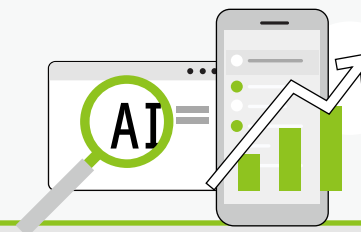


LCY Internal AI Lectures

Breaking geographical limitations, connecting with the company's 7 factories and the LCY Nan-zih R&D Center, nearly 100 chemical, material & engineering experts provide detailed insights into the application and prospects of AI in the chemical engineering industry.

National Cheng Kung University and National Taipei University of Technology

Innovative online exchanges, enabling knowledge sharing without boundaries, and becoming a hub between academia and practical applications.



Green Operations

We promote carbon footprint verification (CFV) to evaluate the use of energy, materials, and carbon emissions throughout all stages of production. This allows us to systematically and strategically establish short-, medium-, and long-term carbon reduction targets, which serve as the foundation for our business decisions and propel LCY toward net zero by 2050. The company continues to promote sustainable manufacturing to increase efficient energy use. LCY factories are required to increase renewable energy and integrate ISO 50001 energy management systems.

↓ 14%

Carbon emissions from LCY locations in Taiwan, China, and the US decreased by 10.1% compared to the baseline (2019), and 14.0% compared to the previous year (2021).

↓ 8.9%

Energy consumption from LCY locations in Taiwan, China, and the US decreased by 8.9% compared to the previous year (2021).

↓ 14%

Total NOx emissions from LCY locations in Taiwan, China, and the US decreased by 14% compared to the previous year (2021).

↓ 44%

Total SOx emissions from LCY locations in Taiwan, China, and the US decreased by 44% compared to the previous year (2021).

↓ 10%

Total PM emissions from LCY locations in Taiwan, China, and the US decreased by 10% compared to the previous year (2021).

SDGs

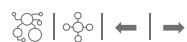


- # GHG Emissions
- # Energy Management
- # Air Quality
- # Water Management

Achievements

Category	Metrics	Short-term: 2020-2022 Targets	2022 Achievements
GHG Emissions	Reduction of GHG emissions at LCY Taiwan plants from the baseline	↓ 1%	In 2022, GHG carbon intensity at LCY Taiwan locations was 0.583 tCO ₂ e/t (baseline year: 0.561 tCO ₂ e/t). Although we missed the short-term target set in 2019 (1% reduction), total emissions decreased 22.9% from the previous year (2021).
	Reduction in energy intensity at LCY Taiwan plants from the previous year	↓ 1%	In 2022, energy consumption at our Taiwan facilities decreased by 7.9% compared to 2021. However, the energy intensity increased slightly to 5.43 GJ/t, up by about 0.5% from 2021. The main factor was an 8.3% reduction in production capacity at the Taiwan facility in 2022. Despite maintaining the energy intensity required for continuous operation, the decrease in production capacity led to an increase in the energy consumption per unit of product.
Energy Management	Ratio of Renewable Energy	N/A	289GJ of energy generated on-site
	Reduction of VOCs from the baseline	↓ 5%	The average VOC emission intensity was 178.7 tons/million tons of output. Although short of the 2019 goal, showed 1% reduction from the previous year (2021).
Air Quality Management	Reduction in NOx emission from the baseline year (boiler emissions)	↓ 30%	NOx emissions totaled 55.6 tons. Although short of the 2019 goal, contributed to a 14% reduction in total emissions from the previous year (2021).
	Identify water shortage risks and formulate contingency SOP	Formulate water shortage contingency SOP	Contingency SOP has been formulated and will be adjusted according to climate changes.
Water Management	Ratio of Reclaimed Water	10%	5.13% of Recycled Water
	Optimize resource efficiency	Inventory information on hazardous waste (total quantity, types, disposal methods, etc.) and transition from traditional incineration or burial to recycling and reclamation.	Recycling rate of 11.43%

● The baseline refers to the three-year average from 2016-2018.



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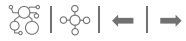
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Goals & Targets

As the previous short-term goals have expired, a new set of GHG emission and energy management targets have been set in this report as we continue to strive for net zero by 2050.

Category	Metrics	Mid-term: 2030 Targets	Short-term: 2023 Targets
GHG Emissions	Reduction of GHG emissions compared to the baseline	↓ 30%	↓ 4.2%
	Reduction of energy intensity (consumption per unit of product) compared to the baseline	↓ 8%	↓ 1%
Energy Management	Ratio of Renewable Energy	15%	0.5%

● Baseline year: 2019



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3.1.1 Protecting the Environment

LCY established the Environmental Risk Management Department, a dedicated level-one management unit that reports directly to the employer. The Department oversees the Department of Industrial Safety and Environmental Protection and the Department of Loss Prevention Engineering. The two departments are responsible for environmental risk management planning and technical engineering affairs respectively, as well as the supervision of the plants' industrial safety and environmental protection offices. All industrial safety and environmental protection offices are responsible for the formulation, planning, supervision, and promotion of health and safety management. Environmental protection is the top priority for the environmental management system. LCY's goal is to implement all environmental protection measures, as this is the highest level of respect and protection possible for the people, the ecosystem, and facilities. LCY is committed to promoting a responsible care system for continuous improvement to meet all standards. In addition, all activities within LCY plants must be legally compliant to promote sustainable operation. We have incorporated an effective system for environmental management. Plants in Taiwan and China have adopted ISO 14001 environmental management systems (EMS) and successfully obtained third-party verification. All plants conduct daily environmental management operations according to ISO 14001 to ensure environmental compliance. As the chemical industry has a significant impact on the environment, LCY has set management targets and goals for major environmental issues.

Environmental Protection Policies

1 / Respect For Human Life

2 / Observe Regulations

3 / Prevention Of Pollution






4 / Continuous Improvement

5 / Sustainable Operations

3.1.2 Environmental Regulatory Compliance

LCY experienced three environmental violations in 2022, with fines amounting to NT\$1,790,327. Primary violations were of the Air Pollution Control Act (Taiwan) and the Atmosphere Pollution Prevention and Control Law (China). All violations have been thoroughly reviewed with enhanced employee training and improved protocol. No material environmental violations were found. LCY will continue to strive for zero violations.

Environmental Violations in 2022

Type	No. of Violations	Fine (NT\$)
 Waste pollution	-	0
 Air pollution	●●●	NT\$1,790,327
 Water pollution	-	0
 Toxic chemicals pollution	-	0
 Total	●●●	NT\$1,790,327



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3.2.1 Governance & Policies

LCY's ESG Sustainability Committee established the Green Transformation Team (GTT). Green Transformation Team is responsible for climate change risk control & opportunity evaluation and organizes the plants' daily management activities related to climate change and energy issues. The team evaluates the relevant mitigation and adaptation solutions, and periodically presents to the board of directors for supervision and recommendation. In terms of climate change strategy, our company has mapped out the risks and opportunities that climate change has on its operations, employees, customers, suppliers, products, services,

and reputation in its operations in Taiwan, China and the US. LCY has set up risk assessments for different regulatory policy scenarios such as GHG emissions control and carbon pricing system. Additionally, with the expiration of 2020-22 short-term goals, GTT is collaborating with plant production, sales, and R&D teams to redefine LCY's short-, mid-, and long-term goals. Once approved by the Board of Directors, LCY shall collectively strive towards these goals.

Climate Risks & Opportunities Management

01 Governance

- Establish the Green Transformation Team to manage climate risks and evaluate climate opportunities.
- Consolidate daily management activities for climate change and energy issues across all production plants. Following LCY's risk management system, GTT assesses mitigation and adaptive.
- Regularly report to the Board for oversight and recommendations.

02 Strategy

- Map climate risks and opportunities for operation, employees, clients, suppliers, products, services, and reputation.
- Identify 5 risks and 3 opportunities through a risk matrix analysis.
- Quantify and evaluate potential climate-related supply chain or production disruptions and increases in operational costs based on risk scenario analysis, potential occurrence time, and impact level metrics.

04 Metrics & Targets

- Baseline year: 2019
- Establish short (2023) and mid (2030) term goals for the following metrics
 - 1 GHG emissions
 - 2 Energy intensity (per unit of product)
 - 3 Ratio of renewable energy

03 Risk Management

- Reference relevant climate change information and TCFD framework to identify short-, mid-, and long-term climate risks and opportunities.
- Generate a risk matrix based on Impact Level and Likelihood of Impact, followed by the initiation of response measures.
- Continue to evaluate and review potential climate risk impacts to adjust mitigation and adaptive measures, while taking advantage of potential opportunities to increase production capacity and develop new products.



3.2.2 Climate Risk and Response

In response to the increase in climate risks, LCY refers to relevant climate change data and TCFD framework to identify short, mid, and long-term climate risks and opportunities for our plants. A risk matrix is also generated based on the impact level and probability. Upper-level management convenes to adjust risk priority and initiate response measures based on the relevance between the risks and LCY's sales and operation. The top three risks identified in 2020 are (a) policy and regulatory risks – general environmental regulations and an increase in the cost of GHG emissions, (b) transition risk – the cost associated with products and services being replaced by low-carbon

technology, and (c) physical risks – extreme weather events and shifts in severe weather patterns. In response to the identified risks, LCY has formulated corresponding management measures. We will continue to thoroughly evaluate the level of impact climate risks have on our company's operation. In addition to response measure strategies to reduce climate risk impact, LCY also focuses on increasing efficiency and product development based on the identified opportunities. We have also established relevant carbon-reduction metrics and targets. Please see [3.3 Carbon and Energy Management](#) for details.



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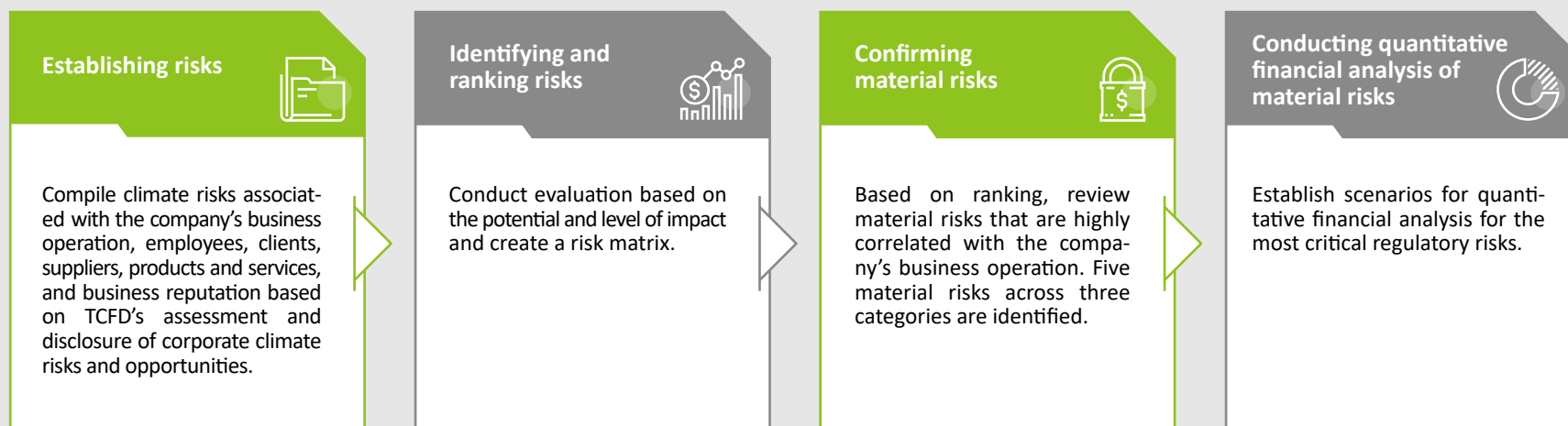
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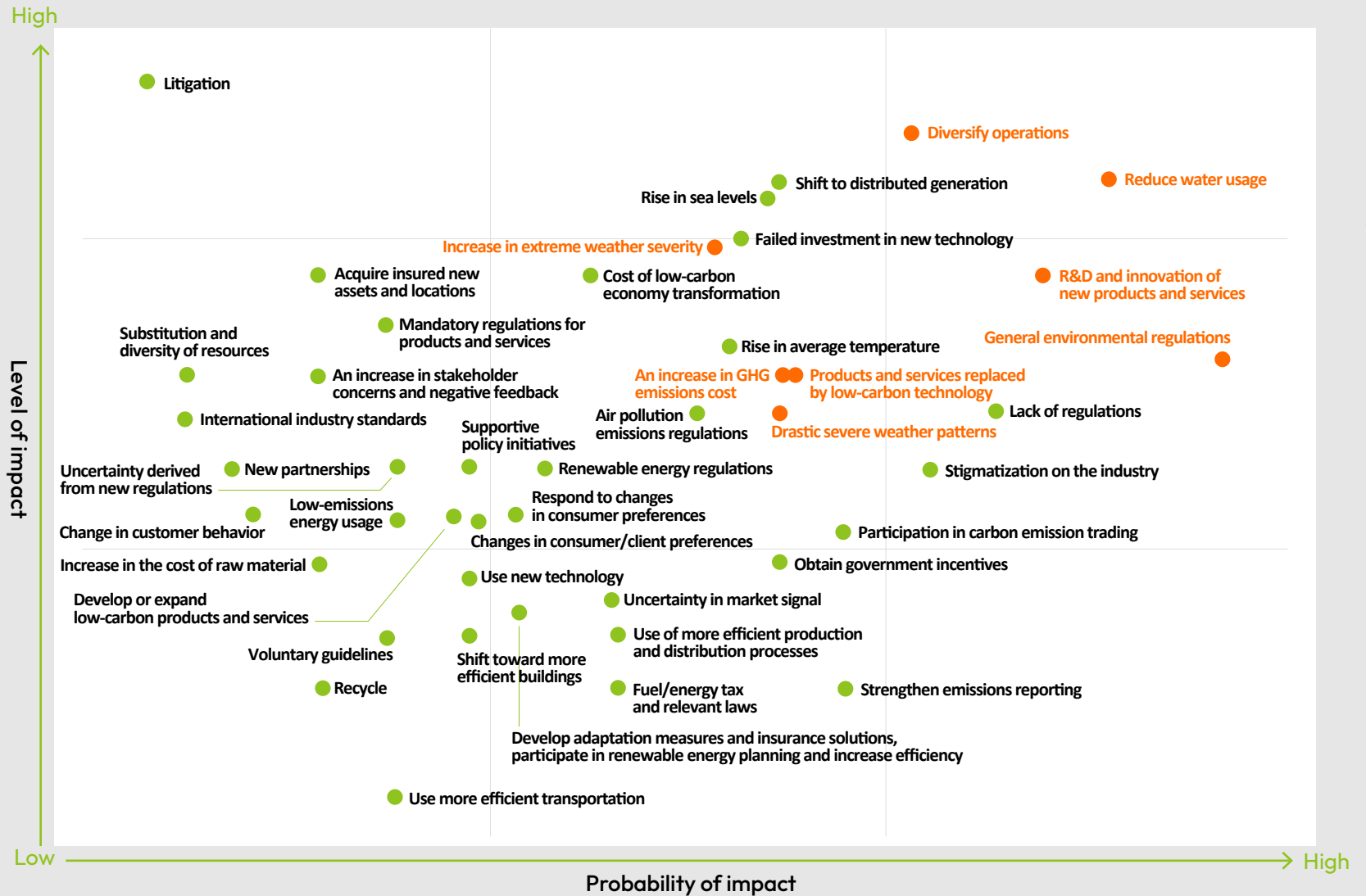
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Procedures for climate risk identification



Risk Matrix

Initial identification of potential impact pathways is conducted based on TCFD’s recommended risk disclosures and risk pathways. Actual impact, scenario, and quantification methods are also verified through internal interviews and surveys with the relevant departments. Risks are ranked according to the level of probability (=impact level X probability) to map out LCY’s assessment of material corporate climate risks and opportunities.



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Climate Risk Identification



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Type	Risk	Operational Impact	Financial Impact	Mitigation & Adaptation
Transition Risk	Stringent Environmental Policies and Regulations	Water conservation charges and carbon fees leveraged on Taiwan plants	Increase in operational cost	<ul style="list-style-type: none"> LCY's Taiwan plants are participating in the Kaohsiung City Government's water recycling facility project. We contribute by procuring reclaimed water from domestic wastewater, reducing overall water consumption. Install process water recycling and rainwater harvesting units within the plant, maximizing the reuse of recycled water. Promote water-saving initiatives and actively enhance water efficiency to reduce overall water resource consumption. Implement energy-saving and carbon-reduction initiatives across all facilities. GTT consolidates efforts, manages carbon emissions modeling (including cost predictions), and redefines LCY's short- to mid-term goals. Integrate resources and establish ongoing tracking for carbon reduction progress.
	Increasing cost of GHG emissions	Investment costs for controlling GHG emissions (e.g., renewable energy certificate purchases, carbon credit acquisitions, carbon reduction technology investments, and the procurement of energy-efficient equipment).	Increase in operational cost	<ul style="list-style-type: none"> Incorporate ISO 50001 energy management system together with a digital energy monitoring system for energy use insights. Conduct annual inventory to capture GHG emission data and identify hotspots. Drive energy-saving and carbon reduction initiatives to decrease energy consumption. Collaborate with the value chain to procure waste steam from external entities, promoting efficient energy recycling.
	Products and services replaced by low-carbon technologies	Higher costs for low-carbon, biomass, or eco-friendly raw materials, and limited availability in the supply chain Unable to meet client product requirements, leading to a decline in sales	Increase in operational cost and decrease in revenue	<ul style="list-style-type: none"> R&D is actively developing low-carbon products, incorporating carbon emissions or footprint calculations at the development stage to enhance product competitiveness.
Physical Risk	Extreme weather events	<ol style="list-style-type: none"> Flood, disruption of factory operation, damages to plants Blackout or energy rationing at plants 	Increase in operational cost	<ul style="list-style-type: none"> All plants have implemented raised foundations and drainage facilities during construction to prevent flood-related damages. When selecting future sites, LCY will conduct natural disaster assessments and plan flood control facilities to enhance disaster resilience. All BU have business continuity plans (BCP) in place. In addition to inventory planning for a continuous supply chain, LCY has global production sites and logistics facilities to address potential power outages or energy rationing events.
	Shifting weather patterns	Water shortage, increase in production cost	Increase in operational cost	<ul style="list-style-type: none"> Develop a water shortage contingency plan to prevent operational disruptions. Promote water-saving projects and actively enhance water efficiency to reduce resource consumption.

3.3.1 Carbon Management

Since 2004, LCY has systematically carried out GHG inventory and obtained third-party ISO 14064 verification at Taiwan facilities. This allows us to track the emissions from each location and consistently pursue carbon reduction and low-carbon initiatives. Both Taiwanese and Chinese facilities adhere to the ISO 14064-1 greenhouse gas inventory method, conducting annual inspections and obtaining third-party certification. The US production facility, Taipei office, R&D center, and Kaohsiung Terminal Station follow the ISO 14064-1:2018 standard for independent inspections. There are plans to gradually transition to ISO 14064-1 certification as well in the future.

In 2022, total GHG emissions from locations in Taiwan, China, and the US amounted to 922,796 tCO₂e. Carbon emission intensity was 0.605 tCO₂e per ton of production. Compared to the previous year (2021), this represents a reduction of 149,577 tCO₂e, indicating a 14.0% decrease in carbon intensity.



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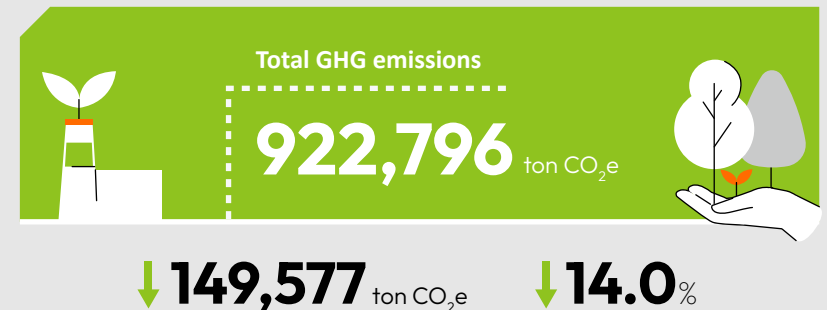
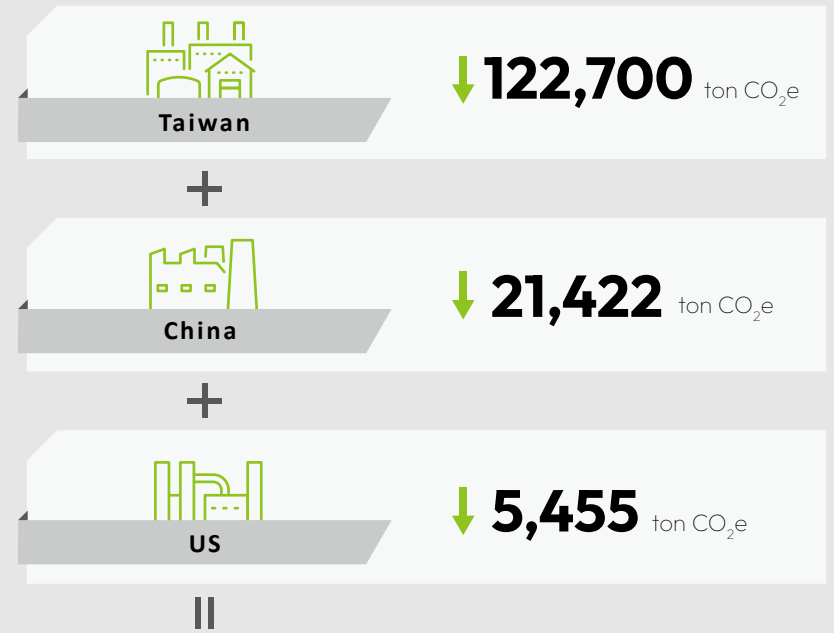
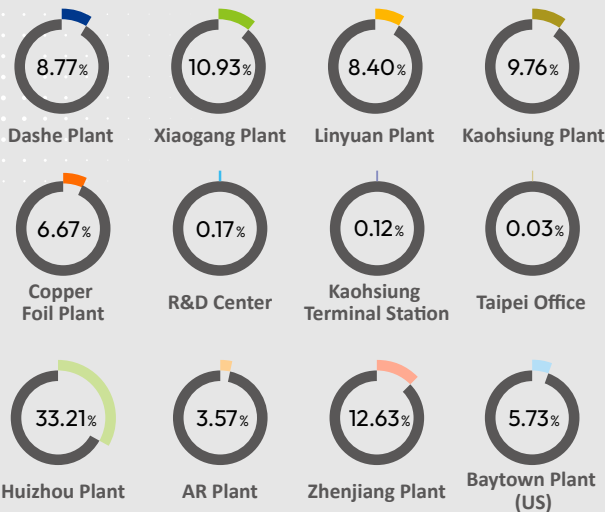
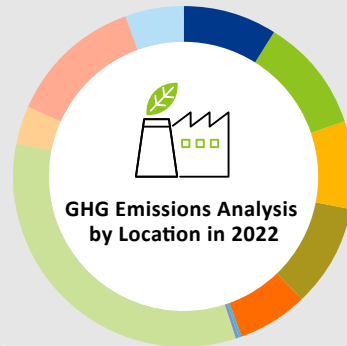
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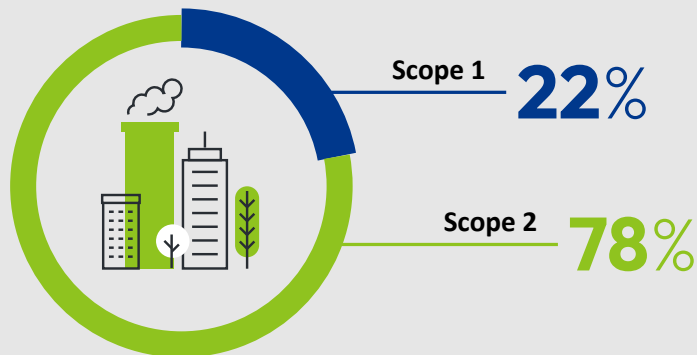
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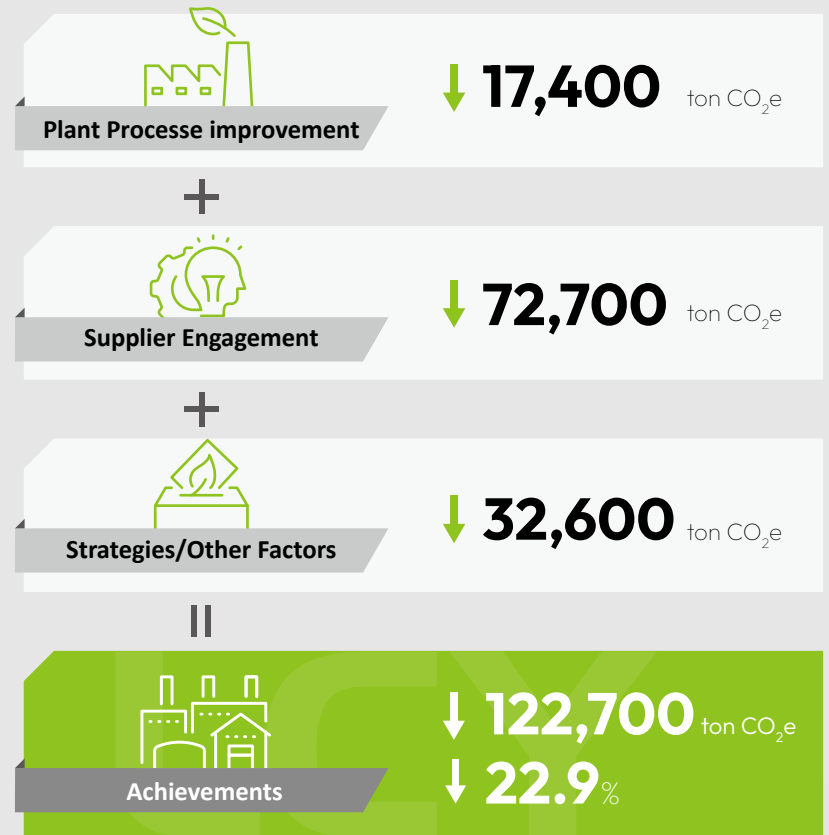
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Due to the type and characteristics of the products we offer at LCY, our GHG emissions are primarily indirect emissions (Scope 2), which account for nearly 80% of our total emissions, rather than direct emissions (Scope 1), which are more common in traditional petrochemical industries. Carbon reduction measures primarily target energy conservation and steam usage reduction. In 2022, carbon emissions from LCY Taiwan locations totaled 414,012 tons, a 22.9% reduction (122,700 tons) compared to the previous year (2021). Carbon reduction efforts are divided into two main parts: internal improvements and optimization within the plant and engagements with suppliers. Internal improvements involve enhancing process operations, heat integration, and replacing energy-saving equipment, resulting in a total carbon reduction of approximately 17,400 tons. Supplier engagements focus on adjusting the energy source materials provided, leading to a further carbon reduction of approximately 72,700 tons in 2022. In 2022, adjustments to production capacity, operational schedules, and emission source carbon coefficients, driven by sales strategy, resulted in a reduction of approximately 32,600 tons in total carbon emissions from LCY Taiwan operations. In the future, our Scope 1 reduction plan focuses on process adjustments to decrease exhaust emissions and lower direct fuel usage. This expansion of carbon reduction efforts within the plant aligns with our vision for a gradual transition to a low-carbon model.

GHG Emissions Breakdown



Taiwan



3.3 Carbon & Energy Management



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Taiwan **No.1**

Xiaogang Plant



Carbon emission ↓ **>40%**

Processe improvement

↓ **>2,800** ton CO₂e

Plant carbon emission ↓ **~2%**

Supplier Engagement

↓ **>40,000** ton CO₂e

Plant carbon emission ↓ **~23%**

Taiwan **No.2**

Kaohsiung Plant



Carbon emission ↓ **~30%**

Processe improvement

↓ **>9,000** ton CO₂e

Plant carbon emission ↓ **~7%**

Supplier Engagement

↓ **~25,000** ton CO₂e

Plant carbon emission ↓ **~20%**

China **No.1**

Huizhou Plant



Carbon emission ↓ **~5%**

Processe improvement

↓ **>9,000** ton CO₂e

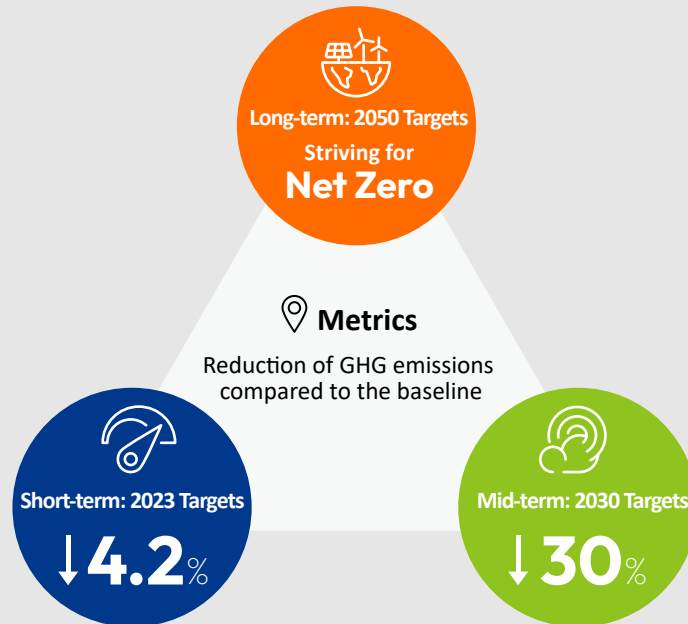
Plant carbon emission ↓ **~3%**



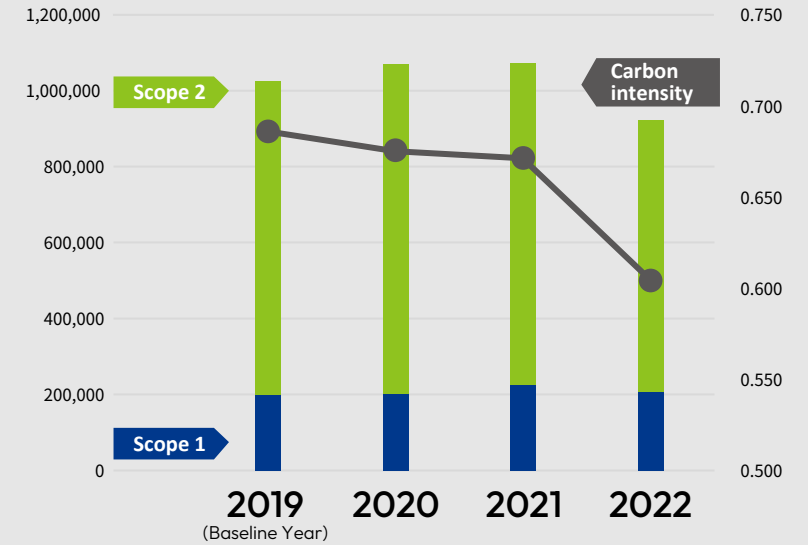
3.3 Carbon & Energy Management

Following the establishment of the GHG emissions inventory system, each plant will further verify product carbon footprints (CFV), integrating the concept of GHG emissions into corporate operations for effective management. In addition to standard verification, LCY introduced renewable energy strategies and internal energy-saving initiatives in 2019, formally incorporating them into company management. We then formulated energy and GHG management targets for Taiwan plants and reexamined the progress made toward short-term goals (2020-22) in 2022. We subsequently expanded these goals to include China and US operations, aligning with the SBTi 2°C target for short-term (2023), mid-term (2030), and long-term (2050) targets.

GHG Emissions



Note: The baseline year is set as 2019, representing the most recent year before the impact of the pandemic and a period of stable production.



Scope 1 (tCO ₂ e)	199,667	197,838	224,577	205,742
Scope 2 (tCO ₂ e)	826,349	871,299	847,796	717,054
Total (tCO ₂ e)	1,026,017	1,069,137	1,072,373	922,796
Carbon intensity (tCO ₂ e per ton of production)	0.686	0.675	0.671	0.605

Note:

- Total carbon emissions include Scope 1 and 2 GHG emissions from Taiwan, China, and US operations. The types of greenhouse gas emissions include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).
- Emission factor data sources for Taiwan: The Environmental Protection Administration (EPA)'s Greenhouse Gas Emission Factor Table (6.0.4) and the electricity emission factor released by the MOEA Energy Administration in 2022. The emission factors for the Zhenjiang Plant are based on the "2019 Annual Emission Reduction Project: Baseline Emission Factors for China Regional Power Grids." For the Huizhou Plant and the AR Plant, the emission factors are calculated according to "MEE Climate Notice (2023) No. 43" and "MEE Climate Notice (2022) No. 111," respectively. The emission calculations for the US (Baytown) plant follow the latest data provided in the government EPA announcements.
- The emissions from each location are aggregated using the operational control approach. Taiwan plants (Kaohsiung Plant, Xiaogang Plant, Copper Foil Plant, Linyuan Plant) and locations in China adhere to ISO 14064-1:2018, referencing the Global Warming Potential (GWP) values from the IPCC 2021 Sixth Assessment Report. The emissions data are certified by third-party verification. At Taiwan's Dashe Plant, greenhouse gas inventory follows ISO 14064-1:2006. GWP values are referenced from the IPCC 2007 Fourth Assessment Report, and the plant has obtained third-party certification. The R&D center, Kaohsiung Terminal Station, Taipei office, and US locations follow the ISO 14064-1:2018 standard for GHG inventory. They conduct voluntary self-assessments using GWP values from the IPCC 2021 Sixth Assessment Report.
- Carbon intensity = total carbon emissions (Scope 1+Scope 2) / total production (tons).



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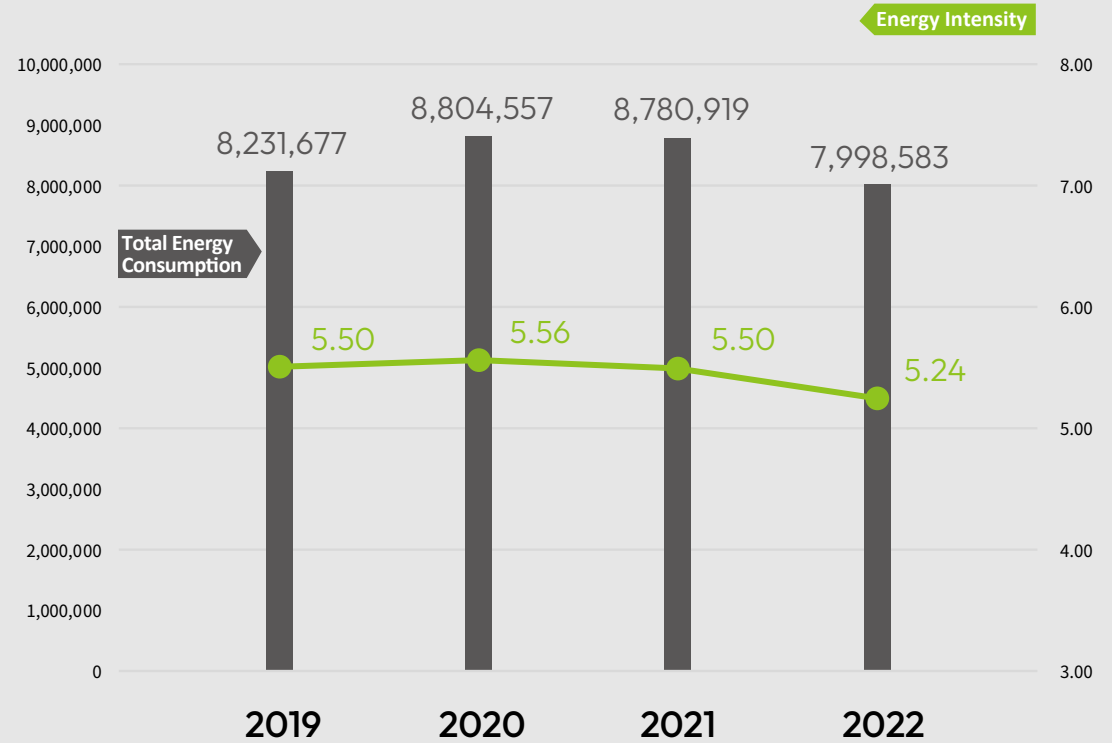
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3.3.2 Energy Management

In 2012, the Dashe Plant in Taiwan was the first to adopt the ISO 50001 Energy Management System. As of the end of 2022, all Taiwan and China plants have fully adopted the system with regular maintenance to ensure ongoing effectiveness. A smart platform management system is used to monitor the equipment's energy usage. LCY continues to review and optimize the production process to improve energy efficiency based on data analysis provided by the system.

Total energy consumption in 2022 was 7,998,583GJ (incl. Taiwan, China, and US plants), an 8.9% decrease from 2021, and a 4.7% decrease in energy intensity. The top two categories of energy usage were steam at 54% and electricity at 26%. To reduce the potential cost and environmental impact of self-generated steam, LCY became the first company to purchase and reuse exhaust steam from China Steel Corporation in 1994. This innovative approach allows the reuse of discarded resources. Through continuous efforts in process improvement, thermal integration, and the adoption of energy-efficient equipment, LCY enhances energy efficiency, steadfastly advancing toward the goal of achieving net-zero emissions.

LCY Energy Consumption



LCY's Energy Consumption from 2019 to 2022

Type	2019	2020	2021	2022
 Natural Gas (NG)	1,538,142	1,623,278	1,613,843	1,475,611
 Liquefied Petroleum Gas (LPG)	13,963	13,002	49,373	102,893
 Steam (procurement)	4,588,031	4,960,390	4,879,136	4,318,759
 Diesel	11,328	8,281	6,782	5,260
 Gasoline	2,389	1,556	1,387	1,266
 Electricity procurement	2,077,609	2,197,743	2,230,114	2,094,505
 Generated renewable energy (T-REC)	214	307	284	289
Total Energy Consumption	8,231,677	8,804,557	8,780,919	7,998,583

 unit: GJ

3.3.3 Promoting Renewable Energy

In light of the global shift towards renewable energy and policies of the Taiwan government, LCY is also actively expanding renewable energy facilities and equipment. LCY implemented solar power generation equipment at both the Dashe Plant and the LCY Nanzih R&D Center, generating 162GJ and 127GJ of electricity respectively. Taiwan Renewable Energy Certificates (T-RECs) have also been obtained. Furthermore, in response to the Regulations for the Management of Setting up Renewable Energy Power Generation Equipment of Power Users above a Certain Contract Capacity and the Renewable Energy Development Act in Taiwan, the GTT will work with relevant units at each plant to integrate short-, mid-, and long-term carbon reduction targets in accordance with regulatory requirements to strategically plan and implement renewable energy use by 2023. With this approach, LCY establishes specific targets for renewable energy use, reducing reliance on fossil fuels and mitigating the impact of energy consumption on climate change.



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3.4.1 Air Quality Policies

LCY continues to optimize air quality management. Our BU present air quality status and improvement actions to upper management during the monthly KPI meetings. BU also review air pollutant emissions data trends and the plants' improvement status. The Environmental Risk Management Division, together with Industrial Safety and Environmental Protection Offices and external experts, promotes air pollution prevention through cross-site human resource consolidation and audits. The main management approaches include regular monitoring, equipment optimization, and information transparency. We continue to monitor and quantify through a space & time dual management process. In terms of space, fourier-transform infrared spectroscopy (FTIR) is placed around the plant's perimeter for automatic detection of air pollutants' fingerprints (absorption

spectrum). The continued identification of pollutant fingerprints through OP-FTIR allows us to track and improve. Whenever there is an abnormal occurrence, the system activates source tracking and conducts immediate scientific data analysis. In terms of time/frequency, we conduct daily self-inspections, weekly infrared gas imaging by the EYE-C-GAS team, quarterly external inspections, and flue inspections at least once a year to ensure air pollutants emissions are compliant. We also combine AI tech with our air quality monitoring and warning system, obtaining real-time air quality data from external sources such as the Environmental Protection Agency and municipal governments, and integrating it into our database. If the air quality exceeds regulatory standards, the system immediately issues alerts, ensuring the quality of the production sites.

	Regular Monitoring	We monitor and establish the pollutants' fingerprints for the plant's perimeter through the space & time dual management process. Whenever there is an abnormal occurrence, the system activates source identification and tracking.	<ul style="list-style-type: none"> • AI Factory allows for immediate status update • Regular inspections: daily self-inspections/weekly EYE-C-GAS infrared gas imaging/quarterly external inspections • Plant perimeter self-inspection using FTIR system
	Optimize for Reduction	Strict air pollution prevention and reduction management are performed in the U.S., China, and Taiwan per local regulations.	<ul style="list-style-type: none"> • Phasing out equipment components • Optimization/addition of advanced control equipment • Management by walking around (MBWA) • Regular review of reduction performance
	Information Transparency	We offer truthful and transparent emissions disclosure. Our company enhances internal improvements through external oversight, as well as following regulatory changes to conduct compliance assessments to ensure regulatory compliance.	

The Industrial Safety Team and Environmental Team at each operation site are responsible for the collection and evaluation of relevant regulations, as well as conducting training and promotion to ensure air pollutant emissions stay within range.

The air pollution regulation stipulates:

<p> Taiwan</p> <p>All production sites have implemented the regulatory identification process of total emissions control for the Kaohsiung and Pingtung region.</p>	<p> China</p> <p>Emissions standards are established under the Atmospheric Pollution Prevention and Control Law, mandating industrial sectors in each region to establish total emission control targets. Standards encompass particulate matter, sulfur dioxide, nitrogen oxides, and volatile organic compounds (VOCs).</p>	<p> US</p> <p>The Environmental Protection Agency (EPA) primarily establishes emission standards for industries under the Clean Air Act. These standards are designed to regulate the release of harmful substances into the atmosphere, including sulfur dioxide, nitrogen oxides, volatile organic compounds (VOCs), and particulate matter such as PM2.5 and PM10.</p>
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3.4.2 Air Pollution Reduction Measures

To reduce VOCs and NOx, our sites implement measures such as phasing out equipment components, adding SCR facilities, optimizing manufacturing process equipment, and establishing exhaust gas collection and treatment facilities, etc. The company convenes regular internal meetings to review emissions data and the sites' improvement status. Furthermore, we strengthen equipment inspection management and training to reduce the risks and negative impact air pollutants have on the environment. In 2022, NOx emissions decreased by 14% from the previous year; SOx emissions decreased by 44%; VOCs decreased by 1%; and PM emissions decreased by 10%.

2022

↓ **14%**

NOx emissions

↓ **44%**

SOx emissions

↓ **1%**

VOCs emissions

↓ **10%**

PM emissions



Zhenjiang Plant

↓ **63%**

NOx emissions

↓ **97%**

SOx emissions

NOx decreased by 63% from the previous year; SOx decreased by 97% from the previous year

The operational mode of the waste gas incinerators within the factories has been streamlined, and operational procedures have been optimized. This includes measures such as controlling fuel temperature, enhancing fuel pipeline drainage, and reducing exhaust gas moisture content. These adjustments aim to increase the combustion efficiency of waste gases, enabling complete combustion, and consequently lowering emissions of pollutants such as NOx and SOx.



AR Plant

↓ **45%**

VOC emissions

↓ **75%**

PM emissions

VOCs decreased by 45% from the previous year; PM emissions decreased by 75% from the previous year

- Modifications have been made to the operation temperature of the RTO waste gas treatment facilities. The efficiency of the adsorption material, activated carbon, has been improved, resulting in a reduction in VOCs emissions.
- Adjustments have been made to the water mist spray system to enhance dust capture efficiency, resulting in a reduction of PM emissions to 25% of the levels recorded in the preceding year (2021).



Huizhou Plant

↓ **75%**

SOx emissions

SOx decreased by 75% from the previous year

Construction of an RTO waste gas treatment facility has been initiated to replace the existing RCO waste gas treatment. Additionally, non-condensable emissions from process units previously directed to the flare system and emissions from tank working and standing losses are now directed to the RTO for treatment. This initiative aims to ensure stable operations and effectively monitor the treatment efficiency of waste gases. This also complies with the Guangdong Province Control Guidelines for VOCs Emissions from High-Rack Flare.



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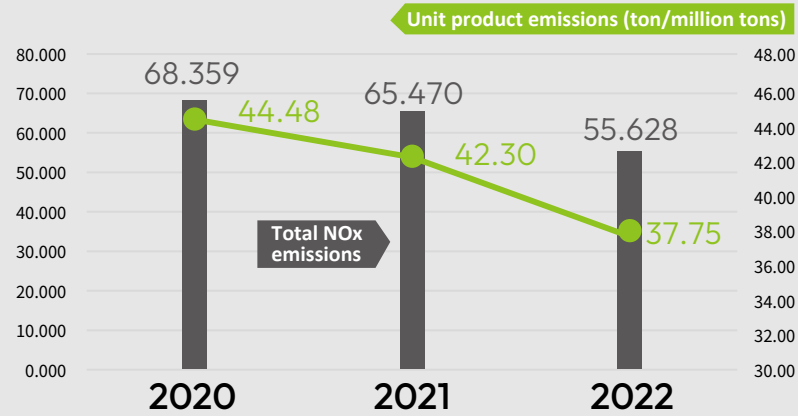
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3.4 Air Quality Management



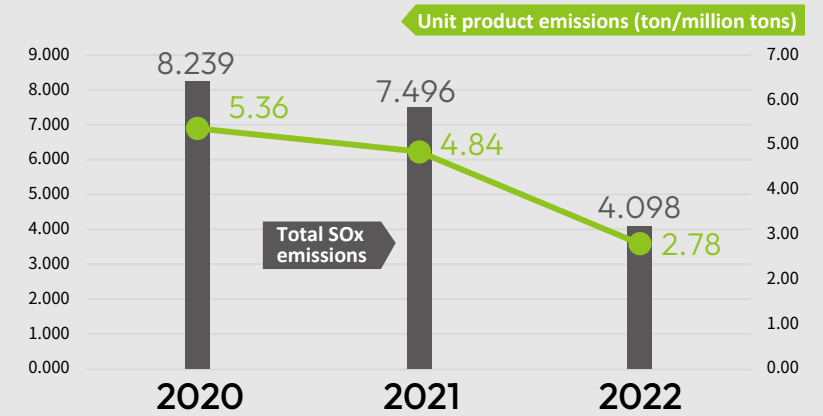
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NOx Emissions & Unit Product Emissions



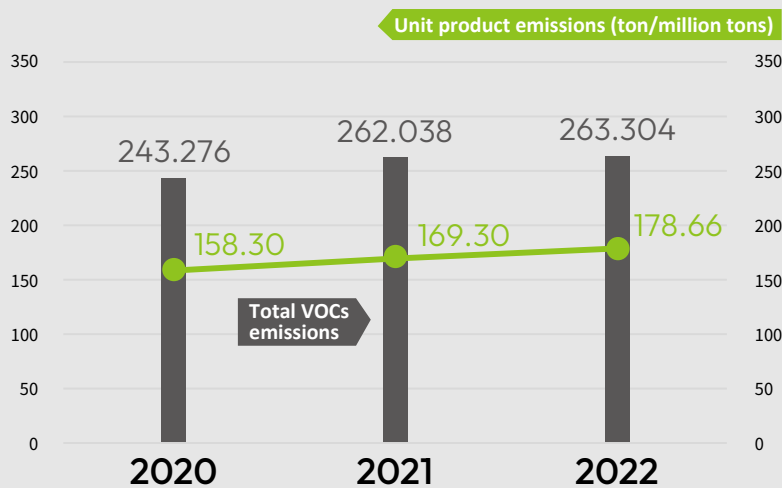
Note: Data presented in this chart is for Taiwan, China, and US operations, excluding the AR Plant since the official emission permit did not mandate testing in 2020.

SOx Emissions & Unit Product Emissions

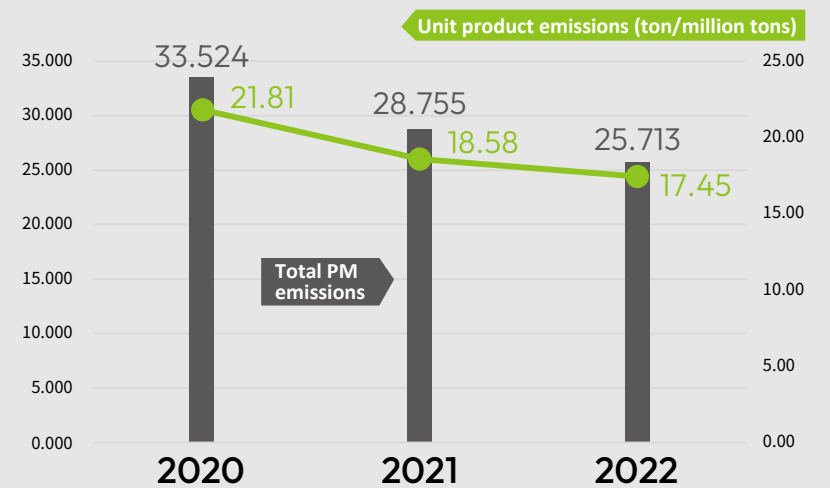


Note: Data presented in this chart is for Taiwan, China, and US operations, excluding the AR Plant since the official emission permit did not mandate testing in 2020.

VOCs Emissions & Unit Product Emissions



PM Emissions & Unit Product Emissions



Note: Data presented in this chart is for Taiwan, China, and US operations, excluding the AR Plant since the official emission permit did not mandate testing in 2020.

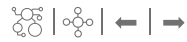
2022 LCY Air Pollutant Emissions Data

Region	Unit: Ton	NOx	SOx	VOCs	PM	Hazardous Air Pollutants (HAPs)
Taiwan	Kaohsiung Plant	7.25	0.68	39.76	1.05	0.418
	Copper Foil Plant	0.00	0.00	4.40	4.00	0.008718
	Dashe Plant	19.77	0.40	13.65	3.78	0.746
	Linyuan Plant	5.74	0.00	29.73	0.32	0.319
	Xiaogang Plant	2.936	2.128	79.24	0.87	29.939
	Kaohsiung Terminal Station	0.00	0.00	20.50	0.00	0
	R&D Center	-	-	-	-	-
China	Huizhou Plant	3.61	0.68	65.32	2.97	-
	AR Plant	1.55	0.68	4.31	0.46	-
	Zhenjiang Plant	2.12	0.02	1.34	0.88	-
US	US (Baytown) Plant	14.20	0.19	9.36	11.84	-
Total		57.178	4.778	267.616	26.173	31.430

● Note:

1. Emission quantities of air pollutants at each location are calculated based on testing data, considering only production processes and not accounting for mobile sources.
2. PM refers to particulate matter, and the statistical data includes both PM10 and PM2.5. Hazardous air pollutants are reported based on the emission statistics of 13 individual species.
3. R&D Center was delisted in 2022 and therefore has no reported data. HAPs data from China Plants and the US (Baytown) Plants are incomplete and not currently disclosed.

Unit: ton/year



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3.5.1 Water Policies

LCY uses the Aqueduct Water Risk Atlas published by the World Resources Institute to identify water risks associated with our production sites. Among them, all plants in Taiwan, Huizhou, AR and Zhenjiang Plants in China all have a low risk of water shortage during the base period, while Baytown Plant in the US has a low-medium risk. None of LCY's sites present high or extremely high baseline water stress. Given the above, all sites continue their water conservation effort through internal water management and external partnership strategies to prevent the possible impact of water shortages.

As pointed out by the 2020 UNESCO World Water Assessment Programme, water's impact is multi-disciplinary. Therefore, in addition to our effort, we have also signed the "Use of Reclaimed Water from Kaohsiung Linhai Wastewater Treatment Plant" with the Industrial Development Bureau, Ministry of Economic Affairs. LCY started sourcing 2000 metric tons of domestic wastewater every day as industrial water supply. The project takes full advantage of the resources from both the wastewater treatment plant and water reclamation plants. It integrates the domestic, public, and business sectors to reclaim domestic wastewater. Five companies, including LCY, joined the project to optimize water usage efficiency by facilitating resources, manpower, and technology from partners. Furthermore, Taiwan's geography contributes to a drastic difference in water reservoir supply between the dry and wet seasons. In response to the potential water shortage crisis during the dry season, we will negotiate a long-term agreement with external service providers to transport water to our plants using hydraulic wheels during the dry seasons.

Water is critical to chemical manufacturing. It is used in cooling, creating steam, and processing raw materials. As such, water is categorized as a material risk. The company has proactive management measures in place to elevate the priority of water issues. The measures are implemented in terms of governance, strategy, and technology. The governances include enhancing water management levels and

establishing water conservation targets. The strategy aspect includes increasing water circularity within our plants through steam collection, condensate recovery, and wastewater treatment with MBR technology. The company is also committed to establishing conservation equipment to reduce water intake. We also work with external partners to implement a reclaimed water project. Finally, the technical aspect includes R&D and optimization of MBR and other water efficiency enhancement technology. In 2022, LCY's unit product water intake and unit product wastewater increased by 7.72% and 2.58%, respectively, compared to 2021. Additionally, water recycling in 2022 amounted to 325,538 tons, constituting 5.13% of the total water usage.

The Industrial Safety and Environmental Protection teams at each site are responsible for the compilation, evaluation, and promotion of the relevant regulations. We continue to monitor water quality at the plant's water discharge outlets. Our company also reduces hazardous substances in the discharged water through R&D in water treatment equipment, equipment performance optimization, and filter sand installation. We aim to improve the water quality to ensure effluent discharge meets or exceeds regulatory standards.



Taiwan

Sites in Taiwan are primarily governed by the Effluent Standards. We tightly monitor the factories' effluent quality to ensure adherence to local effluent standards for the industrial parks.



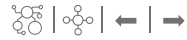
China

Sites in China are governed by the Water Law of the People's Republic of China and strictly comply with class 3 discharge standards to reduce pollutants' impact on the environment.



US

The US sites are governed by the Environmental Protection Agency (EPA) and Texas Commission on Environmental Quality (TCEQ) regulations.



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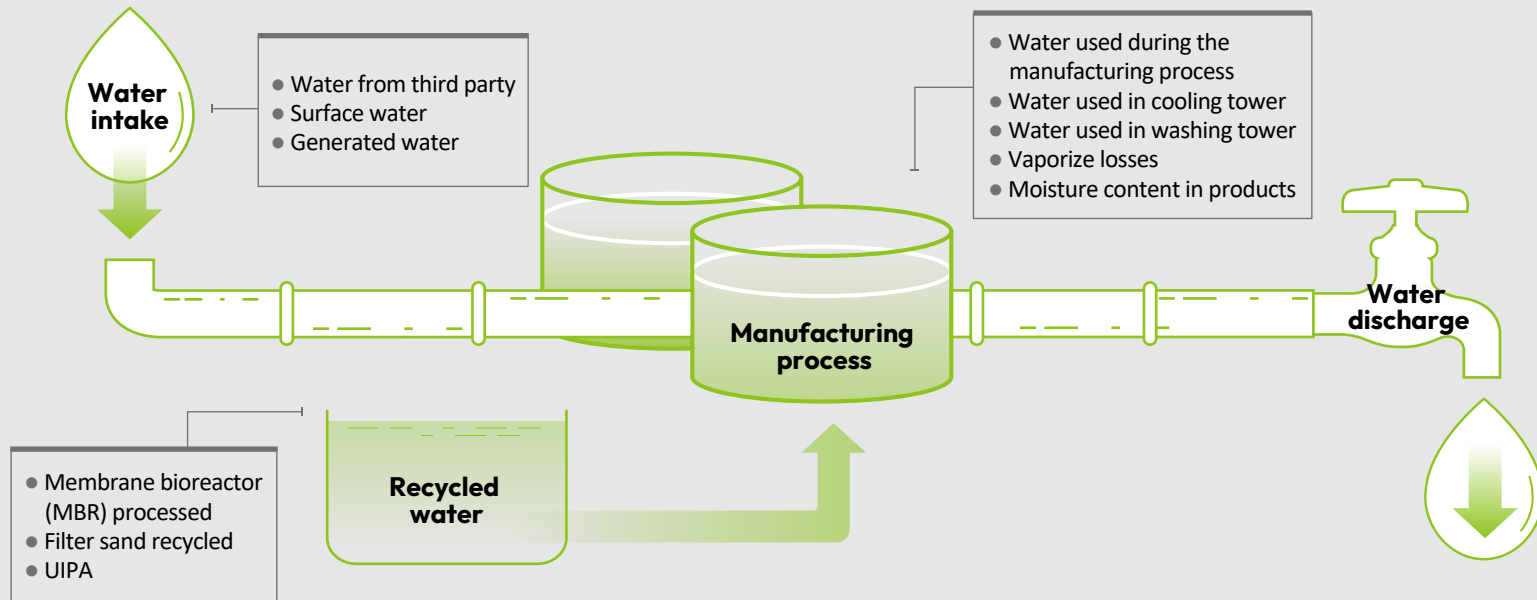
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Governance

Water management raised to higher levels of management and setting water conservation targets

- Recycled water usage makes up 20% of total water usage by 2030
- Establish an energy & water conservation committee that conducts cross-departmental collaboration with plant managers and business units
- Establish a water-shortage contingency plan



Strategy

Enhance water cycle to reduce water intake

- ↑ Water cycle enhancement: internal management (recycle water from the manufacturing process, including steam, condensate, and wastewater); external partnership for water recycling, and reclaimed domestic wastewater
- ↓ Water intake reduction: establish conservation equipment, storm-water overflow interception, summer sprinkler water collection, change out the pump to increase water volume, reuse washing tower discharge
- Optimize water processing equipment utilizing MBR technology



Technology

Develop climate mitigation technology, reduce pollution, streamline management

- Develop LCY nano-grade MBR 3.0
- ↑ Increase industrial water usage efficiency
- ↑ Enhance the efficiency of the centralized water processing system



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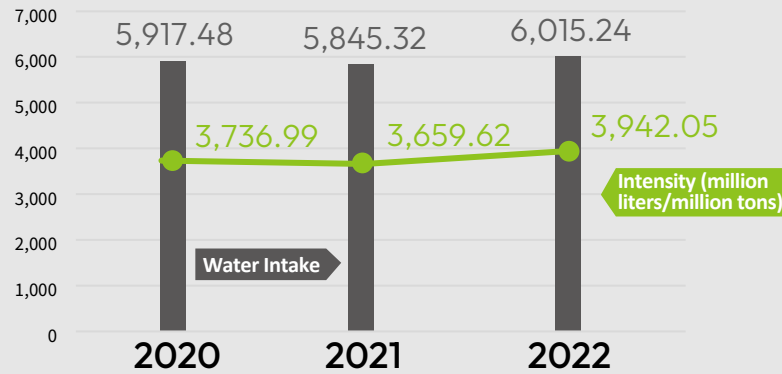
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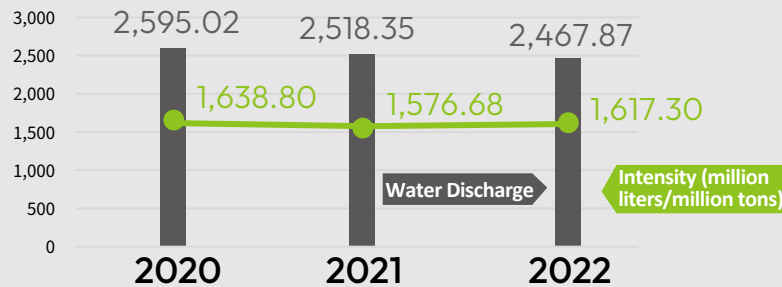
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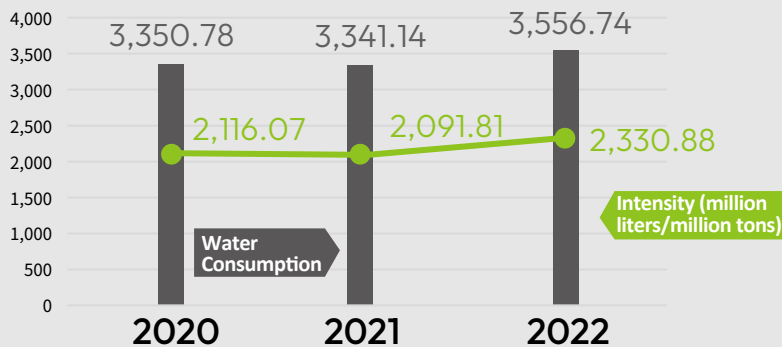
Water Intake and Unit Water Intake



Water Discharge and Unit Water Discharge



Water Consumption and Unit Water Consumption



Total Water Intake (Categorized by source)

Source	Water Intake in 2022
Surface water	832,955
Water from third party – tap water	2,932,026
Water from third party – purchased reclaimed water	647,479
Generated water	1,602,785
Total water intake	6,015,244

Unit: tons

Note:

- LCY's water intake does not include seawater; all water intake falls under the category of freshwater with total dissolved solids $\leq 1,000$ mg/L.
- Generated water output includes condensed water from externally purchased steam (calculated at 1 ton of condensed water per 1 ton of steam produced) and generated water after purification of UIPA.

Total Water Discharge

Water Discharge in 2022		
Categorized by Destination	Surface water	244,109
	Water from third party	2,223,758
	Groundwater	0
	Sea water	0
Freshwater or others	Freshwater (total dissolved solids $\leq 1,000$ mg/L)	2,467,867
	Others	0
Total water discharge		2,467,867
Total water consumption		3,556,741

Unit: tons

Note:

- Total water consumption = total intake – total discharge + water sales of 9,363 tons (Linyuan Plant)



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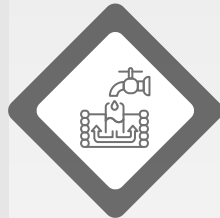
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3.5.2 Water Conservation Measures



Reclaimed water project

In support of the Kaohsiung Linhai Wastewater Treatment Plant Project, beginning in 2018, LCY's Kaohsiung Plant has been using reclaimed water from domestic wastewater for industrial use. The project takes full advantage of the resources from both the wastewater treatment plant and water reclamation plants. It integrates efforts from the domestic, public, and business sectors to reclaim domestic wastewater. The project is made possible by facilitating resources, manpower, and technology from participating partners. For example, the Kaohsiung Plant uses reclaimed water as recirculating water for the cooling tower. The cleaner water quality contributes to savings of 50-100 tons of discharge water from the cooling water tower per day, roughly an annual saving of 18,000~36,000 tons.



Plant water recycling

To reduce water consumption, we actively incorporate water conservation measures and use the plant's reclaimed water. The water usage enhancement measures include steam and condensate collection, utilization of MBR technology in some plants, tracking water usage, and R&D of recycling equipment. In 2021, Kaohsiung Plant optimized the wastewater treatment facilities which enabled the use of SBR-treated wastewater as incinerator greywater after applying for water pollution control measures. This contributes to a daily water consumption reduction of 50-100 tons, roughly 18,000-36,000 tons per year.



MBR Water Recycling

Membrane bioreactor (MBR) is a water recycling technology developed by LCY. The Kaohsiung Plant started building the MBR equipment in 2016. After collecting all of the wastewater generated during the manufacturing process, the system combines big data smart bio-treatment and a waste reduction system to recycle more than 90% of the wastewater. The system can treat up to 1,000 tons of wastewater a day, which significantly reduces the potential for pollution. The water quality is superior to externally-purchased industrial water and can be directly used to refill cooling towers and wash flares. MBR allows us to expand reclaimed water resources and enhances water-sourcing flexibility.

3.5.3 Water Pollution Prevention Measures

The Industrial Safety and Environmental Protection teams at each site are responsible for the compilation, evaluation, and promotion of the relevant regulations. We monitor water quality at the plant's water discharge outlets to prevent water pollution. LCY reduces hazardous substances in the discharged water through R&D in water treatment equipment, equipment performance optimization, and filter sand installation. We aim to improve the water quality to ensure effluent discharge meets or exceeds regulatory standards. Zero water discharge-related violations by LCY were found in 2022.

Effluent Standards



Taiwan

Primarily governed by the Effluent Standards, factories also adhere to local effluent quality standards where the industrial parks are located



China

Primarily governed by the Water Law of the People's Republic of China and comply with class 3 discharge standards



US

Governed by the Environmental Protection Agency (EPA) and Texas Commission on Environmental Quality (TCEQ) regulations





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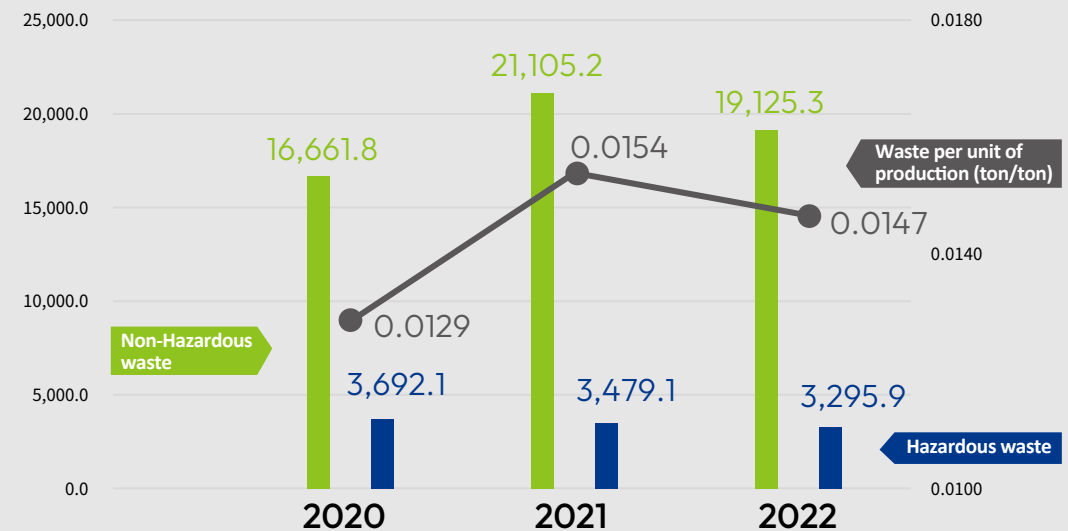
3.6.1 Waste Management

Product quality is dependent on the quality of upstream raw material; poor quality upstream raw material can lead to poor yield rate, which can in turn impact the company's business operation and cause the use of additional energy and resources. Similarly, internally-produced waste has a corresponding disposal cost that has the potential to increase. Industrial waste is typically handled by qualified contractors; if the contractors fail to properly dispose of the waste per environmental regulations, or if manufacturing waste disposal is not contracted out to qualified organizations, the improper disposal can lead to additional environmental issues that can hurt company's reputation. Therefore, all waste disposal should be regulatory compliant, including the proper waste storage area, dedicated hazardous waste storage sites, application for discharge or treatment permits, and truthful declaration with the competent authorities. All plants must establish the relevant responsible units, including the factory office and EHS divisions that are responsible for the organization of waste storage, declaration, removal, and inspection. Currently, LCY's waste disposal is primarily handled by qualified contractors. LCY examines the qualifications of waste treatment and recycling companies by visiting the companies' locations to verify permit documents and facilities to examine the disposal procedure. After waste removal, LCY also dispatches staff for unscheduled checks and waste removal/transportation status to ensure compliant disposal; for proper removal, we also conduct EHS training for the cleaning staff before on-site operation. LCY is committed to fulfilling our responsibility and protecting the safety of our workers during the waste removal process.

Furthermore, the plants have established an internal waste inspection & audit procedure and an external waste disposal management company's inspection & audit procedure. The procedures aim to regularly inspect the total waste output. The plants propose a review and improvement plan whenever an unusual occurrence is detected to reduce the environmental impact. As the waste produced by the plants varies in nature due to the differences in the manufacturing process, we focus on source reduction, efficiency enhancement, and recycling as the three main strategies across all plants. The plants regularly convene for review meetings and continue to enhance the effectiveness of our equipment and facilities to increase resource efficiency and reduce waste.

In 2022, LCY generated a total of 22,421.2 tons of waste, of which 19,125.3 tons were general business waste and 3,295.9 tons were hazardous waste. Hazardous waste saw a decrease of 5.27% compared to the figures from 2021, with a recycling rate (handled by trusted recycling organizations) of 11.43%.

LCY Total Waste Production



Non-Hazardous waste (ton)	16,661.8	21,105.2	19,125.3
Hazardous waste (ton)	3,692.1	3,479.1	3,295.9
Waste per unit of production (ton/ton)	0.0129	0.0154	0.0147

- In the Kaohsiung Plant, where waste can be processed internally, the data is calculated based on the declared figures with the completion date of waste processing. All other plants outsource waste management, and therefore, calculations are based on the declared data with the waste removal date.



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Promoting Social Prosperity

We believe that "talents" and "safety" are critical for sustainable development and operations in both society and corporations. As such, we strive to provide robust and competitive incomes and benefits, including better-than-regulatory annual leave policies, group insurance, employee trust funds, health checks, diverse club activities, etc. We are also staunchly opposed to any acts of discrimination, believing firmly in a workplace that fosters mutual respect and trust. We are happy to share the fruits of our shared labor with employees, providing a performance-based pay system that incentivizes employees and ensures that all employees can unleash their full potential to build a happy and friendly workplace.

> **59,000** hours **146**

Employee training reached 59,000 hours, with an average increase of 12.7% per employee from the previous year (2021)

A total of 146 employees received flu vaccines, fully funded by LCY, on a voluntary basis

100%

In 2022, 100% of employees underwent health checks

16%

16% of employees have a master's or higher degree, which increased by 1% from the previous year

100%

100% employee return rate and 89% retention rate after parental leave

SDGs



Occupational Safety & Health
 # Employment
 # Employee Training, Human Rights, Diversity & Equal Opportunities

Achievements



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Category	Metrics	2020-2022 Targets	2022 Achievements
Employee Health & Safety	Reduce risks to employee health and safety	Gather data based on incidence rates of critical illnesses in Taiwan to provide a basis for improving workplace environments and eliminating risks to employee health and safety	<ol style="list-style-type: none"> A total of 146 employees received flu vaccines, fully funded by LCY, on a voluntary basis. During the COVID-19 pandemic, we adopted measures that were better than regulatory standards, including working from home (via applications) and easing workplace attendance rules and conditions for unpaid family care leave so that employees can take care of their work and family with peace of mind during the epidemic prevention period. Employees in China and US plants were also offered multiple nucleic acid tests and free vaccines. 0% employee turnover due to health reasons.
	Implement employee health management	Provide comprehensive health checks to employees based on their workplace environments	<ol style="list-style-type: none"> Except for AR Plant employees, 100% of employees are covered by company insurance. In addition, employees can add items to their insurance for themselves and their family members with discounted rates by paying out of pocket so that employees can extend coverage to their families, even overseas, providing comprehensive protection. In 2022, 100% of employees in Taiwan and China underwent health checks, with factory nurses and OSH personnel monitoring and tracking those tested as high-risk individuals.
Talent Cultivation & Diverse Culture	Increase employee satisfaction	Conduct another employee satisfaction survey using the Net Promoter Score (NPS)	In 2022, the survey revealed 81% employee engagement, which is a 5% increase from the previous survey (2020), and helped departments determine areas for improvement. ● Note: Survey excludes the AR Plant
	Increase employee performance in the workplace	Help employees overcome psychological or behavioral problems and increase employee performance in the workplace	We provide free professional counseling. Employees can make reservations on their own. In 2022, a total of 107 consultations were conducted.
	Strengthen the company's competitiveness	Increase the percentage of employees with master's degrees or higher	16% of employees have a master's or higher degree, which increased by 1% from the previous year (2021).
	Strengthen equality	Ensure equal pay for equal work among men and women	LCY will not define or classify promotions, benefits, or profit-sharing based on sex or race for policies on pay and benefits. We value all employees and believe our employees are critical to sustainable growth and operations.
Community Relations Management	Caring for local communities	Understand local needs and promote LCY's sustainable ideals through open-house events	Organized 6 Open House events.
	Strengthen communication with stakeholders	Increase public awareness of sustainable development in the materials industry by working with academia and the government to engage in marketing campaigns for industry topics	Joined conferences and meetings related to net zero emissions organized by the Taiwan Chemical Industry Association (TCIA) and industry associations to engage in discussions.
	Build a circular economy & innovative ecosystem	Leverage global corporate resources and networks in research to facilitate technological breakthroughs in the circular economy and expand our employees' visions	Interact with related startup teams and discuss opportunities for possible collaboration.



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Goals & Targets

As the previous short-term goals have expired, a new set of short-, mid-, and long-term goals have been redefined in this report:

Category	Metrics	Long-term: 2050 Targets	Mid-term: 2030 Targets	Short-term: 2023 Targets
	Increase employee satisfaction	employee satisfaction 90%	Departments should make 50% progress on items uncovered from the previous survey 50%	Track progress across each department and plan the 2024 Employee Engagement Survey.
	Increase employee performance in the workplace	EAP coverage >50%	EAP coverage >20%	Roll out Employee Assistance Program (EAP) in Taiwan locations
Talent Cultivation & Diverse Culture	Strengthen the company's competitiveness	Complete 90% of the talent pipeline for middle and senior management in LCY locations in Taiwan and around the world 90%	Complete 80% of the talent pipeline for middle and senior management in LCY locations in Taiwan and 80% of the talent pipeline for senior management in LCY locations around the world 80%	Complete 60% of the talent pipeline for senior management in LCY locations in Taiwan 60%
	Strengthen equality	Ensure women account for 30% of middle or senior management in LCY locations around the world 30%	Ensure women account for 20% of middle or senior management for LCY locations in Taiwan 20%	Ensure women account for 15% of middle or senior management for LCY locations in Taiwan 15%

/ 4.1 Human Rights Policies

LCY is dedicated to creating a happy workplace environment and complies with local labor laws for all LCY locations around the world. We recognize and support the spirit and fundamental principles of human rights protection set forth in international human rights conventions such as the Universal Declaration of Human Rights, the United Nations Global Compact, and the International Labour Organization Convention. We hope to ensure that all LCY employees are treated fairly and with dignity and seek to provide quality workplace environments to guarantee safety in the workplace and physical/emotional health. Our Human Rights Policies are applicable to all LCY locations as well as our suppliers and partners.

Training & Promotion on Human Rights Issues

In early 2022, we announced our human rights policies to LCY employees around the world. Simultaneously, a Trust and Respect workshop was conducted to provide education on human rights principles. Additionally, a mailbox (gm@lcygroup.com) was established to encourage colleagues to express their opinions or suggestions. In 2022, there were no cases of discrimination, violations of rights to freedom of association or collective bargaining, child labor, or forced labor.

Management & Implementation of Human Rights Issues



Respecting Human Rights in the Workplace

- Provide equal employment opportunities and promote an inclusive and diverse workplace environment. Hiring, education and training, pay and benefits, retirement, layoffs, resignations, and firings at LCY will not discriminate against any race, class, language, religion, political affiliation, ancestry, gender, sexual orientation, age, or marital status.
- Uphold diversity in the workplace by ensuring equal treatment to those of different races, classes, languages, religions, political affiliations, ancestry, gender, sexual orientation, age, marital status, physical or mental disabilities, or blood type as well as prohibiting any human rights violations such as forced labor, child labor, or human trafficking.
- LCY policies clearly state that the company is prohibited from hiring any individuals below the age of 15. The company and plants are compliant with the policies and do not have any employees below the age of 16.



Fostering A Safe, Healthy & Happy Workplace

- Foster a safe and healthy workplace environment, work together to reduce health and safety risks in the workplace, promote our employee's physical and mental health, and facilitate work-life balance.
- Publicly declare our staunch opposition to any forms of discrimination, harassment, bullying, or any acts of workplace violence in our LCY Employee Guidelines and Guidelines to Prevent and Handle Sexual Harassment.
- Spotlight protection of maternal health by providing benefits better than those required in the Labor Standards Act, such as paid maternity leave, paid parental leave, and dedicated parking spots for pregnant employees.



Designing Impartial Salary & Welfare Policies

- Comply with regulations concerning pay and work hours and optimize salary structures based on principles of impartiality. Define the positions and value of each role within the organization while ensuring that difference in salary derives from their different functions and responsibilities.



Respecting Freedom of Association

- Encourage employees to establish and participate in club activities, offer diverse, open communication channels, and regularly convene labor-management meetings/union representative assemblies to foster harmonious labor relations.



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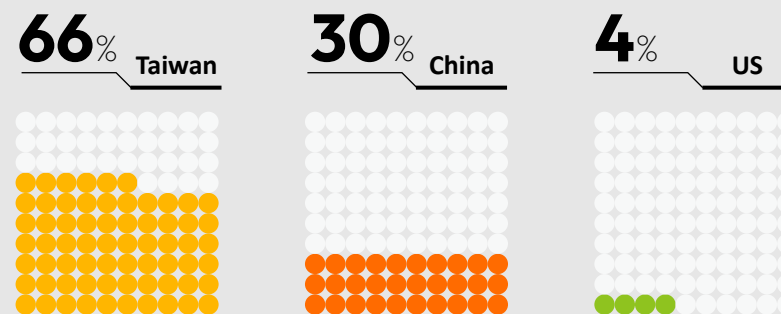
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/ 4.2 Employee Demographics & Management

Employees are the drivers for continuous corporate growth and the cornerstone for sustainable development. LCY treats all employees based on their functions solely and our hiring policies value equality and diversity. In 2022, we had 2,130 employees; 92% of which were permanent employees and 8% were temporary employees. Due to the nature of our industry, we have more male employees than female, with male employees accounting for 82% and female employees accounting for 18% (a 1% increase from the previous year). LCY employees include those employed in Taiwan (66%), China (30%), and the US (4%). In 2022, we welcomed 144 new employees and had a turnover of 260 employees, which is a turnover rate of 12.2%. Contract employees include temp workers, outsourced workers (security/cleaning services/factory drivers), interns, part-time workers, long-term contractors, etc.

Employee Demographic (by region)



Employee Demographic: By Region & Labor Contracts

	Region	Others (Not Management)		Management	Total
		Direct Labor	Indirect Labor		
Permanent Employees	Taiwan	696	482	203	1,381
	China	322	128	40	490
	US	54	18	14	86
Temporary Employees	Taiwan	0	17	0	17
	China	78	76	2	156
	US	0	0	0	0

- Note :
1. Direct Labor includes technical engineers and duty supervisors.
 2. Indirect Labor includes other employees who are not direct labor or in management.
 3. Management includes all employees with division head, group leader, or higher titles.

	Region	Full-time Employees	Part-time Employees	Zero-hours Workers	Total
Permanent Employees	Taiwan	1381	0	0	1,381
	China	490	0	0	490
	US	86	0	0	86
Temporary Employees	Taiwan	7	10	0	17
	China	156	0	0	156
	US	0	0	0	0

- Note :
1. Full-time employees are those working the statutory work hours or more each week.
 2. Part-time Employees are those working less than the statutory work hours each week.



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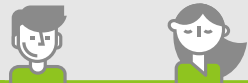
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By Gender & Labor Contracts



	Male (ppl)	Female (ppl)	Total (ppl)
Permanent Employees	1,603	354	1,957
Temporary Employees	149	24	173
Total	1,752	378	2,130
Employee Demographic (by gender)Percentage	82%	18%	100%

By Age & Labor Contracts



	≤ 30 years old (ppl)	31-50 years old (ppl)	≥ 51 years old (ppl)	Total (ppl)
Permanent Employees	195	1,438	324	1,957
Temporary Employees	120	36	17	173
Total	315	1,474	341	2,130
Employee Demographic (by age)Percentage	15%	69%	16%	100%

Composition of New Employees in 2022

Age	Region	Male (ppl)	Female (ppl)	Total (ppl)
≤30 years old	Taiwan	16	9	25
	China	44	1	45
	US	5	1	6
31-50 years old	Taiwan	30	11	41
	China	9	3	12
	US	6	2	8
≥51 years old	Taiwan	3	2	5
	China	0	0	0
	US	2	0	2
Total		115	29	144
New Employees (%)		5.4%	1.4%	6.8%

Composition of Turnovers in 2022

Age	Region	Male (ppl)	Female (ppl)	Total (ppl)
≤30 years old	Taiwan	21	7	28
	China	42	4	46
	US	1	0	1
31-50 years old	Taiwan	50	11	61
	China	68	10	78
	US	3	4	7
≥51 years old	Taiwan	23	2	25
	China	2	0	2
	US	11	1	12
Total		221	39	260
Turnover Rate (%)		10.4%	1.8%	12.2%

● Note : New Employees (%) = Number of New Employees / Total Number of Employees

● Note : Turnover Rate (%) = Number of Employee Turnovers / Total Number of Employees



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4.3.1 Pay & Welfare

Competitive Salary

We regularly review employee pay and how competitive their pays are, participating in peer income surveys both globally and locally to learn more about the status of different regions, leading companies, regulatory standards, and consumer price indices to quickly adjust pay policies in all LCY locations upon approval from senior executives. Our goal is to maintain competitive salaries while ensuring sustainable company operations. In addition, the incentive program for management at the LCY Technology Corp. (Copper Foil Plant) has been promulgated upon deliberation from the LCY Technology Corp.'s Remuneration Committee and subsequent approval from the Board of Directors.

The highest-paid individual's annual salary to the median salary of other employees

(excluding the salary of the highest-paid individual at LCY)

23.72

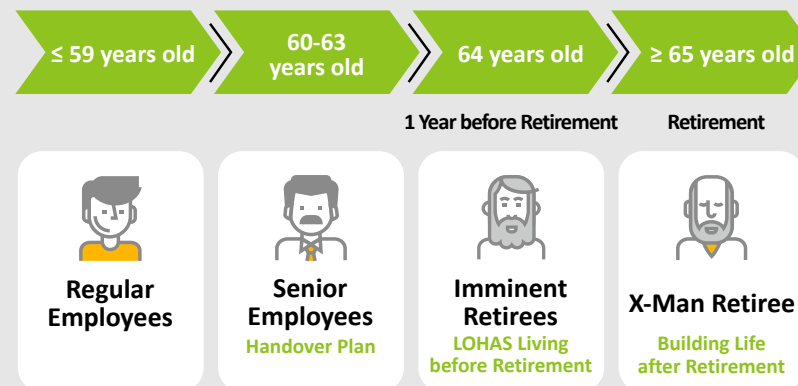
● Note : Includes salary of employees from LCY locations in Taiwan, China, and the US.

Incentives & Career Development Pathways

LCY has a comprehensive incentive system in place to reward and recognize our employees' efforts and performances. Our incentives, which include quarterly and annual bonuses, are based on company operations, developed by referring to our local industry's standards and norms, and differentiate rewards by performance. At LCY, incentives also serve to reinforce core values of safety, integrity, innovation, teamwork, and accountable leadership. We regularly convene HR evaluation meetings to help plan and formulate career development paths and targets for employees based on their function, competency, seniority, etc.

LOHAS Project for Imminent Retirees

We value and cherish all of our senior employees. To help them prepare for life after retirement and ensure they live their lives to the fullest, LCY launched the LOHAS Project in 2021 for LCY locations in Taiwan, where imminent retirees may apply to go on LOHAS leave in the year before their retirement. Employees in the LOHAS Project can take LOHAS leave to volunteer, pick up old hobbies or cultivate new ones, try out different sports, and develop new life goals, as a means to fulfill their lives after retirement. In 2022, 17 employees participated in the LOHAS Project.





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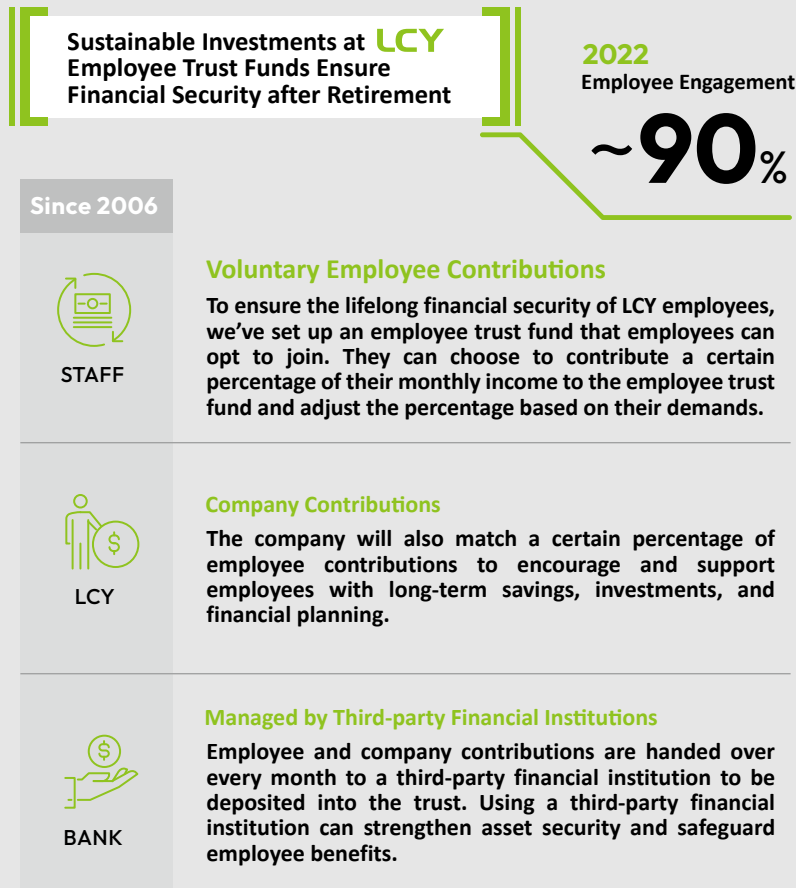
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Robust Financial Planning & Practices for Employees

To ensure the lifelong financial security of LCY employees, we've set up an employee trust fund that employees can opt to join. We will match a percentage of monthly employee contributions to encourage long-term savings and wealth accumulation. Around 90% of employees are now part of our employee trust fund program.



4.3.2 Employee Health & Safety

Employee Welfare Committee & Diverse Activities and Grants

To practice employee care, the Employee Welfare Committee hands out holiday bonuses during the three most important holidays in Taiwan (Chinese New Year, Dragon Boat Festival, and Mid-Autumn Festival), birthday gift bonuses for employee birthdays, other subsidies for gatherings/ childbirth/ marriage/ traveling/ language learning/ retirement/ injuries & illnesses/ death in the family/ children education, and other club activities and benefits.

Flexible Working Hours & Better-than-Regulation Annual Leave Policies

We are committed to protecting our employees' rights to take leave and attach great value to them taking breaks for their physical and mental health. We provide better-than-regulation paid leaves for pregnancy, illnesses, and flexible make-up days, employing a partial flex hour policy to help employees avoid traffic congestion during peak hours, thereby reducing emotional stress and accidents.

Taiwan

	<ul style="list-style-type: none"> According to the Labor Standards Act, female employees working in a company for less than 6 months are not eligible for paid maternity leave. At LCY, we want to do better; all female employees, even if they have worked for us for less than 6 months, are eligible for paid maternity leave. In the event of miscarriage between the second and third month of pregnancy, the female worker shall be permitted to discontinue her work and shall be granted a one-week paid maternity leave. In the event of miscarriage before the second month, the female worker shall be permitted to discontinue her work and shall be granted a five-day paid maternity leave to give our female colleagues time to rest.
Maternity Leave	
Sick Leave	We provide 80 hours of paid sick leave each year to hospitalized colleagues who have received surgery as treatment so that they can have enough time to rest.
Flexible Make-up Days	Employees are exempt from working makeup days for paid typhoon days and flexible holidays, effectively giving employees additional holidays.

Encourage Childbirth and Child-rearing, Protecting Related Benefits, and Helping Employees Return to the Workplace

In 2022, a total of 89 employees applied for parental leave and 100% of these employees returned. We were also able to successfully retain 89% of returning employees.

	Total		
	Female	Male	Total
Employees eligible for parental leave in 2022 (a)	52	227	279
Employees on parental leave in 2022 (b)	18	71	89
Employees expected to return to work (in 2022) after parental leave (c)	11	49	60
Employees that returned to work in 2022 (d)	11	49	60
Return Rate (d/c)	100%	100%	100%
Employees that returned to work in the last reporting period (2021) (e)	2	7	9
Employees that returned to work from parental leave (in 2021) and have been in service for one full year (f)	2	6	8
Retention Rate (f/e)	100%	86%	89%

Note : For the US (Baytown) plant, we comply with US laws, providing paid maternity leave to female employees and 12-week family care leaves (to care for their family, newborns, and medical conditions) to all employees who have been employed at LCY for a full year. As the definition for parental leave in the US is different from that of Taiwan and China, US data is not included in this table.

Professional Therapy Services, Massage from Blind Masseurs, Comprehensive Health Checks, and Vaccinations

We care about the physical and mental health of our employees. As such, we provide 1-on-1 professional therapy services in Taiwan & China and massage from blind masseurs for employees in Taiwan to relieve stress from life and work and provide employees with further support. In 2022, we provided free therapy sessions to 107 employees. We also work with designated medical centers to provide better-than-regulation health checks to employees based on their work and control banding to give employees insight into their physical conditions. Furthermore, we re-evaluate employee work based on previous accidents and medical histories to reduce diseases from occurring. In 2022, 100% of employees at LCY locations in Taiwan and China underwent health checks, with factory nurses and OSH personnel monitoring and tracking those tested as high-risk individuals. In addition, for employees wishing to receive out-of-pocket flu vaccines (GSK-Quadrivalent),

we provide full funding and work with medical centers to send medical workers to the company to administer flu vaccines for employees. In 2022, a total of 146 employees at LCY locations in Taiwan received flu vaccines as we attempted to safeguard employee health through preventative medical care.

Group Insurance, Business Travel Insurance, and Coverage for Family Members & across the World

All employees receive group insurance covering term life insurance, critical illness insurance, accident insurance, and hospitalization insurance. Spouses and children also receive hospitalization insurance. In addition, the company also covers cancer insurance and business travel insurance to strengthen protection for dispatched employees and employees on business trips. Employees can also add additional items to their insurance for themselves with discounted rates and for their spouses by paying out of pocket so that employees can extend coverage to their families and receive benefits overseas, which provide comprehensive protection.

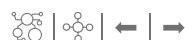
Prioritizing Emergency Response Measures & Employee Care Campaigns - COVID-19

During the COVID-19 pandemic, we continued to raise awareness of epidemic prevention measures by distributing epidemic prevention resources, strengthening workplace disinfection, and upgrading software/ hardware required for remote working so that employees can take turns coming to the office, thereby reducing health risks. We also adopted measures that were better than regulatory standards, including working from home (via applications) and easing workplace attendance rules and conditions for unpaid family care leave so that employees can take care of their work and families if they are quarantined at home or required to care for children below the ages of 12 due to delayed school years or family members in quarantine.

To inject positivity, we also launched a card-sharing event to circulate four types of cards: thank you cards, well wishes cards, good job cards, and booster cards so that employees can share positivity through these cards during this difficult time and experience camaraderie and encouragement from fellow employees to combat COVID-19.

Incentives to Increase Commute Safety

Employees working at LCY plants in Taiwan and China have access to free shuttle buses to and from metro stations. We also subsidize employees who commute using public transportation (buses, trains, metros) to reduce the risks of riding motorcycles or driving and decrease carbon emissions to promote a friendlier environment.



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4.4.1 Talent Cultivation Policies

LCY is dedicated to pursuing outstanding talents and expanding the scale of our organization. We institute robust HR policies to provide diverse job opportunities, establish comprehensive pay and benefit systems, and uphold gender equality and non-discriminatory ideals during hiring processes. At LCY, we spotlight talent cultivation and care about our employee's career development. More importantly, we care about instilling our core values of safety, accountable leadership, innovation, teamwork, and integrity into the DNA of our employees through education and training, empowering our employees to become our strategic partners, and building a culture of sustainable operations to achieve sustainability.



Commitment

- Include talent development into our "fair and rigorous internal/ external screening process" to fulfill corporate sustainability goals.
- Value and comply with gender equity laws to ensure equal opportunities for employment and promotions.
- Value our employee's career development and provide diverse education and training.



Policies

- Integrity, Innovation, Teamwork, Accountable Leadership, and Safety, our core values, underpin our hiring standards and we adopt a fair and rigorous internal/ external screening process.
- We provide comprehensive education and training for employees to help new employees learn more about our company culture, strengthen employee loyalty and cohesiveness, and, more importantly, facilitate professional development.



Communication Channels

- In compliance with labor laws, we regularly convene labor-management meetings to facilitate communication. LCY locations in Taiwan all convene quarterly labor-management meetings while LCY locations in China convene quarterly or need-based worker or union meetings, with 100% of employees in unions. The goal is to facilitate collaboration, promote stronger labor relations, improve labor conditions, and map out benefits for employees.
- We've also established a mailbox (gm@lcygroup.com) so employees send in suggestions or opinions.

4.4.2 Talent Cultivation Measures

To achieve corporate development goals and meet labor demands as the company grows rapidly, LCY has established a comprehensive education and training framework to organize onboarding training, professional development, management training for different levels, EHS training, and corporate mission classes both offline and online so that employees can grow holistically, develop professionally, and find the best positions for themselves. We strive to work with employees to map out their mid- and long-term functions and career paths. In 2022, we provided over 59,000 hours of training. On average, employees trained for 28.6 hours, with an average increase of 12.7% per employee from the previous year (2021). All permanent employees received performance reviews.

	Annual Training (Hours)				
	Others (Not Management)		Management	Total	Average Hours
	Direct Labor	Indirect Labor			
Female	1,918	6,582	1,487	9,987	27.7
Male	24,992	18,010	6,292	49,293	29.3
Total Hours	26,910	24,592	7,779	59,280	29.0
Average Hours per Employee	24.6	35.0	31.7	29.0	

Note :

1. Direct Labor includes technical engineers and duty supervisors.
2. Indirect Labor includes other employees who are not direct labor or in management.
3. Management includes all employees with division head, group leader, or higher titles.
4. Data on education and training does not include the Baytown Plant in the US. When calculating "Average Hours per Employee," employees from the Baytown Plant are excluded from the denominator.



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Permanent Employees	Employees Receiving Regular Performance Reviews			
	Others (Not Management)		Management	Total
	Direct Labor	Indirect Labor		
Female	56	242	56	354
Male	1,016	386	201	1,603
Total	1,072	628	257	1,957
Percentage	55%	32%	13%	100%

- Note :
1. LCY only conducts performance reviews for permanent employees, not temporary employees.
 2. Direct Labor includes technical engineers and duty supervisors.
 3. Indirect Labor includes other employees who are not direct labor or in management.
 4. Management includes all employees with division head, group leader, or higher titles.

Career Development Plan

We've organized workshops to promote our Career Development Plan, which aims to help LCY employees map out their career goals, develop different expertise, and encourage employees to continue growing and developing on their own to thereby, strengthen their own and the company's competitiveness. In the workshops, employees learn how to uncover their innate talents, potential, and passion; identify the requisite skills and available resources to reach their next career goals; and establish career goals and specific action plans. By continuously collecting feedback, updating career development plans, and regularly reviewing their progress, we help employees continue learning and growing toward their career goals. In 2022, we organized three workshops under the Career Development Plan.

1-on-1 Mentorship Program

Mentorship is a one-on-one guidance method in which mentors share life experiences, wisdom, and perspective to provide support and inspiration to mentees, thereby exerting positive influence and encouraging self-improvement and development. Starting in 2021, we've organized and hosted a Mentorship Workshop at LCY locations in Taiwan for new employees to help them build a mentor and support network so that they can continue to grow and progress in their careers and lives. For LCY locations in China, we use the mentorship model to introduce new employees to our workplace and their responsibilities.

Build a Workplace Culture of Trust & Respect

To guide employees and underscore the importance of trusting and respecting each other, building up a team consensus, and shaping a corporate culture of trust and respect, we organize 4- to 5-hour workshops on trust and respect. After workshop training, employees become more aware of the causes of unsuccessful communication and understand that they need to change their mindsets and beliefs to change their relationships with others. Throughout the session, they also learn ways to approach and treat other members of the organization. In addition to building a team consensus, the workshop also provides a shared language and camaraderie for employees when collaborating and communicating with each other, making teams more effective.



>>> Trainee Feedback 1

Our colleagues provide professional support to each other to complete tasks together.

>>> Trainee Feedback 2

Our colleagues are patient and listen to my questions before providing objective and professional advice.





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Campus Engagement & Youth Programs

In addition to cultivating talents internally, LCY also works with universities and colleges in Taiwan. We seek to encourage, inspire, and cultivate talents for the next generation through diverse approaches such as on-campus recruitment, open sessions introducing LCY, internships, and career coaching programs. We hope to introduce LCY to our younger generations to contribute and exert more influence on society. We also actively engage in applied research, leveraging the R&D capabilities of universities, colleges, and academic research institutes to foster potential R&D talents, increase the added value of products, and enhance product management.



✔ NCKU Career Coaching Program

Mid-level and senior management are brought on to serve as career coaches to NCKU students, guiding students to learn more about the industry landscape and helping them prepare for job search and employment. Coaches also share their own experiences to inspire students to think about interests, career plans, and future career development. In 2022, we organized one corporate visit and four lectures, which were attended by 70 students. Students shared that the series of sessions gave them further insight into LCY and thanked our instructors for sharing their rich, diverse experiences in workplaces and life, which were highly beneficial.



✔ Foster Potential R&D Talents

We also actively engage in applied research, leveraging the R&D capabilities of universities, colleges, and academic research institutes to foster potential R&D talents, increase the added value of products, and enhance product management. In 2022, we engaged in technological collaboration with NCKU and completed seven projects where we provided challenges existing in our industry for the academia to solve, facilitating industry-academia cooperation and talent cultivation.



✔ Internships

In 2022, we welcomed five interns. By providing internships to college students in related departments, LCY facilitates industry-academic cooperation and exchanges but also helps students bridge into the industry beforehand through hands-on learning.



✔ Corporate Visits

To give students an opportunity to learn more about LCY, we welcome schools to organize corporate visits to the company. In 2022, we hosted 6 corporate visits where 208 teachers and students visited our plants.

[Craft New Chapter] Maps Out LCY's Recruitment Program for the Next Generation of Talents

To rebrand LCY's image to be more appealing to a younger generation, demonstrate our commitment to ESG, and uncover highlights of LCY to promote to the outside world, we launched the "Craft New Chapter" campaign in 2022, publishing videos made by employees on "Go Beyond," "Go Inclusive," and "Go Green" to cultivate a lively brand image.

For the "Craft New Chapter" campaign, we called on LCY employees around the world to create videos and received 56 videos on different subjects such as our EHS team touring factories, inspections of rooftop solar panels, mountain cleaning, beach cleanups, etc., to showcase the youthful energy of our employees on the LCY website. We also collaborated with three Youtubers: Shasha77, What Channel!, and Chienshannn to speak directly with candidates through videos on subjects such as the key businesses of LCY, a day in the life of junior and middle management at LCY, and career development at LCY. In addition, we produced an ESG game to announce our job openings so that viewers can gain insight into the chemical engineering and material industry through fun activities. We also maximize our publicity campaigns by leveraging Dcard, LINE, Meta, and GDN to achieve a unique reach of 3.3 million people looking for jobs.

Another measure we've taken is collaborating with 104, a job search website, for the "Be a Giver" campaign, where we invite six plant managers to respond to questions and help resolve challenges faced by people looking for jobs. They also help review resumes to close the distance between the chemical industry and the public. LCY will continue to maintain our energetic and lively brand image and communicate with employees and job candidates to spread information from LCY.



📄 Craft New Chapter



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4.5.1 Occupational Safety Management

Safety is the license to operate and the cornerstone for building corporate sustainability in the chemical sector. Health Safety Environment (HSE) and Process Safety Management (PSM) are the two most important pillars to ensure safety. We care about the health and safety of our employees and contractors. To ensure workplace safety, build a safe, healthy, and comfortable workplace environment, and reduce occupational disasters, we've introduced the "ISO 45001 Occupational Health and Safety (OH&S) Management System" to locations in Taiwan and China. In the Baytown Plant in the U.S., we've formulated management guidelines and processes in compliance with local regulations to carry out regular internal/ external audits that can effectively prevent incidents. In the event that workplace risks emerge or accidents occur, tasks may be temporarily halted depending on the situation and reported according to internal SOPs. Investigations, employing root cause analysis, will then be conducted to prevent similar accidents in the future. The focus is not on blaming our workers but on committing to zero accidents to build a culture of health and safety in our workplace.

In addition to caring about the safety of workplace environments in our plants, we also promote campaigns to ensure the safety of our employees during commutes. LCY plants advocate and continue to encourage employees to use public transportation. We've long organized safe driving classes to prevent potential accidents in commutes by teaching defensive driving techniques. We've also adopted defensive measures to advocate for safe driving.

LCY experienced one social violation in 2022, with fines amounting to NT\$60,000. Primary violations were of the Occupational Safety and Health Act (Taiwan). All violations have been thoroughly reviewed with enhanced training and improved protocol. There were no material social violations. LCY will continue to strive for zero violations.

Social & Economic Violations at LCY in 2022

Type	No. of Violations	Fine (NT\$)
Occupational Safety	1	NT\$60,000

Establishment of the Occupational Safety and Health Committee

All plants in Taiwan have an Occupational Safety & Health Committee (OSH Committee) that is comprised of labor and management representatives in compliance with regulations. Labor representatives in all OSH Committees account for more than 1/3 of the committee, which convenes quarterly. China plants and the US plant also regularly convene safety management meetings that are attended by both labor and management representatives. In meetings, committee members formulate management guidelines in compliance with the plant's health and safety policies, review the workplace environment and various proposals on health and safety, and regularly check any updates to local regulations. Plant managers, the division of industrial safety, the division of environmental risk management, the chairman, the general manager, and the highest executives of all BUs regularly review matters relating to health and safety in all plants and coordinate control over health and safety management topics to control and manage material risks, ensure employee health management, occupational disease prevention, and promote health as part of efforts to value and carry out practices promoting employee health and safety.





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Occupational Safety Management Measures



Hazard Identification

Plants determine potential work-related hazards, including physical and chemical hazards, related to daily operations based on the characteristics of their process.



Risk Assessment

Identify high-risk work environments in plants, such as ionizing radiation, noise, and hazardous chemicals. Risks are classified into low, medium, higher, high, and extremely high levels based on assessment items such as frequency of operations, probability of occurrence, and level of severity. The risk classification can help us evaluate potential risks and hazards throughout daily operations.



Incident Investigation

All plants should comply with the company's "Incident Investigation & Reporting Guideline." When plants uncover occupational hazards or dangerous situations, employees uncovering the risk or responsible department heads may choose to temporarily halt the specific task depending on the situation and file an "Inspection & Corrective Action Report" in the system when necessary, preventing accidents from reoccurring by reviewing and investigating accidents.



Training & Advocacy

Provide occupational safety training to employees and contractors and hazard or safety training to relevant operators. Education and training topics include health and training, how to operate special equipment, and chemical safety. In 2022, employees and contractors received a total of 50,176 and 6,752 hours of training, respectively.



Emergency Response

Organize emergency response and drills for compound disasters simulating various emergency scenarios to perfect disaster response measures. Organize fire drills, work safety drills, and work safety drills to enhance our employee's emergency response capabilities. Drills include underground pipe leak drills, evacuation for chemical and toxic substance leaks, sandbox drills using emergency response equipment, emergency response and prevention of heat strokes in high temperatures, emergency response, chemicals, and toxic substance leak drills, hazard communication training, PPE usage, earthquake evacuation drill, CO₂ evacuation, fire drills, and others.

Work-related Injuries

There were 6 work-related injuries, 1 fatality, and 0 cases of work-related ill health in 2022. Work accidents in plants were primarily from falls, collisions, or improper use of machinery. The work accidents have now been included in management references to serve as a basis for optimization and strengthening education and training.

Severity of Work-related Injuries		Employees	Contract Employees
Work-related Injuries	No. of People	6	2
	Percentage	0.30	0.37
Work-related Ill Health	No. of People	0	0
	Percentage	0	0
Fatalities	No. of People	0	1
	Percentage	0	0.18
Total No. of Hours Worked (Hours)		4,048,175	1,090,674

Note :

1. Data mainly derived from monthly reports of work-related injuries.
2. Rate of fatalities as a result of work-related injury = Number of fatalities as a result of work-related injury × [200,000 working hours] / Number of hours worked
3. Rate of recordable work-related injuries = Number of recordable work-related injuries × [200,000 working hours] / Number of hours worked
4. Rate of work-related ill health = Number of work-related ill health × [200,000 working hours] / Number of hours worked; [Work-related ill health are those that arise from exposure to hazards at work and requires a medical diagnosis]
5. Contract employees include temp workers, outsourced workers (security/cleaning services/factory drivers), interns, part-time workers, long-term contractors, etc.





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Process Safety

To optimize and roll out Process Safety Management (PSM), the Corporate Environmental Risk Management Division established the PSM Promotion Committee based on the foundations of line management. BUs then establish executive committees to roll out PSM activities through smaller subcommittees with both felt leadership and HR matrix. All plants have established executive subcommittees for the seven elements of Process Hazard Analysis (PHA), Process Safety Information (PSI), Management of Change (MOC), Standard Operating Procedures (SOP), Pre-Startup Safety Review (PSSR), Mechanical Integrity (MI), and Incident Investigation (II) to roll out relevant PSM activities. Outcomes achieved by subcommittees, such as PSM activities, operational discipline, and full worker engagement, are then effectively integrated into the plant's daily risk management through quarterly reporting and reviews by the PSM Promotion Committee.

When plants under BU experience a near miss, especially ones that can be used as case studies of high potential risks for educational purposes, they are required to conduct investigations and compile investigation reports so that other colleagues may learn from the near miss and prevent material events or losses in the future. Each month, we select two cases of "near misses concerning high potential risks and educational value or near misses relating to process safety" to discuss during monthly management meetings. Simultaneously, we roll out corrective measures at all plants. These practices enable us to learn from near misses at other plants, specifically the basic cause and remedial measures, to strengthen our BU plants' understanding of near misses and continue to optimize process safety.

Meanwhile, we've referred to the definition of process safety events (PSE) from the International Council of Chemical Associations (ICCA), adding process safety events that meet the criteria for Tier 2 events or higher into the metrics of safety indicators. In the event of any accidents, we are not only concerned with potential indirect causes of unsafe situations or unsafe behaviors in workplace environments but also care about any potential management failures due to flaws in our management systems. This can help us further identify the basic causes of accidents.

In 2022, there were three process safety events, all relating to chemical leaks. No one was harmed in the events. All events have been investigated and corrective measures have been issued. In handling

these events, we conducted investigations into the incident to identify the basic cause but also emphasized the importance of uncovering and identifying the basic causes of "subsequent corrective actions." In addition, for events that may result in losses, we also factor in the consequences, focusing on reviewing flaws or failures in our protective measures to ensure better prevention of similar incidents in the future.

Process Safety Metrics	
Tier 1 Process Safety Incident Count (PSIC)	1
Tier 1 Process Safety Total Incident Rate (PSTIR)	0.039
Tier 2 Process Safety Incident Count (PSIC)	2
Tier 2 Process Safety Total Incident Rate (PSTIR)	0.078

● Note :

1. Process Safety Management primarily targets production locations and excludes other non-factory locations such as our Taipei Office, R&D Center, and Kaohsiung Terminal Station.
2. Process Safety Events are Tier 1 events as defined in ANSI/ API RP 754.
3. Process Safety Incidents Count (PSIC) tallies events that meet the four following conditions: (1) process-related; (2) chemical leaks exceeding the minimum requirement for reporting and that result in fatalities or injuries in employees, contractors, or hospitalization of third parties (non-employees or contractors); formal announcements of community evacuation or shelter-in-place; fire disasters or explosions that result in direct losses of US\$25,000 for the company; any of the above scenarios shall be immediately reported; (3) site of the incident is a production, logistic, storage, public, or testing facility; (4) any serious leakages that result in leakages exceeding the threshold limit value (TLV) within 1 hour.
4. Process Safety Total Incident Rate (PSTIR) = Total Process Safety Incident Count (PSIC) x [200,000 working hours] / Number of hours worked. Work hours from the Taipei Office, R&D Center, and Kaohsiung Terminal Station account for a small percentage of total work hours and are therefore not excluded from the data above.

Transportation Safety

We care about transportation safety. Our Procurement & Transportation Department is responsible for managing and auditing third-party transportation contractors, while plants are responsible for internal industrial safety, plant inspections, and organizing emergency response drills. In 2022, there were no major transportation incidents. For transportation contractor management, please refer to [1.4.2 Supply Chain Management Procedures](#).

4.5.2 Occupational Health Services

In terms of employee health management, LCY prioritizes comprehensive health checks, safety and protective facilities in plants, and rigorous chemical management and control. In response to the pandemic, employees in the Taipei Office and Nanzi R&D Center that did not have to work on-site enjoyed flex hours to prevent traffic congestion during peak hours and reduce potential accidents and emotional stress from being late. In addition, to prevent employees from catching the flu, which may lead to more serious complications, we provide free flu

vaccinations for all employees and arrange for medical centers to come on-site for flu vaccine administration.

Our contractors are required to comply with plant regulations before working at LCY plants, including hazard training to inform contractors of all identified hazards in the plant, especially hazards from harmful chemicals used in plants and their emergency response measures. We aim to eliminate all potential hazards and minimize risks.



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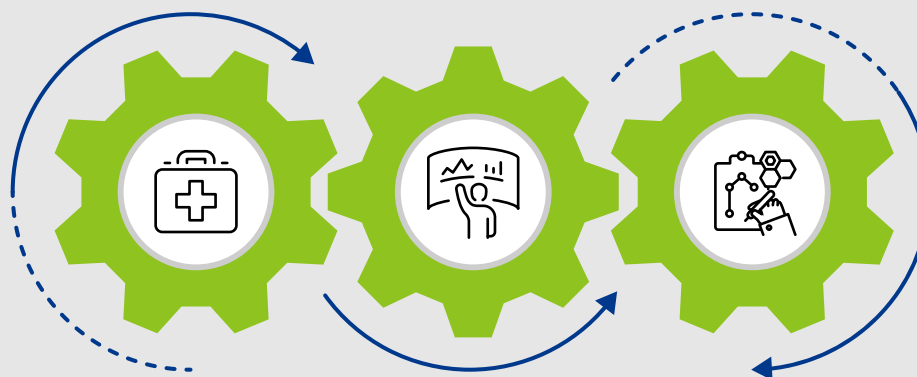
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01 Comprehensive Health Checks

- Provide regular and comprehensive health checks and cancer screening for employees of all levels based on their work environments.
- Provide health checks and control banding for special tasks to ensure employees do not come in contact with harmful and hazardous substances that subsequently impact their health.
- Test all plant employees for musculoskeletal symptoms and reassess existing work arrangements to reduce incidence rate based on employee's incidence rate and medical history.
- Bring in therapists to focus on our employee's emotional health for preventative care and a more robust health check system.

02 Safety & Protection Measures in Plants

- Plants are equipped with toxic chemical substance detectors and we are preparing to connect machines with the PI system's toxic chemical substance detectors to monitor stored toxic substances and potential leaks to prevent harm to human health and safety.
- Develop AI photo recognition technology to give alerts such as real-time feedback in the case of fires, electronic fences, and PPE integrity.
- Use automated machinery to reduce handling operations and therefore reduce potential incidents.
- The main goal is to provide employees with the appropriate protective equipment.
- Plants also conduct spontaneous audits to ensure operational safety for employees.

03 Rigorous Chemical Control Systems

All plants have formulated chemical management procedures to reduce potential hazards from employees being exposed to chemicals through three major approaches:

- Before purchasing materials, we check for toxicity levels and regulatory restrictions and collect the information. Our database is also regularly reviewed to ensure the quality of chemicals.
- We also conduct chemical incompatibility tests for our processes to ensure production safety in all plants.
- Through education and training on chemical substances, we increase our employee's understanding of chemicals used in their plants and how to properly handle the chemicals, such as our chemical stain remover session at the Linyuan Plant.



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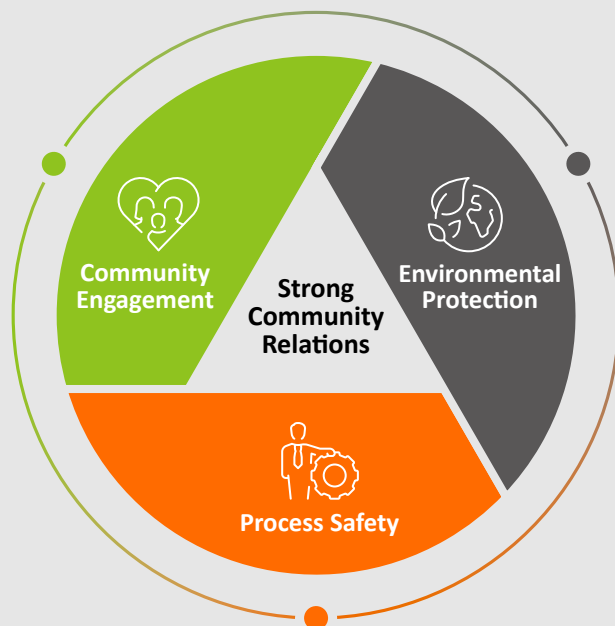
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4.6.1 Management Approaches to Community Relations

Community engagement, process safety, and environmental protection are the three pillars of community relations at LCY. As we continue to grow our business, we also care about developing the communities around us. We strive to help local communities and expand our influence to support the demands of our society and industries as well as economic development. We show that we care about social responsibility through actions we've taken to care for local regions, strengthen communication with stakeholders, and build a circular economy ecosystem to ensure prosperity for all.

Three Pillars of Strong Community Relations



Community Risk Assessment

LCY locations are mainly centralized in industrial parks, so the closest communities are generally 3~4 km away from our plants. Still, underground pipelines or suppliers transport raw materials used by the plants and our business activities may impact a more widespread area. As such, we care about industrial safety, environmental risk assessments, and response measures in surrounding communities. Plant operations may impact process safety, air pollution, employment, and transport safety for surrounding communities. In Taiwan, We've established a direct communication channel with local village chiefs to ensure immediate communication and feedback. In other regions, plant employees conduct community visits and report any assistance or improvements required by the communities back to the plant and LCY to give us more insight and ensure that change is being implemented.

4.6.2 Promoting Community Care

Operations at various LCY plants may impact surrounding communities. As such, we are proactive about caring for our communities, including safeguarding communities, protecting neighborhood relations, and protecting environments. To build mutual understanding with community residents, we've established a direct line of communication to maintain strong community relations. All plants around the world organize Open House events to give employee families, local residents, schools, government agencies, and other important stakeholders better insight into what we do at our plants and what our plants look like. We believe that open houses can build a stronger foundation for mutual trust.

Community Care

Neighborhood Safety



Conduct daily routine pipeline inspections and annual pipeline maintenance and repairs.



Conduct simulations for underground pipeline leakage and spread as well as risk assessments for tank truck transport routes.



Formulate crisis response plans for internal and external situations, and report emergency incidents as per stipulated procedures within the time frame.



Conduct regular industrial safety and fire drills to ensure on-site safety and that all personnel are familiar with emergency rescue and evacuation procedures.



Actively participate in health & safety committees organized by industrial parks.

Neighborhood Relations



Maintain close relationships with nearby police stations and fire departments.



Organize open house events to increase plant transparency.



Continue to sponsor and engage in community activities.



Provide emergency financial aid to disadvantaged residents in the neighborhood.

Environmental Protection



Actively participate in Kaohsiung City Government programs, including the adoption of air quality purification zones in elementary and middle schools, as well as relevant equipment maintenance.



Expand the use of renewable energies, install more related equipment, and acquire Taiwan Renewable Energy Certificates (T-REC).



Utilize automated information management and other platform systems to ensure chemical safety and environmental management.



Introduce the ISO 50001 Energy Management System, coupled with a digital energy monitoring system, to stay on top of energy usage information.



Introduce ISO 14064-1 GHG Inventory and conduct annual greenhouse gas inventory.

In 2022, LCY invested **NT\$ 1,328** million into community relations.



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Open House Events

In 2022, LCY organized 6 Open House events, inviting schools, local authorities, and other businesses in the area to visit our plants. During Open House events, we introduce our beliefs and measures to help manage safety and the environment internally. We also talk about corporate social responsibility, the circular economy, technologies for recycling wastewater, and PI systems (real-time information systems).



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Activity 1

LCY hosted 33 students from Feng Chia University's EMBA Program of "Global Business and Management Field Study." We provided a presentation at the Ren Da Industrial Park Service Center's Third Conference Room, introducing our Dashe Plant and engaging in discussions about ESG and underground pipeline management.



Activity 2

LCY invited regulatory authorities to the Linyuan Plant to share about the handling of products and public hazardous materials, process safety management, and PI systems - real-time fire information systems.



Activity 3

LCY invited 50 professors and students from the Jiangsu University of Science and Technology to visit our Zhenjiang Plant, giving a brief introduction to safety developments, green operations, and facility management at the plant, which were unanimously praised and recognized by the professors and students.



Environmental Protection with Volunteer Services

We are deeply aware of the importance of environmental protection. To improve community relations and strengthen environmental protection in local communities, in 2022, the Linyuan Plant volunteered to inspect land, coastlines, rivers, and roads, committing to protect our environment through real actions. Over 256 employees and families joined these volunteer efforts. In addition to organizing events, volunteers also created their own teams to carry out a number of missions. Galvanizing employees to engage in valuable services together not only builds stronger connections but also provides employees an opportunity to pursue a more meaningful interest outside of work. Volunteering not only enables them to protect our environment but also strengthens the spirit of mutual support and collaboration among employees.



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- **Services:** Weekly inspections of areas surrounding the Linyuan Plant that are susceptible to the illegal dumping of industrial waste.
- **Achievements:** In 2022, a total of 96 volunteers joined these efforts and conducted 48 inspections with a completion rate of 100%.

Linyuan Plant's Qingshui Yan Scenic Area Cleanup Event



Cleanup Snapshots - Results



Cleanup Snapshots - Collecting waste

- **Services:** Weekly cleanups and inspections of roads near the Linyuan Plant.
- **Achievements:** In 2022, a total of 24 cleanups were conducted with a completion rate of 100%.



Protecting environments around the Linyuan Plant

Land Inspection Volunteers

Coastline Inspection Volunteers

Road Inspection Volunteers

River Inspection Volunteers

- **Services:** Monthly inspections and cleanups of coastlines and gutters near Linyuan Plant.
- **Achievements:** In 2022, a total of 64 volunteers joined these efforts and conducted 24 cleanups with a completion rate of 100%.

Linyuan Plant's Shanwei Coastline Cleanup Event



Cleanup Snapshots - Results



Cleanup Snapshots - LCY employees working in groups to clean up marine debris

Keziliao Beach Cleanup in Ziguan District, Kaohsiung



The Environmental Protection Bureau of Kaohsiung City Government publicly commending LCY volunteers



Cleanup snapshots

- **Services:** Monthly inspections of rivers near the Linyuan Plant.
- **Achievements:** In 2022, a total of 24 cleanups were conducted with a completion rate of 100%.

4.6.3 Sustainable Community Empowerment

LCY Chairman Bowei Lee Awarded as 2022 Industrial Technology Research Institute (ITRI) Laureate for Bridging Taiwan's Chemical Industry with the World

At the 11th ITRI Laureate Ceremony in 2022, LCY Chairman Bowei Lee was given the honorable distinction as one of the ITRI laureates. President Tsai Ing-wen attended the ceremony in person to congratulate the laureates and present the laureate medal and certificate. The president recognized the new laureates' outstanding contributions to technological innovation and its industrialization and expressed appreciation for their selfless contributions to public welfare and industrial development. President Tsai also took the opportunity to point out that Chairman Lee has led LCY's 20-fold growth over the past 23 years and made remarkable contributions to bridging Taiwan's chemical industry with the world.

During the Laureate Ceremony, Chairman Bowei Lee cited the famous quote from Charles Dicken's A Tale of Two Cities, "it was the best of times, it was the worst of times," as his inspiration, sharing LCY's commitment to spotlighting climate change issues and promoting a green transformation. To give an example, the bio-succinic acid developed by LCY's Canadian team is produced by catalyst fermenting non-food-grade corn with an exclusive and genetically modified bacterial strain and, therefore, does not consume fossil resources. The production process also drastically reduces energy consumption. The biodegradable plastic - PBS - produced with our bio-succinic acid is gradually becoming a mainstream material in the world. Currently, PBS is applied to food packaging and can be degraded in 180 days under room temperature, reducing the carbon footprints from incinerating waste.

LCY also pioneered the EIPA Dual Cycle Circular Economy Model, providing process cleaners to the world's most advanced wafer fabrication processes. The waste solutions are then recycled by separating the IPA from the wastewater, purifying and then producing the same high-specification semiconductor-grade IPA. The remaining wastewater then undergoes



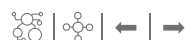
LCY's MBR process and is recycled and reused for industrial purposes, realizing a win-win situation for LCY, the semiconductor industry, and the environment while supporting the green transformation.

In addition, Chairman Lee underscores the vital role of talent development, pointing out that the emerging generation of green-collar professionals is fundamental to both economic and sustainable growth. He pledges continued support through the LCY Education Foundation, which offers scholarships, sponsors youth-led research projects, and hosts forums with Nobel laureate-level discussions. These initiatives aim to inspire students to pursue scientific research and help young scientists build international networks.

LCY Chairman Bowei Lee Speaks at SelectUSA and Advocates for Concessionary Tariffs between the US and Taiwan

LCY, representing a significant player in Taiwan's semiconductor chemicals industry, attended the 2022 SelectUSA Investment Summit hosted by the US Department of Commerce. LCY representatives delivered a keynote speech at the Maryland session, sharing insights on the advantages of investing in manufacturing industries in the US and providing expertise to pioneers in the field. During the summit, we highlighted the policies promoting domestic supply chain resilience in the US, urging key enterprises in the global semiconductor ecosystem to invest in the country. Following the industry's expansion, LCY invested in establishing a facility in Arizona in 2021, fostering greater collaboration and exchanges along the value chain.

Chairman Bowei Lee further expressed that double taxation has eroded the competitiveness of Taiwan-US multinational corporations. We aim to allocate more resources to bolster the resilience of the US supply chain. Additionally, we hope for infrastructure support comparable to that received by our counterparts, which would further incentivize increased investment from our end.



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LCY CEO Vincent Liu Attends the Taiwan-German Joint Business Council Meeting to Share the Chemical Industry's Vision for A Zero Carbon Future

The Chinese International Economic Cooperation Association (CIECA Taiwan), the German Trade Office Taipei, and the Taiwan Committee of German Business engaged with CEO Vincent Liu, who was representing the chemical industry in Taiwan, to explore leveraging research and innovation on raw materials to achieve a circular economy and contribute to global carbon reduction efforts. CEO Vincent Liu brought up LCY's Sustainable 6R framework to point out that LCY offers products to support all six dimensions of Recycling, Replace, Reduce, Repurpose, Recovery, and Renewable, giving examples such as our electronic-grade isopropyl alcohol (EIPA) and bio-succinic acid to demonstrate LCY's commitment toward achieving a zero-carbon economy.



Consistent Funding to the LCY Education Foundation Continues to Cultivate Young Talents

LCY is a long-time sponsor of the LCY Education Foundation, which focuses on fostering innovative talents in the fields of materials and chemicals. The LCY Education Foundation aims to encourage outstanding talents to dedicate themselves to learning about chemical engineering technologies and practices, enhance chemical engineering literacy and technologies, and welcome more outstanding talents to strive for sustainability through scholarships and international forums to empower a community of sustainability. The LCY Education Foundation provides scholarships to third-year college students all the way to doctoral students and young professors. Our talent cultivation programs targeting students in tertiary education continues to evolve with the times and we encourage more outstanding talents to join the ranks of sustainable chemicals. In 2022, we provided 71 scholarships. In addition, we organize an annual Bowei Research Conference (BRC), inviting biomedical, materials, and chemistry students to interact with world-class scholars and build a sustainable ecosystem. The BRC in 2022 was canceled due to the pandemic. The 2023 BRC was held in January.

Scholarships & Awards	No. of People
Outstanding Student Award	56
Doctoral Student Scholarship Award	5
Master's Student Scholarship Award	6
Outstanding Young Professor in Academic Research Award	4
Total	71



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Since 2010, our scholarship camps have attracted thousands of applications. The 11th scholarship camp (2022) reached nearly a hundred universities and colleges, 432 departments, and over 1,500 professors around Taiwan. Each year, nearly 60 students in departments of materials, chemistry, and chemical engineering are awarded scholarships. Scholarship camps inspire new ideas through teamwork and allow students to interact with senior LCY executives to learn more about their careers and work experiences. The theme of the 2022 scholarship camp was "Material Science for Good" to encourage

students to learn how to uncover and resolve problems and transform into actors who can change the world. In the future, we will continue to organize scholarship events that are innovative and encourage students to think outside the box. We will continue to expand projects on talent cultivation and industry-academia cooperation to attract more outstanding young talents. We hope that every scholarship event can inject new blood into Taiwan and foster more outstanding talents that future industries require.



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The 11th Scholarship Camp, themed, "Material Science for Good," encourages students to learn how to uncover and resolve problems and transform into actors who can change the world.



Representatives from each group select a designated element for their writing mission, encouraging cohesion in their groups and participation.



LCY Chairman Bowei Lee presents the MVP Award.





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Industry Associations	Roles
Taiwan Chemical Industry Association (TCIA)	Chairman Hong as the Vice Chairman of the Seventh Board of Directors
Chinese International Economic Cooperation Association (CIECA), Taiwan	Vice Chairman Christine Young sits on the Board of Directors
CommonWealth Sustainability League (CWS)	Member
Taiwan Alliance for Sustainable Supply (TASS)	Member
Industrial Technology Research Institute (ITRI)	Member
Taiwan Safety Council	Member
Taiwan Responsible Care Association (TRCA)	Vice President of Research and Development Joey Lin serves as a board member
TwIChE	Member
Chemical Society Located in Taipei (CSLT)	Member
Chinese Petroleum Institute	Member
Petrochemical Industry Association of Taiwan	Chairman Hong as the supervisor
Taiwan Synthetic Resins Manufacturers Association	Member
The Corrosion Engineering Association of ROC	Member
Chinese Industrial Machinery Association	Member
International Association of Arson Investigators Taiwan Chapter	Member
Taiwan Flat Panel Display Materials & Devices Association (TDMDA)	Member
Industrial Safety and Health Association (ISHA) of the R.O.C.	Member
Association of Occupational Safety and Health	Member
Kaohsiung Industrial Association	Member

Industry Associations	Roles
Dashe Petrochemical Industrial Association	Member
China National Pharmaceutical Packaging Association	Member
ROC-USA Business Council	Member
AmCham Taiwan	Member
The Third Wednesday Club	Member
Sino-Arabian Cultural & Economic Association	Member
Young Presidents' Organization (Taipei Chapter)	Member
Monte Jade Science & Technology Association of Taiwan	Member
Taiwan Mergers & Acquisitions and Private Equity Council (MAPECT)	Member
Taiwan Institute of Directors	Member
Taiwan Women on Boards Association	Member
Taiwan Listed Companies Association	Member
Cross-Strait CEO Summit	Member
Kaohsiung Chamber of Industry	Member
Chung Hua Process Safety Society (CHPSS)	Member
Taiwan Filtration and Separations Society	Member
Taiwan Patent Attorneys Association	Member
Taiwan Society of Mass Spectrometry	Member
Taiwan Union of Nurses Association (TUNA)	Member
Bureau International des Containers	Member
Sino-Indonesia Cultural and Economic Association	Member
Gloria NCKU	Member
WBCSD Global Network Partner	Member
The Chinese Institute of Environmental Engineering	Member



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GRI Standards	Disclosures	Related Chapters	Pages
GRI 1: Foundation 2021	GRI 1 GRI Content Index	Appendix GRI Standards Reference Table	99
	GRI 1 Provide a Statement of Use	LCY Chemical Corp. has reported in accordance with the GRI Standards for the period 2022/01/01 to 2022/12/31. GRI 1 used: GRI 1: Foundation 2021	4
	Applicable GRI Sector Standard(s)	None	99
GRI 2: General Disclosures 2021	2-1 Organizational details	About this Report 1.2.1 Corporate Governance	4 19
	2-2 Entities included in the organization's sustainability reporting	About this Report	4
	2-3 Reporting period, frequency and contact point	About this Report	4
	2-4 Restatements of information	Financial data is compared against the consolidated financial statements of LCY. Environmental and social data from Huizhou LCY Advanced Rubber Corp. (AR Plant) has been added compared to the 2021 report. About this Report	4
	2-5 External assurance	About this Report	4 \ 112
	2-6 Activities, value chain and other business relationships	About this Report 1.1.1 About Us 1.4 Supply Chain Management	4 16 27
	2-7 Employees	4.2 Employee Demographics & Management	78
	2-8 Workers who are not employees	4.2 Employee Demographics & Management The number of workers who are not employees is incomplete and therefore, has not been disclosed at this time. The data is expected to be disclosed in the 2023 ESG report.	78
	2-9 Governance structure and composition	1.2.1 Corporate Governance Please refer to the company's official website: About LCY Chemical Corp. (lccyc.com)	19
	2-10 Nomination and selection of the highest governance body	1.2.1 Corporate Governance	20
	2-11 Chair of the highest governance body	1.2.1 Corporate Governance	20



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GRI Standards	Disclosures	Related Chapters	Pages
GRI 2: General Disclosures 2021	2-12 Role of the highest governance body in overseeing the management of impacts	Identifying Stakeholders & Material Topics	8
		1.2.1 Corporate Governance	20
		1.2.2 Sustainable Operations	21
	2-13 Delegation of responsibility for managing impacts	1.2.2 Sustainable Operations	21
	2-14 Role of the highest governance body in sustainability reporting	Identifying Stakeholders & Material Topics	8
		1.2.2 Sustainable Operations	21
	2-15 Conflicts of interest	This information is not disclosed due to strict confidentiality regulations and as LCY is not a publicly listed company.	-
	2-16 Communication of critical concerns	There are no significant issues that require reporting to the Board of Directors.	-
	2-17 Collective knowledge of the highest governance body	1.2.1 Corporate Governance	20
		1.2.2 Sustainable Operations	21
	2-18 Evaluation of the performance of the highest governance body	LCY Chemical Corp. does not conduct this evaluation. The evaluation approach for LCY Technology Corp. (Copper Foil Plant) involves reporting the performance assessment results of the Board of Directors (internal assessments, director self-assessments, and external assessments) to the board. Subsequently, the results are disclosed to TWSE by filing a report on the results of "Self-Evaluation of Performance of the Board" and documented in the annual report.	-
	2-19 Remuneration policies	This information is not disclosed due to company confidentiality regulations. Please refer to the annual report and organizational charter for the remuneration committee for data on LCY Technology Corp. (Copper Foil Plant), as well as the articles of incorporation §27, 30-1, 31.	-
Link: Annual Report, the organizational charter for the remuneration committee, and articles of incorporation			
2-20 Process to determine remuneration	4.3.1 Pay & Welfare	80	
2-21 Annual total compensation ratio	Due to actual operations, the percentage increase cannot be calculated for 2022 and therefore, cannot be disclosed.	80	
	4.3.1 Pay & Welfare		
2-22 Statement on sustainable development strategy	Message from the Chairman	6	
	1.2.2 Sustainable Operations	21	



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GRI 2: General Disclosures 2021	2-23 Policy commitments	Message from the Chairman	6
		1.2.2 Sustainable Operations	21
		1.3.1 Compliance Culture	23
		3.1.1 Protecting the Environment	54
		4.1 Human Rights Policies	77
	2-24 Embedding policy commitments	4.4.1 Talent Cultivation Policies	83
		1.2.2 Sustainable Operations	21
		1.3.1 Compliance Culture	23
		4.1 Human Rights Policies	77
		4.4.2 Talent Cultivation Measures	83
2-25 Processes to remediate negative impacts	1.3.1 Compliance Culture	23	
	1.4.2 Supply Chain Management Procedures	28	
	4.1 Human Rights Policies	77	
	4.4.1 Talent Cultivation Policies	83	
	2-26 Mechanisms for seeking advice and raising concerns	1.3.1 Compliance Culture 1.4.2 Supply Chain Management Procedures	23 28
2-27 Compliance with laws and regulations	Identifying Stakeholders & Material Topics	8	
	3.1.2 Environmental Regulatory Compliance	54	
	4.5.1 Occupational Safety Management	86	
	2-28 Membership associations	Appendix Participation in Industry Associations	98
	2-29 Approach to stakeholder engagement	Identifying Stakeholders & Material Topics	8
GRI 3: Material Topics 2021	2-30 Collective bargaining agreements	4.4.1 Talent Cultivation Policies	83
	3-1 Process to determine material topics	Identifying Stakeholders & Material Topics	8
	3-2 List of material topics	Identifying Stakeholders & Material Topics	8
	3-3 Management of material topics	Identifying Stakeholders & Material Topics	8
		1.3.2 Risk Management	24



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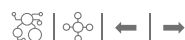
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GRI Standards	Disclosures	Related Chapters	Pages
Material Topics			
GHG Emissions			
GRI 3: Material Topics 2021	3-1 Process to determine material topics	Identify stakeholders and material topics	8
	3-2 List of material topics	Identify stakeholders and material topics	8
	3-3 Management of material topics	3 Green Operations 3.3.1 Carbon Management	51 59
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	3.3.1 Carbon Management	60
	305-2 Energy indirect (Scope 2) GHG emissions	3.3.1 Carbon Management	60
	305-4 GHG emissions intensity	3.3.1 Carbon Management	62
	305-5 Reduction of GHG emissions	3.3.1 Carbon Management	59
Energy Management			
GRI 3: Material Topics 2021	3-1 Process to determine material topics	Identify stakeholders and material topics	8
	3-2 List of material topics	Identify stakeholders and material topics	8
	3-3 Management of material topics	3 Green Operations 3.3.2 Energy Management	51 63
GRI 302: Energy 2016	302-1 Energy consumption within the organization	3.3.2 Energy Management	63
	302-2 Energy consumption outside of the organization	3.3.2 Energy Management	63
Employee Training, Human Rights, Diversity & Equal Opportunities			
GRI 3: Material Topics 2021	3-1 Process to determine material topics	Identify stakeholders and material topics	8
	3-2 List of material topics	Identify stakeholders and material topics	8
	3-3 Management of material topics	4 Promoting Social Prosperity	74
		4.1 Human Rights Policies 4.4.1 Talent Cultivation Policies	77 83



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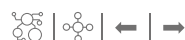
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GRI Standards	Disclosures	Related Chapters	Pages
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	4.4.2 Talent Cultivation Measures	83
	404-2 Programs for upgrading employee skills and transition assistance programs	4.4.2 Talent Cultivation Measures 4.3.1 Pay & Welfare	83 80
	404-3 Percentage of employees receiving regular performance and career development reviews	4.4.2 Talent Cultivation Measures	83
GRI 405: Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	4.2 Employee Demographics & Management	78
GRI 408: Child Labor 2016	408-1 Operations and suppliers at significant risk for incidents of child labor	4.1 Human Rights Policies	77
Employment			
GRI 3: Material Topics 2021	3-1 Process to determine material topics	Identify stakeholders and material topics	8
	3-2 List of material topics	Identify stakeholders and material topics	8
	3-3 Management of material topics	4.2 Employee Demographics & Management 4.3 Employee Welfare	78 80
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	4.2 Employee Demographics & Management	79
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	4.3.1 Pay & Welfare 4.3.2 Employee Health & Safety	80 81
	401-3 Parental leave	4.3.2 Employee Health & Safety	81
Air Quality			
GRI 3: Material Topics 2021	3-1 Process to determine material topics	Identify stakeholders and material topics	8
	3-2 List of material topics	Identify stakeholders and material topics	8
	3-3 Management of material topics	3 Green Operations 3.4.1 Air Quality Policies	51 65
GRI 305: Emissions 2016	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	3.4.2 Air Pollution Reduction Measures	66



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Water Management			
GRI 3: Material Topics 2021	3-1 Process to determine material topics	Identify stakeholders and material topics	8
	3-2 List of material topics	Identify stakeholders and material topics	8
	3-3 Management of material topics	3 Green Operations 3.5.1 Water Policies	51 69
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	3.5.1 Water Policies	69
	303-2 Management of water discharge-related impacts	3.5.1 Water Policies	69
	303-3 Water withdrawal	3.5.1 Water Policies	71
	303-4 Water discharge	3.5.1 Water Policies	71
	303-5 Water consumption	3.5.1 Water Policies	71
Supply Chain Management			
GRI 3: Material Topics 2021	3-1 Process to determine material topics	Identify stakeholders and material topics	8
	3-2 List of material topics	Identify stakeholders and material topics	8
	3-3 Management of material topics	1.4 Supply Chain Management	27
GRI 308: Supplier Environmental Assessment 2016	308-1 New suppliers that were screened using environmental criteria	1.4.2 Supply Chain Management Procedures	28
GRI 414: Supplier Social Assessment 2016	414-1 New suppliers that were screened using social criteria	1.4.2 Supply Chain Management Procedures	28
Occupational Safety & Health			
GRI 3: Material Topics 2021	3-1 Process to determine material topics	Identify stakeholders and material topics	8
	3-2 List of material topics	Identify stakeholders and material topics	8
	3-3 Management of material topics	4.5.1 Occupational Safety Management	86



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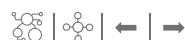
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GRI Standards	Disclosures	Related Chapters	Pages
GRI 403: Occupational Health and Safety 2018	403-1 Occupational health and safety management system	4.5.1 Occupational Safety Management	86
	403-2 Hazard identification, risk assessment, and incident investigation	4.5.1 Occupational Safety Management	86
	403-3 Occupational health services	4.5.2 Occupational Health Services	89
	403-4 Worker participation, consultation, and communication on occupational health and safety	4.5.1 Occupational Safety Management	86
	403-5 Worker training on occupational health and safety	4.5.1 Occupational Safety Management	86
	403-6 Promotion of worker health	4.5.2 Occupational Health Services	89
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	4.5.1 Occupational Safety Management	86
	403-8 Workers covered by an occupational health and safety management system	4.5.1 Occupational Safety Management	86
	403-9 Work-related injuries	4.5.1 Occupational Safety Management	87
	403-10 Work-related ill health	4.5.1 Occupational Safety Management	87
Information Security			
GRI 3: Material Topics 2021	3-1 Process to determine material topics	Identify stakeholders and material topics	8
	3-2 List of material topics	Identify stakeholders and material topics	8
	3-3 Management of material topics	1.5 Information Security	33
GRI 418: Customer Privacy 2016	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	1.5.2 Information Security Management Procedures	33
Green Products			
GRI 3: Material Topics 2021	3-1 Process to determine material topics	Identify stakeholders and material topics	8
	3-2 List of material topics	Identify stakeholders and material topics	8
	3-3 Management of material topics	2.1.1 Innovative Management	38
2.2.1 LCY's Sustainability 6R		39	
GRI 301: Materials 2016	301-2 Recycled input materials used	2.2.2 Green Materials Innovation	43
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	2.2.2 Green Materials Innovation	43



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Topic	Code	Accounting Metric	2022 Amount	Related Chapters	Pages
GHG Emissions	RT CH 110a.1	Gross global Scope 1 emissions (tCO ₂ e)	205,742 tCO ₂ e, accounting for 22% of total emissions (Scope 1+ Scope 2)	3.3.1 Carbon Management	59
		Percentage of Scope 1 emissions covered under emissions-limiting regulations (%)	Carbon fees and trading systems are still in the legislative process in Taiwan. No Scope 1 emissions are limited by regulations in Taiwan, China, and the US, but we will continue to keep a pulse on domestic carbon regulations.		-
	RT CH 110a.2	Discussion of strategy to manage Scope 1 emissions, emission reduction targets, and an analysis of performance against those targets.	Due to the type and characteristics of the products we offer at LCY, our GHG emissions are primarily indirect emissions (Scope 2), which account for nearly 80% of our total emissions, rather than direct emissions (Scope 1), which are more common in traditional petrochemical industries. As such, carbon reduction measures focused on two areas: energy and steam conservation. We also utilized smart management systems at the plant to identify optimal operating parameters and potential hotspots for energy conservation. New practices implemented included replacing variable-frequency drives, recycling waste heat, and reducing steam usage. With respect to Scope 1, efforts are focused on exhaust gas treatment and reducing the use of externally sourced fuels. Alternatively, there is a focus on transitioning to low-carbon fuels such as natural gas. In 2022, Scope 1 emissions decreased by 8.4% compared to 2021.	3.3.1 Carbon Management	59
Air Quality	RT CH 120a.1	Air emissions of the following pollutants:	57.178 tons	3.4.2 Air Pollution Reduction Measures	68
		① Nitrogen oxides (NO _x)			
		② Sulfur oxides (SO _x)	4.778 tons	3.4.2 Air Pollution Reduction Measures	68
		③ Volatile organic compounds (VOC)	267.616 tons	3.4.2 Air Pollution Reduction Measures	68
		④ Hazardous air pollutants (HAPs)	31.430 tons	3.4.2 Air Pollution Reduction Measures	68
Energy Management	RT CH 130a.1	① Total energy consumed (GJ)	7,998,583 GJ	3.3.2 Energy Management	63
		② Percentage grid electricity (%)	26.2%	3.3.3 Promoting Renewable Energy	64
		③ Percentage renewable (%)	0.00361%		-
		④ Total self-generated energy (GJ)	289 GJ	3.3.2 Energy Management	63
				3.3.3 Promoting Renewable Energy	64



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Topic	Code	Accounting Metric	2022 Amount	Related Chapters	Pages	
Water Management	RT CH 140a.1	1 Total water intake	6,015,244 tons	3.5.1 Water Policies	71	
		2 Percentage of total water withdrawn in regions of High or Extremely High Baseline Water Stress	0%	We have identified water resource risks in our main production locations with WRI's water assessment tool, Aqueduct Water Risk Atlas. All plants in Kaohsiung (Taiwan), Huizhou (China), AR (China) and Zhenjiang (China) are in regions of low baseline water stress; and Baytown (US) has low-to-medium baseline water stress, hence 0%.	3.5.1 Water Policies	69
		3 Total water consumption	3,556,741 tons	3.5.1 Water Policies	71	
		4 Percentage of the total water consumed in regions of High or Extremely High Baseline Water Stress	0%	We have identified water resource risks in our main production locations with WRI's water assessment tool, Aqueduct Water Risk Atlas. All plants in Kaohsiung (Taiwan), Huizhou (China), AR (China) and Zhenjiang (China) are in regions of low baseline water stress; and Baytown (US) has low-to-medium baseline water stress, hence 0%.	3.5.1 Water Policies	69
Water Management	RT CH 140a.2	Number of incidents of non-compliance associated with water quality permits, standards, and regulations	0	3.5.3 Water Pollution Prevention Measures	72	
	RT CH 140a.3	Description of water management risks and strategies to mitigate those risks	At LCY, we manage water resources from three aspects: governance, strategic and technical. <ul style="list-style-type: none"> The governance aspect includes elevating the importance of water management, establishing the Energy & Water Conservation Committee, and setting water conservation goals. The strategic aspect includes 1) increasing the amount of water recycled at the plants by recycling steam condensate, using MBR technology to treat wastewater at plants, and 2) installing water conservation facilities to reduce water withdrawals and working with external parties to implement a water reclamation program. The technical aspect includes research, development, and optimization of MBR technology and other technologies that improve water use efficiency. 	3.5.1 Water Policies	69	
Hazardous Waste Management	RT CH 150a.1	Amount of hazardous waste generated	3,295.9 tons	3.6.1 Waste Management	73	
		Percentage of hazardous waste recycled	11.43% (handled by trusted recycling organizations)	3.6.1 Waste Management	73	



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Community Relations	RT CH 210a.1	Discussion of engagement processes to manage risks and opportunities associated with community interests	<p>LCY upholds three principles for community relations: community engagement, process safety, and environmental protection.</p> <ul style="list-style-type: none"> Plant operations may impact process safety, air pollution, employment, and transport safety for surrounding communities. We've established a direct communication channel with local village chiefs to ensure immediate communication and feedback. Plant employees conduct community visits and report any assistance or improvements required by the communities back to the plant and LCY to give us more insight and ensure that changes are being implemented. 			4.6.1 Community Relations Management Policies	90								
			Workforce Health & Safety	RT CH 320a.1	<p>Contract Employees</p> <p>(Contract employees include temp workers, outsourced workers (security/cleaning services/factory drivers), interns, part-time workers, long-term contractors, etc.)</p>	<table border="1"> <thead> <tr> <th>Employee Type</th> <th>Total recordable incident rate (TRIR)</th> <th>Fatality Rate (FR)</th> </tr> </thead> <tbody> <tr> <td>Employees</td> <td>0.30</td> <td>0</td> </tr> <tr> <td>Contract Employees</td> <td>0.37</td> <td>0.18</td> </tr> </tbody> </table>	Employee Type	Total recordable incident rate (TRIR)	Fatality Rate (FR)	Employees	0.30	0	Contract Employees	0.37	0.18
Employee Type	Total recordable incident rate (TRIR)	Fatality Rate (FR)													
Employees	0.30	0													
Contract Employees	0.37	0.18													
RT CH 320a.2	<p>Description of efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks.</p>	<ul style="list-style-type: none"> Provide regular and comprehensive health and cancer screenings for employees at all levels based on their work environment. Provide health screening and control banding for special tasks to ensure that employees do not come into contact with harmful and hazardous substances that could subsequently affect their health. Screen all plant employees for musculoskeletal symptoms and reevaluate existing work arrangements based on past incidence rates and employee medical history to reduce incidence rates. 			4.5.2 Occupational Health Services	89									
		Product Design for Use-Phase Efficiency	RT CH 410a.1	Revenue from products designed for use-phase resource efficiency			<p>In 2022, green products generated NT\$3,259,627,000 in revenue, accounting for 6% of total revenue.</p>			2.2.1 LCY's Sustainability 6R	39				



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Topic	Code	Accounting Metric	2022 Amount	Related Chapters	Pages
Safety & Environmental Stewardship of Chemicals	RT CH 410b.1	Percentage of products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances	18.6%	2.3.1 Chemical Management Protocols	46
		Percentage of products that contain GHS Category 1 and 2 substances that have undergone a hazard assessment	100%	2.3.1 Chemical Management Protocols	46
		Discussion of strategy to manage chemicals of concern and develop alternatives with reduced human and/or environmental impact.	<p>Chemical management at LCY is controlled through two phases: Product R&D and Plant Management</p> <ul style="list-style-type: none"> Product R&D phase: Evaluate alternatives and reduce high-risk/hazardous substances. Meet with industrial safety and environmental protection units at plants to conduct environmental and health hazard and safety assessments for the production process. In the TPE-SIS product line, a successful substitution was made for talc, a raw material for the dedusting problems. In addition, at the Linyuan Plant, analytical methods were adjusted to avoid the use of carcinogenic listed toxic substances, specifically potassium dichromate and potassium chromate, to improve employee safety. Plant management phase: The Environmental Risk Management Department at headquarters and the industrial safety and environmental protection office at the plants formulate quality control guidelines for each of the five stages of the chemical life cycle, including needs-based application, incoming inspection, procurement labeling, storage and use, and disposal. We monitor changes in chemical regulations by the relevant authorities, clarify the impact on our plants, and discuss response measures to ensure that the use and management of chemicals at all plants comply with local laws and regulations. 	2.3.1 Chemical Management Protocols	46
Genetically Modified Organisms	RT-CH-410c.1	Percentage of products by revenue that contain genetically modified organisms (GMOs)	LCY does not use any GMOs.		-
Management of the Legal & Regulatory Environment	RT CH 530a.1	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	To track, assess, and manage changes in related regulations, responsible local units and industrial safety and environmental protection offices in plants are instructed to pay close attention to regulatory changes, coordinate support and rollout, and ensure employee understanding and compliance through regular information sharing, education, training, advocacy, and announcements. Our goal is zero noncompliance.	1.3.1 Compliance Culture	23



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Topic	Code	Accounting Metric	2022 Amount	Related Chapters	Pages	
Emergency Preparedness & Response for Occupational Safety	RT CH 540a.1	Process Safety Incidents Count (PSIC)	1	In 2022, there were three process safety incidents (one Tier 1, two Tier 2). The incidents primarily involved chemical leaks and fires, but fortunately, no injuries were reported. All incidents were thoroughly tracked and managed, and recommendations for improvement were made.	4.5.1 Occupational Safety Management	88
		Process Safety Total Incident Rate (PSTIR)	0.039			
		Process Safety Incident Severity Rate (PSISR)	0.039			
	RT CH 540a.2	Number of transport incidents	0			
Production	RT CH 000.A	Annual production by reportable segment	Due to LCY's commercial considerations, only the production ratio by business unit is provided. The data includes Sarnia Plant in Canada	1.1.1 About Us	17	
			Thermoplastic Elastomers 30% Performance Plastics 21% Methanol & Solvent & Water 35% Electronic-Grade Solvent Products 12% Copper Foil 1% Bio-Based 1% Others 0% Total 100%			





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TCFD Core Elements & Required Information		Related Chapters	Pages
 Governance	A Describe the board's oversight of climate-related risks and opportunities.	3.2.1 Governance & Strategy	55
	B Describe management's role in assessing and managing climate-related risks and opportunities.		
 Strategy	A Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	3.2.2 Climate Risks & Responses	56
	B Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	3.2.1 Governance & Strategy	55
	C Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	3.2.2 Climate Risks & Responses	56
 Risk Management	A Describe the organization's processes for identifying and assessing climate-related risks.	3.2.2 Climate Risks & Responses	56
	B Describe the organization's processes for managing climate-related risks.		
	C Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.		
 Metrics and Targets	A Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	3.3 Carbon & Energy Management	59
	B Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks.		
	C Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.		



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Independent Assurance Statement



Independent Assurance Statement

Scope and Approach

LCY CHEMICAL CORP. ("LCY" or "the Company") commissioned DNV Business Assurance Co., Ltd. ("DNV" or "we") to undertake independent assurance over the 2022 ESG Report for the year ended 31 December 2022 ("the Report").

We performed our work using DNV's assurance methodology VeriSustain™, which is based on our professional experience and international assurance best practices, including the International Standard on Assurance Engagements 3000 (ISAE 3000) and the Global Reporting Initiative (GRI) Sustainability Reporting Standards.

The Report also incorporated disclosures with reference to relevant sustainability reporting guidelines, such as the Sustainability Accounting Standards Board (SASB) Sustainability Accounting Standard for the Chemicals industry (version 2018-10) and the Recommendations of the Task Force on Climate-related Financial Disclosures.

We understand that the reported financial data and information are based on the data from the Company's Annual Report and Accounts, which are subject to a separate independent audit process. The review of financial data taken from the Annual Report and Accounts and greenhouse gas emission data verified by other assurance engagements are not within the scope of the current engagement.

We planned and performed our work to obtain the evidence we considered necessary to provide a basis for our assurance opinion. We are providing the evaluation of reporting principles with a Type 1, Moderate level of assurance, according to the DNV VeriSustain™ Protocol.

Responsibilities of the Directors of LCY CHEMICAL CORP. and of the Assurance Providers

The Directors of LCY have sole responsibility for the preparation of the Report. In performing our assurance work, our responsibility is to the management of LCY; however, our statement represents our independent opinion and is intended to inform all of LCY's stakeholders.

DNV was not involved in the preparation of any statements or data included in the Report except for this Assurance Statement. We have no other contractual relationship with LCY that constitutes a conflict of interest against the current assurance engagement.

DNV's assurance engagements are based on the assumption that the data and information provided by the client to us as part of our review have been provided in good faith. DNV expressly disclaims any liability or co-responsibility for any decision a person or an entity may make based on this Assurance Statement.

Basis of Our Opinion

A multi-disciplinary team of sustainability and assurance specialists performed work at the Company and site levels. We undertook the following activities:

- Review of the current sustainability issues that could affect LCY and are of interest to stakeholders.
- Review of LCY's stakeholder engagement approach and recent outputs.
- Review of information provided to us by LCY on its reporting and management processes relating to the Principles.
- Interviews with selected senior executives responsible for the management of sustainability issues and review of selected evidence to support the issues discussed.
- Site visits to LCY's Taipei Office and R&D Centre in Nanzhi, Kaohsiung City, supported by data checks on the two sampled production sites in Xiaogang, Kaohsiung and Huizhou, China, to assess processes and systems for preparing site-level data and implementing sustainability strategies.
- Review of supporting evidence for key claims and 2022 data in the Report, as reported information beyond 2022 is not within the scope of the current engagement. Our checking processes were prioritised according to materiality, and we based our prioritisation on the materiality of issues at the consolidated corporate level.
- Review of the processes for gathering and consolidating the specified performance data and, for a sample, checking the data consolidation. Where data on financial performance and greenhouse gas emissions had been checked by other assurance providers or engagements, we tested the transcription from these sources to the Report.
- An independent assessment of LCY's reporting according to the Global Reporting Initiative (GRI) Sustainability Reporting Standards, with Universal Standards 2021.
- The verification was conducted based only on the Chinese version of the Report.

¹ The VeriSustain™ Protocol is available on [dnv.com](https://www.dnv.com)



Opinion

On the basis of the work undertaken, nothing came to our attention to suggest that the Report does not properly describe LCY's adherence to the Principles.

In terms of reliability of the performance data, in accordance with Moderate level assurance requirements, nothing came to our attention to suggest that these data have not been properly collated from the information reported at the operational level nor that the assumptions used were inappropriate.

Observations

Without affecting our assurance opinion, we also provide the following observations.

- We encourage the continual development of material topic identification methodology to provide the basis for more focused and well-grounded sustainability strategies and disclosures.
- As the concept of impact has been reaffirmed, we would encourage continued efforts in advancing the methodology of impact management across the Company's sites of operation and broader contexts the Company operate in, supported by coordinated annual targets and indicators to elucidate longer-term strategies.
- On the basis of existing policy commitments, we also encourage the Company to further address and integrate these commitments into its extensive operational aspects.

Stakeholder Inclusiveness

The Company has identified the expectations of stakeholders through internal mechanisms in dialogue with different groups of stakeholders. The stakeholder concerns are well identified and documented, and the significant sustainability issues identified through this process are reflected in the Report.

Sustainability Context

The Report provides an accurate and fair representation of the level of implementation of related corporate sustainability policies and meets the content requirements of the GRI Standards.

Materiality

The process developed internally has not missed out any significant, known material issues, and these issues are fairly covered in the Report. A methodology has been developed to evaluate the priority of these issues.

Completeness

The Report covers performance data against the GRI Standards disclosures that are identified as material within the Company's reporting boundary. The information in the Report includes the Company's most significant initiatives or events that occurred in the reporting period.

Accuracy and Reliability

The Company has developed the data flow for capturing and reporting its sustainability performance. In accordance with Moderate level assurance requirements, we conclude that no systematic errors were detected which causes us to believe that the specified sustainability data and information presented in the Report are not reliable.

For and on behalf of DNV Taiwan

Date: 13 December, 2023

Yu Chung Chen
Lead Verifier
Business Assurance
DNV Taiwan
Statement Number: C640003-2022-AG-TWN-DNV

David Hsieh
District Manager,
Business Assurance
DNV Taiwan



LCY