



05

Environmental Sustainability

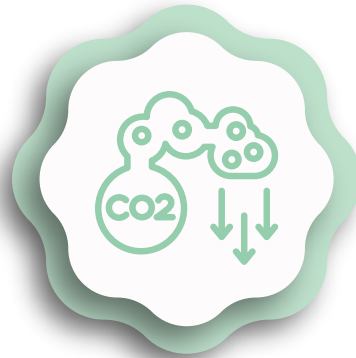
- Climate Change Management
- Environmental Management
- Energy-Efficient Product Design
- Environmental Sustainability Activities at Raydium

Chapter 5

Performance Highlights



Completed ISO 14064-1 greenhouse gas inventory for all Taiwan offices and Raydium Semiconductor (Kunshan), verified by a third-party assurance body.



Procured 72,000 kWh of green electricity, equivalent to a carbon reduction of approximately 35 tCO₂e.



Energy-saving OLED products accounted for approximately 53% of total product output.

2024 Goals and Achievements

Goals

1. Conduct greenhouse gas (GHG) inventories for each office in accordance with ISO 14064-1 standards.
2. Ensure that the inventory results are verified by an independent third-party assurance provider.
3. Identify potential risks and opportunities based on the Task Force on Climate-related Financial Disclosures (TCFD) framework, and develop risk management strategies to mitigate the financial impacts of climate risks on business operations.
4. Set a target to achieve RE 30 by 2030. Green electricity procurement was initiated in Q1 2024, with green power usage commencing in Q4 2024.

Achievements

1. In January 2024, greenhouse gas (GHG) inventories in Raydium's Taiwan offices and Raytronics were completed in accordance with ISO 14064-1 and verified by an independent third-party assurance provider.
2. Climate-related financial disclosures based on the Task Force on Climate-related Financial Disclosures (TCFD) framework have been included in Raydium's Sustainability Report and were verified by a third-party assurance provider in March 2024.
3. Details regarding climate-related targets and performance can be found in the "Climate-related Financial Disclosures (TCFD)" section of the report.
4. A total of 72,000 kwh of green electricity was procured in 2024. 72 T-REC obtained, reducing approximately 35 tCO₂e.

Sustainability Policy

Environmental Sustainability

Topic of Concern: Climate Change Action and Management

Impact on Raydium: In response to the global impacts of climate change, carbon-related issues have become a prevailing trend and are expected to affect Raydium's competitiveness.

Current Management Approach	Future Initiatives and Strategic Directions	Management Policy
<p>Raydium Semiconductor is a professional IC design company specializing in display driver applications. Its core business includes the research, development, design, and sales of IC products, while all manufacturing is outsourced to specialized foundries.</p> <p>To address climate change, the Company has identified two primary areas of action:</p> <ol style="list-style-type: none"> 1. Internal greenhouse gas (GHG) inventory and carbon reduction 2. Greenhouse gas (GHG) inventory across the supply chain 	<ol style="list-style-type: none"> 1. Conduct GHG inventories and verification across all office locations. 2. Establish short-, medium-, and long-term carbon reduction targets. 3. Identify climate-related risks and opportunities through the Task Force on Climate-related Financial Disclosures (TCFD) framework. 	<ol style="list-style-type: none"> 1. Conduct greenhouse gas (GHG) inventories for each office in accordance with ISO 14064-1 standards. 2. Ensure that the inventory results are verified by an independent third-party assurance provider. 3. Develop short-, medium-, and long-term carbon reduction strategies and targets. 4. Identify potential risks and opportunities based on the Task Force on Climate-related Financial Disclosures (TCFD) framework, and formulate risk management strategies to mitigate the financial impacts of climate risks on business operations.
2025 Goals	Mid-Term Goals (Within 3 Years)	Long-Term Goals (Within 5 Years)
<ol style="list-style-type: none"> 1. Conduct greenhouse gas (GHG) inventories for each office in accordance with ISO 14064-1 standards. 2. Ensure that the inventory results are verified by an independent third-party assurance provider. 3. For TCFD-related targets and progress, please refer to the "Climate-related Financial Disclosures (TCFD)" section. 4. Procure renewable energy to achieve a green electricity usage ratio of 5%. 	<ol style="list-style-type: none"> 1. Continue conducting and verifying ISO 14064-1 greenhouse gas (GHG) inventories at all offices in Taiwan. 2. Continue conducting and verifying ISO 14064-1 GHG inventories at subsidiaries. 3. Reduce Scope 1 and Scope 2 GHG emissions. 4. Utilize climate risk management tools to provide quantitative financial risk assessments and ongoing monitoring. 5. Continue procuring renewable energy, with a target of achieving 20% green electricity usage by 2028. 6. The newly purchased office building in Taiyuan Science Park has obtained a Silver rating under the Green Building Label certification. 	<ol style="list-style-type: none"> 1. Continue conducting and verifying ISO 14064-1 greenhouse gas (GHG) inventories at all offices in Taiwan. 2. Continue conducting and verifying ISO 14064-1 GHG inventories at subsidiaries. 3. Reduce Scope 1 and Scope 2 greenhouse gas emissions. 4. Utilize climate risk management tools to provide quantitative financial risk assessments. 5. Continue procuring renewable energy, with a target of achieving 30% green electricity usage by 2030. 6. The newly acquired office building in Taiyuan Science Park has adopted the ISO 50001 Energy Management System, aligning with international standards to enhance energy efficiency, strengthen operational resilience, and promote sustainable development.

2024 Goals and Achievements

Goals

- Discarded electronic components and obsolete IT equipment are delivered to contractors for sorting, followed by recycling and reuse.
- Continue tracking the quarterly recycling rate of sorted electronic components and IT equipment, with a target of maintaining a recovery rate above 90%.

Achievements

- The annual disposal volume of discarded electronic components was 24.87 metric tons, with a recyclability rate of 54.4%.
- The annual disposal volume of obsolete IT equipment was 1.14 metric tons, with a recyclability rate of 94.6%.

Sustainability Policy

Environmental Sustainability Topic of Concern: Waste and Resource Management

Impact on Raydium: Improper disposal of generated waste may result in serious environmental pollution, violations of environmental regulations, and potential fines, thereby impacting the company's corporate image.

Current Management Approach	Future Initiatives and Strategic Directions	Management Policy
Household waste is reduced and sorted for recycling on a daily basis. Discarded electronic components and obsolete IT equipment are handled by licensed waste disposal contractors, with precious metals recovered and reused.	During the product design stage, a life cycle management approach is adopted. R&D resources and innovative energy-saving technologies are integrated to promote green design based on the principles of Reduce, Reuse, and Recycle (3R), enabling more efficient use of resources.	<ol style="list-style-type: none"> Household waste is sorted for recycling. Discarded electronic components and obsolete IT equipment are recycled and reused by certified professional contractors.
2025 Goals	Mid-Term Goals (Within 3 Years)	Long-Term Goals (Within 5 Years)
<ol style="list-style-type: none"> 100% of discarded electronic components and obsolete IT equipment were delivered to contractors for sorting and processing. The total recovery rate of discarded electronic components exceeded 40%. The total recovery rate of obsolete IT equipment exceeded 85%. 	Enhance the management of discarded electronic components.	Enhance the management of discarded electronic components.

2024 Goals and Achievements

Goals—

- 1. Key products adopt advanced energy-saving manufacturing processes and energy-efficient designs, achieving a 3–6% reduction in energy consumption with each product generation.
- 2. The revenue contribution of energy-efficient products (OLED Driver ICs) has increased to 40%.

Achievements—

- 1. Key new-generation products utilize advanced, mature wafer manufacturing processes and energy-saving designs, reducing energy consumption by 15-40%.
- 2. By 2024, energy-saving OLED products will account for approximately 53%.

Sustainability Policy

Environmental Sustainability Topic of Concern: Energy Management

Impact on Raydium: In response to the global impact of climate change, carbon-related issues have emerged as a key trend that may affect Raydium's competitiveness.

Current Management Approach	Future Initiatives and Strategic Directions	Management Policy
<p>Raydium's products are primarily applied to the relatively mature LCD display market and the more energy-efficient OLED displays, while the Company is also actively developing applications for emerging technologies such as Micro LED.</p> <p>Current management practices include:</p> <ul style="list-style-type: none"> 1. Adopting advanced energy-saving manufacturing processes and energy-efficient circuit designs 2. Allocating increased R&D resources to raise the proportion of energy-efficient products in its portfolio 	<ul style="list-style-type: none"> 1. Adopt advanced energy-saving manufacturing processes and energy-efficient circuit designs. 2. Proactively invest more R&D resources in energy-efficient products. 	<p>Key products adopt advanced and mature wafer fabrication processes along with energy-efficient circuit designs to reduce power consumption for products with similar functionalities, while gradually increasing the proportion of energy-efficient OLED products.</p>
2025 Goals	Mid-Term Goals (Within 3 Years)	Long-Term Goals (Within 5 Years)
<ul style="list-style-type: none"> 1. Key products adopt advanced energy-saving manufacturing processes and energy-efficient designs, achieving a 3–6% reduction in power consumption with each product generation. 2. The revenue contribution of energy-efficient products (OLED Driver ICs) has increased to 42%. 	<ul style="list-style-type: none"> 1. Key products adopt advanced energy-saving manufacturing processes and energy-efficient designs, achieving a 3–6% reduction in power consumption with each product generation. 2. The revenue contribution of energy-efficient products (OLED Driver ICs) has increased to 45%. 	<ul style="list-style-type: none"> 1. Key products adopt advanced energy-saving manufacturing processes and energy-efficient designs, achieving a 2–5% reduction in power consumption with each product generation. 2. The revenue contribution of energy-efficient products (OLED Driver ICs) has increased to 47%.

2024 Goals and Achievements

Goals —

1. Energy-intensive equipment that has been in use for over five years is being gradually phased out.
2. Procurement specifications for IT equipment prioritize the use of solid-state drives (SSDs).

Achievements —

1. In 2024, 100% of storage in end-user devices such as notebooks and PCs adopted solid-state drives (SSDs).
2. All active server storage is currently equipped with SSDs, with 100% of server hard drives utilizing solid-state drive technology.

Sustainability Policy

Environmental Sustainability Topic of Concern: Energy Management

Impact on Raydium: A power outage would cause all equipment — including the IT data center used for R&D and design — to cease functioning, resulting in an interruption of the Company’s operations.

Current Management Approach	Future Initiatives and Strategic Directions	Management Policy
The built-in power management mechanisms of computing servers are utilized to automatically regulate power supply loads.	In addition to utilizing the built-in power management mechanisms of computing servers, a job scheduling system is employed to dispatch high-power simulation tasks to servers with higher energy efficiency. Non-Energy Star 8.0 compliant equipment is also being gradually phased out.	<ol style="list-style-type: none"> 1. Computing servers are selected based on specifications that exceed the Energy Star 8.0 standards. 2. Ongoing efforts are made to virtualize physical machines. 3. New technologies are adopted to improve power usage efficiency and reduce operational costs.
2025 Goals	Mid-Term Goals (Within 3 Years)	Long-Term Goals (Within 5 Years)
<ol style="list-style-type: none"> 1. Energy-intensive equipment that has been in use for more than five years is being gradually phased out. 2. Procurement specifications for IT equipment prioritize the use of solid-state drives (SSDs). 	<ol style="list-style-type: none"> 1. Implement power efficiency monitoring at the server level. 2. Procure computing servers that exceed Energy Star 8.0 standards and fully phase out energy-intensive equipment that has been in use for more than five years. 3. Monitor the development of next-generation CPUs to enhance power usage efficiency in the computing center. 	<ol style="list-style-type: none"> 1. Liquid cooling systems have been implemented in computing servers to reduce reliance on traditional air conditioning. 2. Energy-efficient solutions have been incorporated into data center infrastructure planning. 3. The development of next-generation CPUs is being closely monitored, in conjunction with the construction of high-efficiency computing centers, to enhance overall power usage efficiency.



In the face of global challenges such as energy shortages and extreme climate change, product development trends and business operating models have been significantly impacted. As an IC design company, Raydium outsources all manufacturing processes — including wafer fabrication, packaging, and testing — to specialized partners. Upholding the principles of environmental sustainability, Raydium has established an environmental policy, actively engages with global climate action goals, and maintains ongoing communication with suppliers. By integrating sustainability into its strategic management, the Company fulfills its responsibility as a global citizen and contributes to the protection of our planet.

5.1 Climate Change Management

To address the potential operational impacts of global warming and extreme climate events, Raydium Semiconductor has referred to the “Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD),” published by the Financial Stability Board (FSB) in June 2017. The Company has taken concrete actions to assess and participate in both climate change mitigation and adaptation. In 2024, Raydium initiated a climate risk assessment and, based on the results, identified major risk categories and defined strategic directions for climate response.

The Sustainability Development Committee has launched a TCFD-aligned risk and opportunity assessment initiative, which includes key personnel training and cross-departmental discussions. Through this comprehensive assessment and implementation effort, the Company aims to mitigate and adapt to potential risks that may threaten sustainable operations under climate change. Related disclosures will be made annually in the Sustainability Report.

5.1.1 Core Framework for Climate Risk Management

Governance

Board Oversight of Climate-related Risks and Opportunities

- In 2024, the results of the climate risk assessment were reported to the Board of Directors, along with the formulation of management strategies and targets. Going forward, climate-related progress and plans — including the Company’s carbon reduction strategies, measures, and performance — will be reported to the Board on an annual basis.

Management’s Oversight of Climate-related Risks and Opportunities

- The Sustainability Development Committee is responsible for identifying climate-related risks and opportunities and formulating corresponding response measures. Implementation progress and outcomes are regularly reported to the President and disclosed annually in the Sustainability Report.
- Under the supervision of the President, the Environmental, Health, and Safety (EHS) Department is responsible for evaluating, planning, and setting goals and strategic approaches for issues such as energy, water resources, and waste management. The department also regularly reports to the President on climate-related development plans and the implementation of corresponding measures

Strategy

Transition Risk Strategy

- Collaborate closely with value chain partners to continuously drive innovation and integrate energy-efficient design into product life cycle considerations.
- Continue to monitor international climate change trends and requirements, and proactively disclose climate-related response information.
- Continuously innovate and develop low-power consumption products to meet customer demand for low-carbon solutions.

Physical Risk Strategy

- Establish mutual support mechanisms among production sites to diversify supplier production risks.
- Incorporate climate-related supply chain risks into the Business Continuity Plan (BCP) and strengthen second-source supply strategies to mitigate supply chain risks.
- Enhance data center power backup systems to ensure continuous operation.
- Continue to plan and implement energy-saving and carbon reduction initiatives while improving resource use efficiency.

Transition Opportunity Strategy

- Optimize existing building facilities and energy management systems.
- Key products adopt advanced and mature wafer fabrication processes and energy-efficient circuit designs. The Company regularly reviews R&D directions for low-carbon products and collaborates with customers to co-develop low-carbon solutions.

Risk Management

Processes for Identifying, Assessing, and Managing Climate-related Risks

- The Sustainability Development Committee convened a "TCFD Risk and Opportunity Identification" meeting, referencing the risk and opportunity categories defined by TCFD to establish climate-related issues. Key risks and opportunities for Raydium were identified, and corresponding strategies and targets were developed.

Metrics and Targets

Metrics and Targets for Assessing and Managing Climate-related Issues

Climate Action :

- The Company has set a renewable energy target of 5% by 2025, aiming to increase the share of purchased renewable energy to 30% by 2030 in order to achieve RE30.
- Achieve net-zero emissions by 2050.

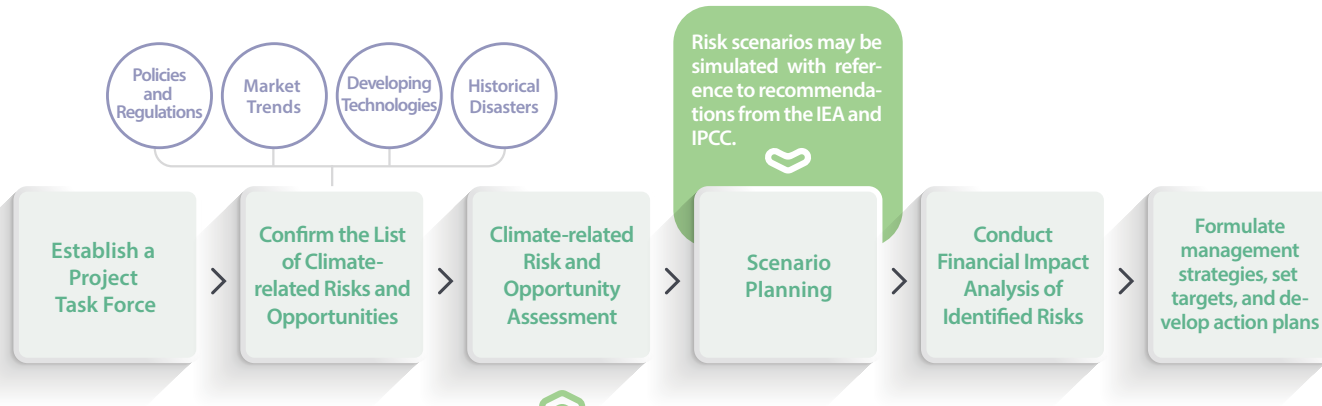
Greenhouse Gas (GHG) Inventory :

- Raydium Semiconductor completed greenhouse gas (GHG) inventories for the years 2021 to 2023 between 2022 and 2024, and obtained verification statements for each year.
- In 2024, the overseas subsidiary RKS completed its ISO 14064-1 greenhouse gas (GHG) inventory.
- In 2024, a total of 18 suppliers completed third-party verification of their greenhouse gas (GHG) emissions. Moving forward, the Company will continue to leverage its influence to encourage suppliers to complete ISO 14064-1 GHG inventories and collaborate on setting Scope 3 carbon reduction targets, aiming to build a sustainable supply chain.

5.1.2 Climate-related Risks and Opportunities

In 2024, Raydium's ESG Sustainability Development Committee conducted a comprehensive discussion on potential climate-related risks and opportunities within each functional area. The Committee assessed the potential impact of each issue on Raydium and, through the climate risk and opportunity assessment process, evaluated the likelihood and severity of impact. A risk and opportunity matrix was developed to visualize and calculate climate-related exposures. Based on the results of this matrix, five material climate risks and three significant climate-related opportunities were identified, as outlined below.

TCFD Climate Risk Identification and Assessment Process



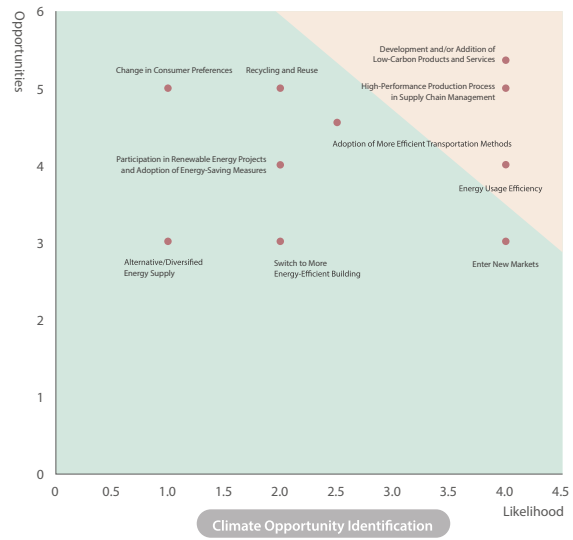
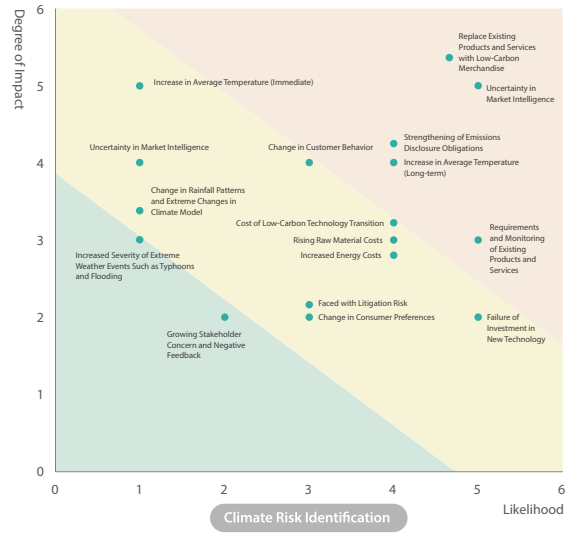
Differentiate between physical and transition risks, and assess each based on likelihood and impact severity to assign risk scores and prioritize materiality.

Climate-related risk scoring is based on two dimensions :

- Likelihood is evaluated using a five-point scale, taking into account both the probability and frequency of occurrence.
- Impact severity is also assessed on a five-point scale, considering potential effects on business operations, environmental impact, people (including human rights), corporate reputation, and legal or regulatory compliance.

Climate-related opportunity scoring is based on two dimensions:

- Likelihood is evaluated using a five-point scale, considering both the probability and frequency of occurrence.
- Opportunity benefit is also assessed on a five-point scale, taking into account potential financial impacts on business operations, environmental benefits, and the number of beneficiaries.



TCFD Climate-related Risks

Types of Risks	Impacts of Climate-related Risks on Operations				
	Climate-related Risks	Implications for Raydium	Impact Timeframe	Potential Financial Impact	
Transition Risks	Policies and Regulations	Rising Carbon Pricing	<ol style="list-style-type: none"> If suppliers are required to pay carbon taxes or fees, they may pass on the carbon costs to Raydium. However, if Raydium is unable to transfer the additional costs to its customers, this would result in increased procurement expenses and reduced profit margins. If suppliers are ineligible for preferential carbon pricing rates, Raydium may face increased procurement costs, which could negatively impact the competitiveness of its products. 	Short-term	Increase in Operating Costs
		Strengthened Emissions Disclosure Requirements	By 2027, organizational-level greenhouse gas (GHG) inventories must be completed for all consolidated subsidiaries, and third-party verification must be completed by 2029. Through this process, the company aims to gain a comprehensive understanding of GHG emissions across the organization, which will serve as the basis for setting future GHG reduction targets.	Medium-term	Increase in Operating Costs
	Requirements and Regulations for Existing Products and Services	<ol style="list-style-type: none"> If the company fails to comply with the European Union's new energy regulations, its product competitiveness may be adversely affected. The implementation of the Carbon Border Adjustment Mechanism (CBAM) may increase operating costs. 	Short-term	Increase in Operating Costs	
Physical Risks	Technology	Substitution of Existing Products and Services with Low-carbon Alternatives	Low-carbon products are becoming the mainstream trend in future markets. If the company lacks sufficient understanding of new specification requirements during the R&D and design stages, its market competitiveness may be weakened.	Medium-term	R&D Expenditures on Emerging and Alternative Technologies
	<ol style="list-style-type: none"> Changes in Precipitation Patterns and Increasing Climate Extremes Rising Average Temperatures 	<ol style="list-style-type: none"> Flooding and extreme weather events may cause delays in the transportation of raw materials and finished products, leading to disruptions in delivery schedules. Changes in the power generation structure may result in increased energy costs and unstable electricity supply, indirectly affecting equipment operation, causing business interruptions, and increasing maintenance and operating expenses. 	Long-term	Increased Operating Costs Reduced Production Capacity or Operational Disruptions	

TCFD Climate-related Opportunities

Types of Opportunity	Impact of Climate-related Opportunities on Operations			
	Opportunity	Opportunities for Raydium	Impact Timeframe	Potential Financial Impact
Resource Efficiency	Efficient Production Processes in Supply Chain Management	Adjust the supply chain configuration based on customer locations to enable localized production, thereby providing low-cost and low-carbon services.	Medium-term	Reduce Operating Costs
	Energy Efficiency	Select energy-efficient certified products to reduce energy consumption.	Short-term	Reduce Operating Costs
Reduce Operating Costs	Develop and/or expand low-carbon products and services.	Developing energy-efficient products creates additional business opportunities.	Medium-term	Increase revenue by meeting the growing demand for low-carbon products and services.

5.1.3 Climate Change Scenario Analysis

Raydium Technology follows the guidelines of the TCFD Knowledge Hub to categorize the characteristics of its material climate-related risks and opportunities. In conducting climate scenario analysis, the company refers to recommendations from the International Energy Agency (IEA) and the Intergovernmental Panel on Climate Change (IPCC). Specifically, it adopts the Representative Concentration Pathways (RCP) 2.6 and RCP 8.5 as worst-case scenarios from the IPCC assessment reports, to evaluate both physical and transition impacts. Financial comparisons are made using the Company’s 2024 revenue as the baseline.

Type of Risk	Impact of Climate-Related Risks on Operations		
	Climate-Related Risks	Assumption Description	Financial Impact Assessment
Transition Risk Policies and Regulations	Increase in Greenhouse Gas Emission Pricing	Assuming a carbon fee of NTD 300 per ton, if suppliers fully pass on the carbon cost to Raydium, it would lead to an increase in procurement costs and a reduction in profit margins.	It is estimated that by 2030, the increase in carbon fees/taxes will result in additional costs equivalent to approximately 0.3% of total revenue.
	Enhanced Emissions Disclosure Requirements	It is assumed that the renewable energy substitution rate will reach 30% by 2030.	It is estimated that the additional green electricity expenses from 2025 to 2030 will account for no more than 0.02% of total revenue, resulting in minimal financial impact on the company.
	Regulations and Requirements for Existing Products and Services	As international energy regulations become increasingly stringent, existing products that fail to meet customers’ energy efficiency requirements or new regulatory standards may face market disadvantages.	This may undermine product competitiveness, resulting in a decline in overall company revenue and adversely affecting profitability.
Transition Risk Technology	Replacing existing products and services with low-carbon alternatives.	By adopting advanced and mature wafer fabrication processes and enhancing the R&D team’s capabilities in energy-efficient circuit design, the company aims to reduce the energy consumption of products with equivalent functionality.	The costs associated with photomasks and labor input are expected to increase.
Transition Risk Long-Term	Changes in precipitation patterns and increased climate variability.	Short-duration intense rainfall may lead to flooding, which can disrupt supply chain production schedules and delivery timelines, or cause product damage during transportation.	Power outages and transportation disruptions may even lead to operational shutdowns, resulting in a decline in overall company revenue and adversely affecting profitability.
	Rising Average Temperatures	<ol style="list-style-type: none"> Gradually phase out equipment that does not meet the Energy Star 8.0 standard. For end-user devices such as notebooks and PCs, 100% of hard drives have been replaced with solid-state drives (SSDs). All active server storage has fully adopted SSDs, with 100% of server hard drives now using solid-state drive technology. 	<ol style="list-style-type: none"> It is estimated that the cumulative cost of phasing out and replacing online servers, notebooks, and PCs between 2025 and 2030 will be approximately NTD 138 million. Procurement costs and electricity expenses are expected to increase. In the event of supply chain disruptions or operational interruptions, the company may experience a decline in overall revenue and reduced profitability.

RCP 2.6
Transition Risk

RCP 8.5
Transition Risk

RCP 2.6

The only scenario aligned with the Paris Agreement’s 2°C limit / 1.5°C target involves aggressive emissions reductions, in which global greenhouse gas emissions peak around 2020 and then decline linearly—falling by 50% by 2050 and reaching net-negative emissions before 2100.

RCP 4.5

The medium emissions scenario aligns with the greenhouse gas emissions trajectory projected under the Nationally Determined Contributions (NDCs) submitted by countries in 2015 for 2030. However, it does not meet the Paris Agreement’s 2°C limit or 1.5°C target. Under this scenario, emissions peak around 2040, followed by a moderate reduction, reaching a 50% decrease in global emissions by approximately 2080.

RCP 6.0

The medium-high emissions scenario assumes that global greenhouse gas emissions will continue to rise and peak around 2080, followed by a gradual decline thereafter.

RCP 8.5

The high emissions scenario assumes a business-as-usual trajectory, in which the growth rate of greenhouse gas emissions remains unchanged. This leads to a continued increase in atmospheric GHG concentrations and a projected global temperature rise of nearly 4°C.

Note: RCPs (Representative Concentration Pathways) define climate change scenarios.

5.1.4 Climate Change Management Strategies and Target Setting

Based on the above analysis, Raydium Semiconductor has formulated management strategies and targets, and will conduct regular annual tracking and disclosure of implementation performance.

Type of Risk	Climate-Related Risks	Impact of Climate-Related Risks on Operations			
		Scope of Impact	Management Strategy	Targets Achieved in 2024	Short-Term Targets (~2030) Long-Term Targets (~2050)
Transition Risk	Increase GHG Emissions Pricing	Client Supply Chain	Supplier GHG inventory, confirmation of the status of carbon tax/fee tax collections, and analysis of how the levying of carbon fees/taxers affects supplier costs.	Six key suppliers 100% have completed greenhouse gas verification and reduction efforts for 2023	<ul style="list-style-type: none"> ISO 14064-1 GHG inventory and investigation of carbon reduction data completed by 100% of key suppliers. Co-development and follow-up on energy conservation / water conservation / carbon reduction targets with suppliers. Actively promote GHG by suppliers to meet the 2050 Net Zero Policy
	Strengthened Emissions Disclosure Requirements	Raydium	<ul style="list-style-type: none"> Committed to achieving net-zero emissions by 2050, the company has established a Scope 3 emissions reduction roadmap and is evaluating the adoption of product carbon footprint assessments. The baseline year for greenhouse gas (GHG) inventories is set as 2021 for the parent company and 2022 for its subsidiaries, with annual GHG inventories conducted. The company is also evaluating the use of renewable energy and the purchase of renewable energy certificates. 	In 2024, Raydium Semiconductor purchased 72,000 kWh of renewable electricity. 72 T-REC obtained, reducing approximately 35 tCO ₂ e.	<ul style="list-style-type: none"> The new office building has adopted the ISO 50001 Energy Management System to align with international standards, enhance energy efficiency, and strengthen corporate resilience and sustainable development. The company is planning and evaluating the implementation of product carbon footprint assessments. It continues to procure renewable energy, with a goal of reaching 30% renewable electricity usage by 2030. Planning and evaluating participation in the Science Based Targets initiative (SBTi) for science-based emissions reduction. Planning and evaluating participation in the CDP Climate Change disclosure and rating program. Committed to achieving net-zero carbon emissions by 2050.
	Requirements and Regulations for Existing Products and Services	Brand Owners Customers Supply Chain	<ul style="list-style-type: none"> Continuously monitor domestic and international regulations on energy conservation and low-carbon requirements to ensure the development of compliant low-carbon products. Consider local production within the supply chain to reduce transportation-related carbon emissions and avoid potential carbon taxes or fees. Plan to develop and implement calculation tools in the future. 	To reduce transportation-related carbon emissions, 22.6% of production was conducted through short-chain (localized) manufacturing.	<ul style="list-style-type: none"> Continue to develop low-power, high-efficiency products in line with international energy standards. Over 20% of production is conducted through short-chain (localized) manufacturing. Continuously monitor global energy efficiency regulations and collaborate with customers and supply chain partners to develop ultra-low or zero-carbon products, aiming to achieve net-zero emissions by 2050. Over 20% of production is conducted through short-chain (localized) manufacturing.
	Substitute existing products and services with low-carbon alternatives	Brand Owners Customers Supply Chain Raydium	<ul style="list-style-type: none"> Adopt advanced, mature process technologies and energy-efficient design. Conduct regular meetings to review R&D direction for low-carbon products. Collaborate with customers to discuss low-carbon product requirements. 	<ul style="list-style-type: none"> Next-generation chips reduce energy consumption by 15% to 40%. Energy-efficient OLED products accounted for approximately 53% of total product output. 	<ul style="list-style-type: none"> Key products adopt advanced energy-saving process technologies and energy-efficient designs, achieving a 2%–5% reduction in energy consumption with each product generation. Revenue contribution from energy-efficient products (OLED-related display technologies) increased to 47%. Continuously monitor global energy efficiency regulations and collaborate with customers and supply chain partners to develop ultra-low or zero-carbon products, aiming to achieve net-zero emissions by 2050. Stay abreast of emerging technologies and focus R&D efforts on the development of ultra-low or zero-carbon products. Continue to innovate and develop low-carbon or zero-carbon products.

Type of Risk	Climate-Related Risks	Impact of Climate-Related Risks on Operations				
		Scope of Impact	Management Strategy	Targets Achieved in 2024	Short-Term Targets (~2030)	Long-Term Targets (~2050)
Physical Risks	<ul style="list-style-type: none"> Changes in precipitation patterns and increased climate variability Rising average temperatures 	Supply Chain Raydium	<ul style="list-style-type: none"> Enable mutual support across different production sites to mitigate supplier-related production risks. Audit climate risk management within the supply chain and establish a diversified sourcing strategy to reduce exposure. Enhance data center power backup systems to ensure uninterrupted operations. Continuously plan and implement energy-saving and carbon reduction initiatives while improving resource efficiency. 	<ul style="list-style-type: none"> 100% of key suppliers have completed business continuity disruption drills. Gradually phase out energy-intensive servers that have been in use for over five years. 	<ul style="list-style-type: none"> Establish climate risk response mechanisms for suppliers. Regularly track the status of business continuity drills conducted by key suppliers. Adopt second-source strategies to mitigate supply chain risks. Design data centers with Power Usage Effectiveness (PUE) considerations. Install intelligent power-saving devices. 	<ul style="list-style-type: none"> 100% of suppliers are incorporated into climate risk response management mechanisms. Continue planning for mutual support across different production sites to diversify supplier-related production risks. Continue the use of energy-efficient products with certified energy labels. Monitor the development of next-generation CPUs.
			Long-Term			

5.2 Environmental Management

In the 21st century, green industries and environmental technologies have become essential to corporate operations, while increasingly stringent environmental management requirements have emerged as a global trend. As a professional IC design company, Raydium Semiconductor is committed to providing comprehensive solutions for display panel manufacturers, actively advancing environmental sustainability, safeguarding employee health and safety, and strictly adhering to governmental regulations and corporate group standards. Since obtaining ISO 14001 Environmental Management System certification in 2012, Raydium has continued to strengthen its environmental and occupational health and safety policies (as detailed below). In 2024, the Company invested NT\$2,061,664 to further improve its environmental management performance.

Environmental and Occupational Health and Safety (EHS) Policy

1. Compliance with Environmental and Occupational Health and Safety Regulations

- Managers at all levels are committed to implementing daily environmental management practices and ensuring employee health and safety.
- Full compliance with all applicable environmental protection and occupational health and safety laws and regulations.

2. Commitment to Environmental Protection and Pollution Prevention

- Regularly identify environmental aspects and assess associated risks and opportunities to minimize environmental impacts.
- Voluntarily conduct greenhouse gas (GHG) inventories and implement emission control or reduction measures; continue conserving energy and resources to reduce negative environmental impacts.

3. Commitment to Employee Health and Safety and Prevention of Occupational Injuries and Illnesses

- Regularly perform hazard identification and risk and opportunity assessments to create a safe and healthy work environment aimed at preventing harm and promoting continual improvement.

4. Commitment to Energy Conservation and Waste Reduction

- Actively implement energy-saving and waste-reduction initiatives as part of fulfilling corporate environmental responsibility.
- Continuously enhance technological and R&D capabilities to develop green products.

5. Enhancing Environmental, Health, and Safety Awareness through Training

- Strengthen employee responsibility and awareness regarding environmental protection, health, and safety through ongoing education and training initiatives.

6. Establishing Effective Communication and Engagement Mechanisms

- Strengthen internal communication channels to encourage employees to report potential workplace hazards and participate in improvement initiatives.
- Disclose relevant EHS information to stakeholders as appropriate and incorporate their feedback to drive improvements.

7. Continuous Improvement of Environmental and Occupational Health and Safety Performance

- Continuously improve environmental and EHS performance by addressing pollution and safety deficiencies.
- Implement regular audits and corrective actions to ensure the effectiveness of this policy and drive continual enhancement of the EHS management system.



5.2.1 Energy Usage

Raydium Semiconductor’s energy consumption across all operational sites primarily comprises purchased electricity, gasoline, and diesel. In 2024, the Company’s total energy consumption amounted to 10,340 gigajoules (GJ), of which electricity accounted for 9,969 GJ, representing 96.41% of total energy use. The energy intensity was 0.46 GJ per million NTD of revenue, reflecting a 13.21% decrease compared to 2023.

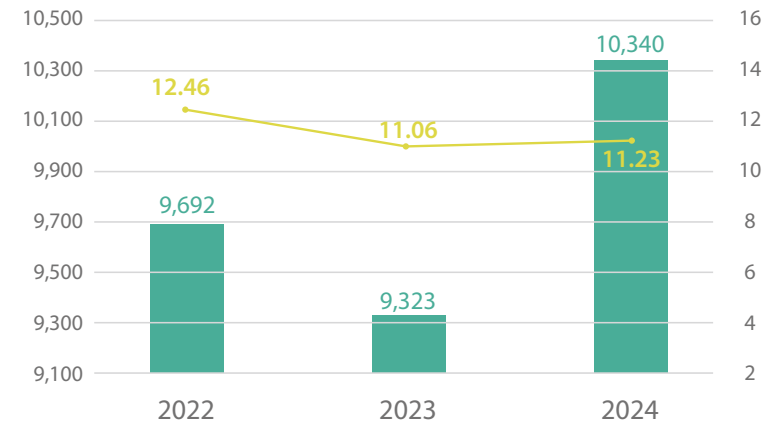
An analysis of the Company’s energy usage indicates that most consumption occurs in office facilities across its operational locations. Energy intensity per employee was 11.23 GJ/person in 2024, representing a 1.54% increase compared to the previous year.

Energy Type / Indicator	2022	2023	2024
Electricity (GJ)	9,128	8,888	9,969
Diesel (GJ)	148	173	122
Gasoline (GJ)	417	261	249
Total Energy Consumption (GJ)	9,692	9,323	10,340
Total Annual Revenue (NT\$ million)	22,612	17,605	22,358
Energy Intensity (GJ per NT\$ million)	0.43	0.53	0.46
Total Number of Employees (persons)	778	843	921
Energy Intensity (GJ per person)	12.46	11.06	11.23

Notes:

- Employee headcount excludes expatriate staff.
- Energy consumption data covers the Taipei, Hsinchu, and Tainan offices.
- To align with IFRS Sustainability Disclosure Standards, energy intensity from 2024 onward (FY113 in ROC calendar) is based on the revenue of the individual entity. The 2023 figure (FY112) has been restated accordingly.
- Calculation Methodology:

1kW • h	3.6	Gigajoules (GJ)
1 calorie (cal) =	4.187	Joules (J)
Heating value of 1 liter of diesel	8400	Kcal
Heating value of 1 liter of gasoline	7800	Kcal
1 liter of diesel	0.0351708	Megajoules (MJ)



Raydium Energy Usage Statistics

● Total Energy Usage (GJ)
● Average Energy Intensity (GJ/person)

5.2.2 Greenhouse Gas (GHG) Inventory

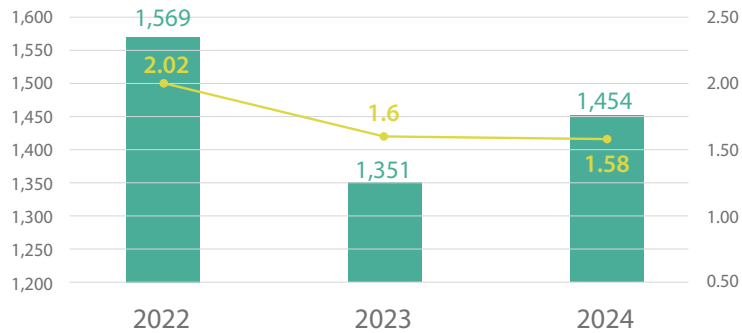
Raydium Semiconductor began conducting its organizational GHG inventory in 2022 and has completed GHG assessments for its Taipei, Hsinchu, and Tainan offices. The inventory has been verified by SGS in accordance with ISO 14064:2018. This report discloses Scope 1 and Scope 2 emissions from 2022 to 2024, with details by emission source as shown in the table below.

In 2024, total Scope 1 and Scope 2 GHG emissions increased by 7.65% compared to 2023 but decreased by 14.46% compared to the baseline year (2021). The Company's total GHG emissions in 2024 amounted to 46,006.619 metric tons of CO₂ equivalent (tCO₂e). According to the inventory results, Scope 4 emissions accounted for the largest share, representing 93.13% of total emissions for the year, while Scope 1 and Scope 2 contributed approximately 0.26% and 2.90%, respectively.

No.	Source Category	Emission Source	GHG Type				2022	2023	2024	
			CO ₂	CH ₄	N ₂ O	HFC _s	tCO ₂ e	tCO ₂ e	tCO ₂ e	
Scope 1	1	Stationary combustion	Gasoline	•	•	•	0.0227	0.0460	-	
	2	Mobile combustion	Gasoline	•	•	•	30.1314	18.8339	17.5670	
	3	Mobile combustion	Diesel	•	•	•	11.0443	13.0457	9.4178	
	4	Fugitive emissions	Septic system		•		65.6137	69.1904	72.9096	
	5	Fugitive emissions	Refrigerants				•	171.5019	27.3965	21.8970
	6	Fugitive emissions	Fire extinguishers	•				0.2835	0.2475	0.0450
Total							278.5975	128.7600	121.8364	
No.	Source Category	Emission Source	GHG Type			2022	2023	2024		
			CO ₂	CH ₄	N ₂ O	tCO ₂ e	tCO ₂ e	tCO ₂ e		
Scope 2	1	Energy indirect emissions	Purchased electricity	•			1290.615	1222.1363	1332.4603	

Year	2022	2023	2024
GHG Emissions(tCO ₂ e) (Scope 1 & 2 only)	1,569.2125	1,350.8963	1,454.2967
Revenue (NT\$ million)	22,612	17,605	22,358
Total Employees (persons)	778	843	921
GHG Emissions Intensity (tCO ₂ e /NT\$ million)	0.069	0.077	0.065
GHG Emissions Intensity (tCO ₂ e /employee)	2.02	1.60	1.58

Note: To align with IFRS Sustainability Disclosure Standards, revenue figures for previous years have been restated to reflect standalone (entity-level) revenue instead of consolidated revenue. Accordingly, revenue for 2022 and 2023 has been adjusted based on the standalone disclosure approach.



Raydium GHG Emission Statistics

- GHG Emissions (tCO₂e) (Categories 1 and 2 only)
- GHG Emissions Intensity (tCO₂e/person)

No.	Emission Category	Emissions(tCO ₂ e)
Scope 3	Upstream transportation and distribution	214.9774
	Downstream transportation and distribution	472.1940
	Employee commuting	678.4148
Scope 4	Business travel	339.0529
	Electricity as a product	263.1380
	Fuel as a product	6.9414
	Primary raw materials	42,577.6035
		44,552.3219

In 2024, Raydium Semiconductor signed a renewable energy procurement agreement and used a total of 72,000 kWh of renewable electricity during the year, accounting for 2.60% of its conventional ("gray") electricity consumption, reducing approximately 35 tCO₂e. The Company is committed to increasing its renewable energy usage year by year, with a target of achieving RE30 (30% renewable energy) by 2030.

Note: In 2024, a total of 72,000 kWh of renewable energy was used, for which 72 T-REC were obtained (T-REC numbers: 23SP0441-B024000666 to 737).

5.2.3 Energy Management

During the development of next-generation chips, the energy consumption associated with server operations is primarily determined by the computational efficiency of the servers themselves. To enhance energy efficiency, the primary computing servers used in R&D are high-performance, next-generation multi-core servers. In addition, the Company continues to plan the phased replacement of outdated servers to improve processing performance and reduce energy consumption. For servers used in data center operations, a virtualization architecture has been adopted to reduce the number of physical servers, thereby lowering overall energy usage.

The Company has progressively replaced traditional HDD storage arrays in its data center with SSD-based solid-state drive arrays. As a result, the physical storage footprint of disk arrays has been reduced by 83%, and power consumption has decreased by 78%. It is estimated that this transition will lead to a 78% reduction in annual electricity costs related to disk array operations. Additionally, the upgrade has increased usable storage capacity by 35% and improved overall system performance by 80%.

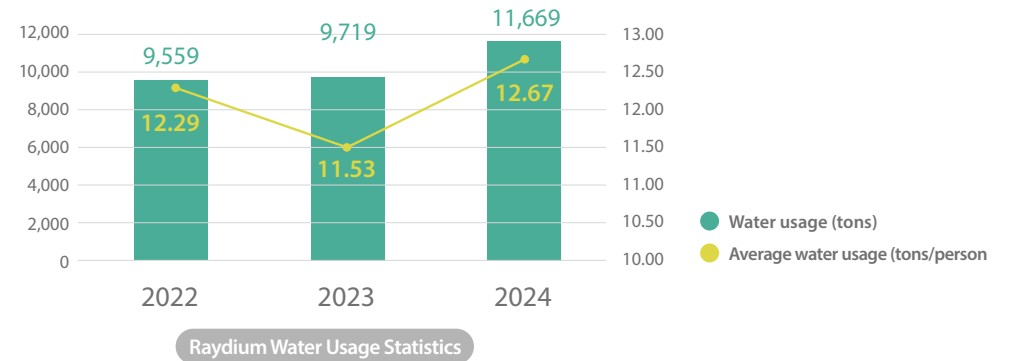
5.2.4 Water and Waste Management

Raydium Semiconductor is located in the Hsinchu Science Park and does not operate any manufacturing facilities. Its water supply comes from the Baoshan Reservoir. As the Company's operations are office-based and do not involve production processes, water usage is relatively limited. According to the World Resources Institute (WRI), Taiwan is not classified as a high water-stress region. In 2024, the Company's total water withdrawal amounted to 11,669 metric tons, with per capita water consumption reaching 12.67 metric tons. Due to water restrictions implemented at the Hsinchu office in 2023 during a period of regional water shortages, per capita water consumption in 2024 increased by 9.90%.

Year	2022	2023	2024
Water Consumption (metric tons)	9,559	9,719	11,669
Per Capita Water Consumption (metric tons/person)	12.29	11.53	12.67

Notes:

- Employee count excludes expatriate staff.
- Annual water consumption is calculated as:
 $\Sigma (\text{Monthly headcount at Hsinchu Office} \times \text{Daily water consumption per person} \times \text{Working days per month}) + \Sigma (\text{Proportion of leased area at Taipei and Tainan Offices} \times \text{Monthly building water usage})$



Raydium Semiconductor does not operate any manufacturing facilities. Waste generated is categorized into hazardous and non-hazardous industrial waste. All waste is handled by licensed waste disposal and recycling service providers in compliance with legal and contractual requirements. Raydium assumes supervisory responsibility for the handling process by implementing regular supplier audits, GPS tracking of waste transportation vehicles, declaration of six-part waste manifests, and verification against weighing slips to ensure proper documentation and traceability.

For hazardous industrial waste – discarded electronic components, the main source is defective chips returned by suppliers. These are retrieved by Raydium and delivered to qualified recycling partners. The recovered materials are either reprocessed into raw materials for industrial reuse or refined — such as silicon and other metal minerals — for applications in the technology or construction sectors. This approach supports a circular economy model and helps minimize environmental impact.

In 2024, Raydium handled 24.87 metric tons of hazardous waste in the form of discarded electronic components, with 54.43% of the volume identified as recyclable. Among the recovered materials, 7.2068 kilograms of gold were extracted.

Additionally, 1.138 metric tons of discarded IT equipment were collected as hazardous waste, with a recycling rate of 94.64%.

Waste Type Category		2022	2023	2024
Waste Electronic Components	Recyclable	4.50%	56.11%	54.43%
	Non-recyclable	95.50%	43.89%	45.57%
Waste IT Equipment	Recyclable	75.08%	93.66%	94.64%
	Non-recyclable	24.92%	6.34%	5.36%

For non-hazardous industrial waste, which primarily consists of general domestic waste generated from daily office operations, disposal is centrally managed by the building lessors through certified third-party waste management service providers. In 2024, a total of 11.37 metric tons of non-hazardous waste was collected and removed.

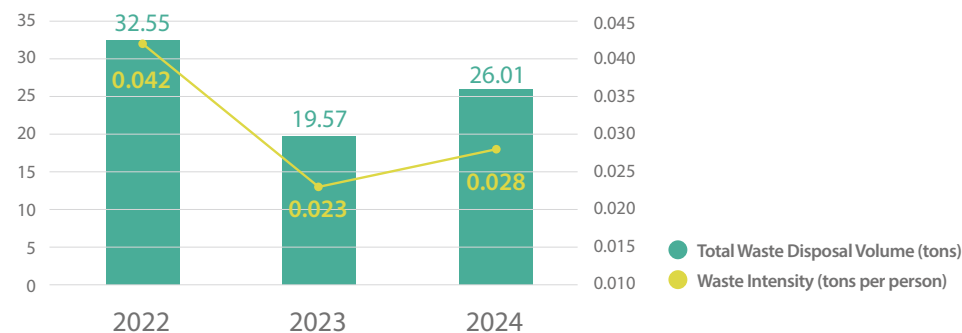
Year	2022	2023	2024
General Domestic Waste (metric tons)	9.1	9.6	11.37

In 2022, the total volume of waste disposal was relatively high due to the repatriation of defective products from overseas for domestic processing. Additionally, as some data was difficult to obtain in 2022, recycling statistics were compiled only for items with available data. Starting in 2023, suppliers were required to report recycling volumes based on recyclable item categories announced by the Ministry of Environment. As a result, the proportion of recyclable waste showed a notable increase beginning in 2023.

Year	2022	2023	2024
Total Waste Disposal (metric tons)	32.55	19.57	26.01
Revenue (NT\$ million)	22,612	17,605	22,358
Total Employees (persons)	778	843	921
Waste Intensity (tons / NT\$ million)	0.0014	0.0011	0.0012
Waste Intensity (tons / person)	0.042	0.023	0.028

Notes:

- Employee count excludes expatriate staff.
- Total waste disposal volume includes the annual disposal quantities of waste electronic components and waste IT equipment.
- To align with IFRS Sustainability Disclosure Standards, historical revenue figures were previously reported on a consolidated basis; revenue for 2022 and 2023 has been restated to reflect standalone (entity-level) revenue.



Raydium Waste Statistics

5.3 Energy-Efficient Product Design

Raydium Semiconductor, driven by its core semiconductor technologies and innovation-oriented vision, has successfully reduced power consumption in functionally equivalent products through the use of advanced, mature wafer processes and optimized energy-saving circuit designs in the LCD display driver IC segment. In addition, to support the industry trend toward more energy-efficient displays, OLED display driver ICs — known for lower power consumption compared to LCD counterparts — now account for 53% of Raydium’s total product portfolio. While advancing technological innovation, Raydium remains committed to fulfilling its corporate social responsibility.

The generational differences in energy-efficient product design are outlined as follows.

- Key products adopt advanced, mature wafer processes and optimized IC circuit design technologies to reduce power consumption across successive generations, resulting in more energy-efficient and power-saving products.

generational comparison (normalize)	large-size panel driver IC	Small-size panel driver IC	Automotive panel driver IC	System controller IC
Previous generation	1	1	1	1
Next generation	0.82	0.73	0.80	0.85

- Through end-product applications, the next-generation ICs across the four major product categories are expected to save 48,566,166 kWh of electricity annually, reduce 23,992 metric tons of carbon emissions, and supply the equivalent of one year’s electricity consumption for 13,130 households.

Product categories	Averaged Reduction in IC Energy Consumption	Annual savings in electricity (kWh) per year * ¹	Annual reductions in carbon emissions (Ton)*	Equivalent to the amount of carbon absorbed by how many Da-an Forest Parks each year* ²
large-size panel driver IC	17%	2,030,268	1,003	549
Small-size panel driver IC	35%	43,063,631	21,273	11,642
Automotive panel driver IC	20%	2,972,071	1,468	803
System controller IC	15%	500,196	247	135
Total		48,566,166	23,992	13,130

Note 1: Estimated annual electricity savings are calculated based on the reduced power consumption of next-generation ICs, multiplied by 24 hours per day and 365 days per year.

Note 2: Estimated annual carbon emissions reduction is calculated by multiplying the reduced power consumption of next-generation ICs by 24 hours per day, 365 days per year, and the Taipower electricity emission factor.

Note 3: Based on the average annual electricity consumption per residential household.

5.4 Green Production

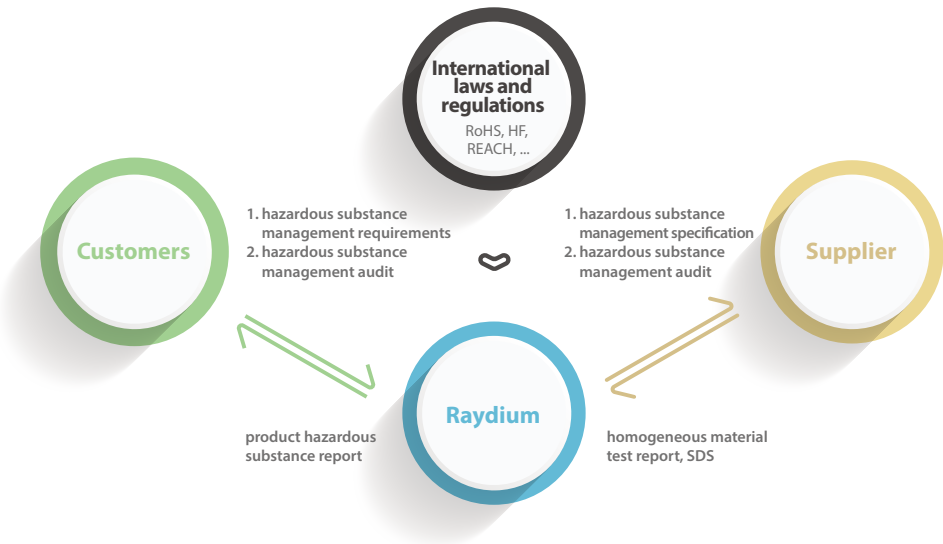
Raydium Semiconductor is a fabless IC design company, with all manufacturing processes outsourced to suppliers (including foundries and assembly/testing facilities). As a result, the environmental impact arising from suppliers' production activities may have a direct influence on Raydium.

Upholding the principles of nature conservation and environmental protection, Raydium Semiconductor has established the Green Product Management Guidelines to regulate the management of environmentally hazardous substances and reduce the environmental impact of such substances in its products.

The company regularly reviews and updates its Hazardous Substance Management Specifications to ensure compliance with international laws, regulations, and customer requirements. Raydium also closely monitors global environmental issues and actively participates in customer-organized supplier conferences and training programs to stay informed and responsive to customer expectations.

In 2024, Raydium continued to ensure 100% compliance with international environmental laws and regulations (e.g., RoHS, Halogen-Free, REACH) and customer requirements, including in material procurement, the selection of outsourced production materials, and investigations of other hazardous substances in products upon customer request.

To fulfill its management responsibilities, Raydium conducts annual hazardous substance management audits on its suppliers. In 2024, a total of 25 suppliers were audited, achieving a 100% audit rate, with all suppliers found to be in compliance.



5.5 Environmental Sustainability Activities at Raydium

Promotion of Sustainable Living

Raydium volunteers and their family members participated in the "Green Party Festival" organized by the AUO Foundation, joining efforts to promote sustainable living in alignment with global biodiversity and zero-deforestation trends. Through activities such as invasive vine removal, ecological tours, and a sustainability marketplace, participants practiced sustainable living while supporting the goals of the UN Convention on Biological Diversity and the United Nations Sustainable Development Goals (SDGs). This initiative embodies the spirit of achieving a Net Positive Impact by valuing and preserving biodiversity, and contributing to the protection of ecosystems and natural resources.



Beach Cleanup

Raydium volunteers and their family members participated in the Ocean Party Beach Cleanup at Dahu Creek in Guanyin District, Taoyuan, organized by the AUO Foundation. Together with government agencies, AUO Group employees and their families, 14 suppliers, and local community associations, nearly 350 volunteers joined forces to collect 1.239 metric tons of coastal waste.

