

Environmental Management

- 5.1 Climate Change Responses and GHG Management
- 5.2 Energy Management
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- 5.4 Waste Management

Chapter Highlight

- The 2024 CDP SME questionnaire received a B (Management Level) rating, the highest level achieved by SMEs, for its climate issue response.
- In 2024, we responded to the Ministry of Environment's green office metrics and measures by implementing energy and resource conservation, waste reduction at the source, and environmental greening in the workplace. We also led employees in participating in environmental activities and strengthened environmental awareness promotion. Following a review and approval process, **26** environmental protection measures were adopted, making us a member of the "Green Partners" program.
- In 2024, we participated in the tree planting activity organized by the Tse-Xin Organic Agriculture Foundation (TOAF) for the third consecutive year, jointly planting and sponsoring the adoption of **80** trees through a donation of NTD 44,000. The initiative is estimated to sequester **320** kilograms of carbon, raising awareness of tree planting and environmental protection among employees and the public, and contributing to global carbon reduction efforts.
- The overall electricity consumption in 2024 decreased by **2.7%** compared to the base year 2022, achieving the annual target of a **1.2%** reduction compared to the base year.
- In 2024, our potable water withdrawal decreased by **6.3%** compared to 2023, and our water intensity decreased by **6.0%**.
- Waste generation in 2024 decreased by **9.35%** compared with 2023.

RichWave has always paid attention to environmental protection, striving to reach a balance between corporate operations and co-prosperity/co-existence with the environment by launching electronic products featuring exceptional performance and green concepts. Consequently, while materializing the environmental management policy and controlling the environmental impact of our operations, we also pro-actively engage in supply chain and environmental management, supervising and guiding our supply chain partners to fulfill their environmental responsibilities in a bid to create a green semiconductor value chain.

Environmental Management Goal

Starting in 2023, our management policy targets a 3% reduction in electricity consumption, GHG emissions, and other waste management within the next five years. Additionally, by 2030, we aim to decrease our water intensity (WI) by 2% compared to 2022 levels.



RichWave's Environmental Management Policy

Comply with international regulations and support environmental protection

Continue to monitor domestic and international environmental policy and regulatory developments to ensure that our operations comply with legal requirements. RichWave also introduced green products that meet international environmental regulations and development trends, satisfying customers' sustainability demands.

Practice environmental management and resource recycling and reuse

The Company operates under the ISO 9001:2015, ISO 14001:2015, and ISO 14064-1:2018 management systems to practice environmental management. All electronic waste is handled by certified disposal companies for resource reuse, thereby maximizing the benefits of a circular economy.

Encourage total participation – Promote ongoing improvement

Continue to promote environmental concepts and education to RichWave's colleagues and support relevant activities by the government and environmental groups; regularly review our environmental performance to examine and improve inadequacies.

5.1 Climate Change Responses and GHG Management

Climate Change

Faced with increasing global warming, RichWave is aware that climate change is an urgent issue that must be addressed. The World Economic Forum (WEF) released its latest Global Risks Report in 2024, identifying “Extreme weather events,” “Critical change to Earth systems,” “Biodiversity loss and ecosystem collapse,” and “Natural resource shortages” as the top four global risks for the next decade. In light of this, governments worldwide are gradually implementing compulsory regulations that demand businesses to conduct financial impact analysis based on the Task Force on Climate-related Financial Disclosures (TCFD). Since 2024, Taiwan's Financial Supervisory Commission (FSC) has required all TWSE- and TPEx-listed companies to disclose nine key pieces of climate change-related information in their annual reports.

To align with international trends and regulatory requirements, RichWave initially adopted the TCFD framework in early 2022. This framework structures climate governance around governance, strategy, risk management, and metrics and targets. We have established emission reduction plans with phased targets and identified potential financial impacts from climate-related risks and opportunities. Furthermore, we have developed corresponding strategies and actions to strengthen climate adaptation resilience. In 2023, we expanded our assessment of climate risks and opportunities, inviting more departments to participate. This allowed us to thoroughly consider their actual and potential financial impacts on the Company. RichWave has participated in the CDP questionnaire and disclosed its results since 2023. In the 2024 CDP SME (Small and Medium Enterprise) climate change questionnaire, it received a B (Management Level) rating, the highest level achieved by SMEs.

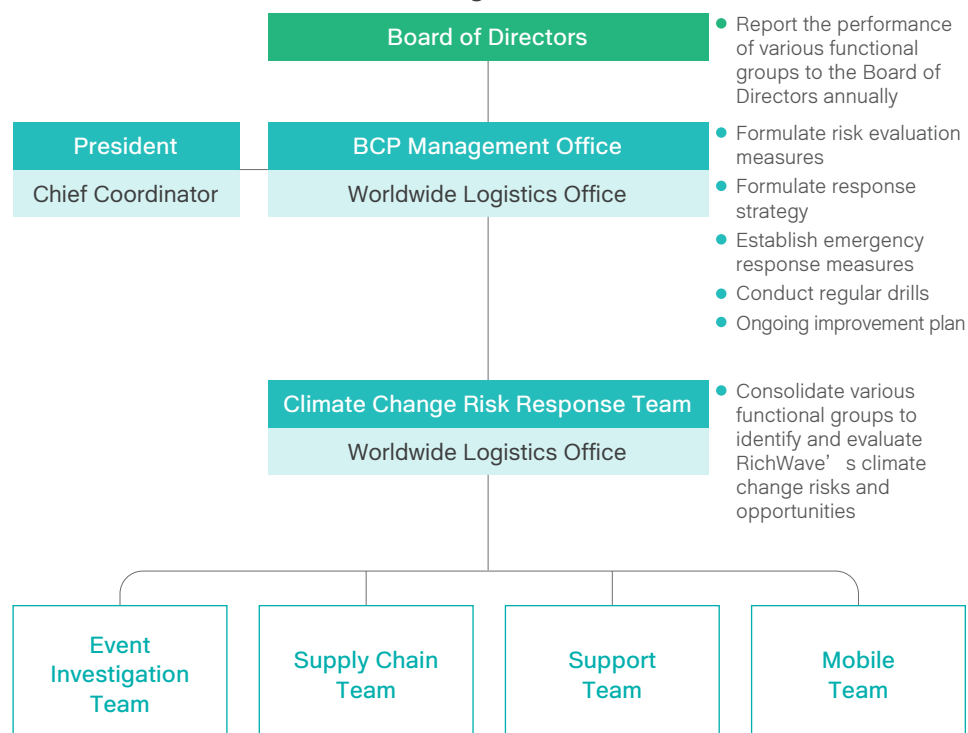


■ The 4 Core Elements of TCFD

1. Governance

RichWave has established a Business Continuity Plan (BCP) Management Office as a dedicated unit to manage climate-related risks and opportunities. Supervised by the Board of Directors, it annually evaluates climate risks and opportunities, and formulates and implements response strategies and action plans. The President serves as the General Convener, with the Worldwide Logistics Office acting as the coordinating unit responsible for policy formulation, action planning, and communication. A “Climate Change Risk Response Team is established under the Office,” comprising an Event Investigation Team, a Supply Chain Team, a Support Team, and a Mobile Team. Representatives from various business departments participate to facilitate cross-departmental communication and coordination, and the annual results are reported to the Board of Directors.

RichWave’s Climate Governance Organizational Structure



2. Risk Management

RichWave’s climate risk management is based on a business continuity management model, comprehensively assessing potential climate risks related to policies, regulations, and technologies, and formulating response measures. After each business unit identifies important climate risks and opportunities, the Climate Change Response Team plans corresponding strategies and measures, incorporating them into the Company’s general risk management mechanism to normalize climate issue management and ensure effective monitoring and response to the challenges of climate-related issues.

RichWave’s Key Climate Risk and Opportunity Evaluation Procedure

STEP 01

Collect information on climate risks and opportunities in the electronics industry

- RichWave gathers publicly disclosed information from leading domestic and international companies, third-party research reports, and regulatory developments in its operational regions. Based on industry characteristics, this information is used to identify climate-related risks and opportunities relevant to its business operations.

STEP 02

Inventory and evaluate RichWave’s climate risks and opportunities

- Convene departments to discuss climate-related issues, inventory climate risks and opportunities, and analyze relevant regulations and market/technology trends associated with these risks and opportunities
- To further analyze each issue, consider factors such as likelihood of impact, level of impact, and timing of occurrence, to understand the impact and effects of climate issues on RichWave

STEP 03

Identify RichWave’s climate risks and opportunities

- Based on the discussion content and an evaluation of risk values according to the likelihood of impact and level of impact, and establish a risk matrix to summarize the Company’s overall material climate risks and opportunities
- Inventory climate-related risks and opportunities, along with relevant information and management strategies
- Prioritize material climate risks and opportunities

STEP 04

Management of material climate risks and opportunities topics

- Assess various key climate risks and opportunities, review current management practices related to corresponding issues, and develop relevant response strategies to effectively manage or mitigate the impact of risks on the Company

3. Strategy

1. Identification Climate Risks and Opportunities

In 2023, we assessed RichWave's industry characteristics and development trends based on the current operations of each department. We also explored various strategic development directions, taking into account local regulatory developments and the geographical characteristics of our business locations. As a result, we preliminarily identified 12 climate-related risks and opportunities relevant to RichWave, including five transition risks, two physical risks, and five opportunity-related topics.

RichWave's Risks and Opportunities

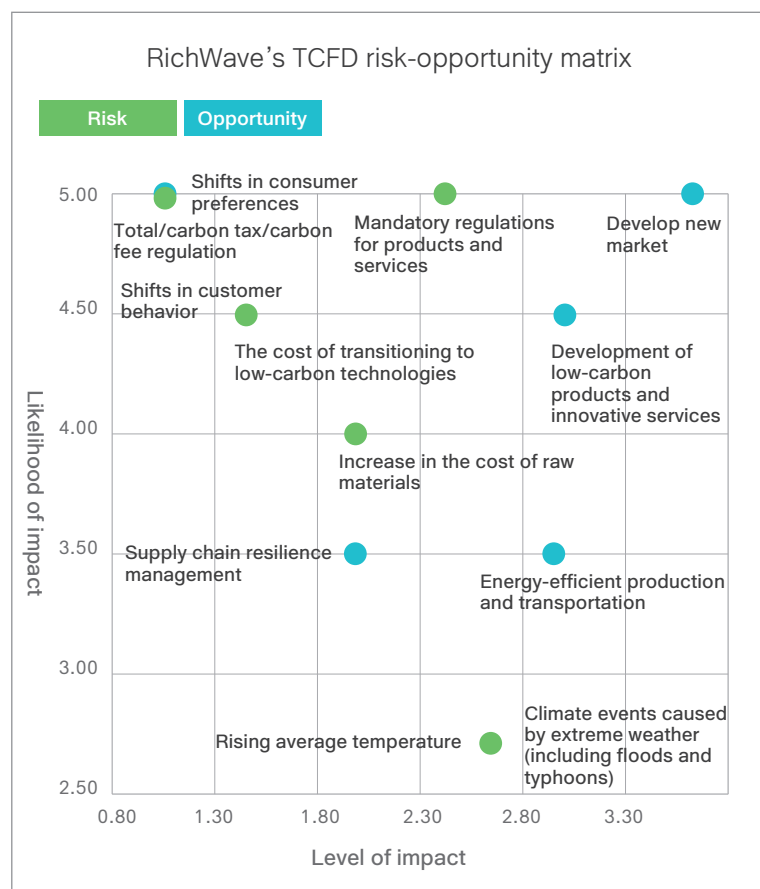
Climate risks and opportunities		Risk/opportunity description	Financial Impact	Impact duration	Scope of impact on the value chain	
Climate risks	Transition risks	Total amount, carbon tax, and carbon fee regulations	- The EU has expanded the scope of the Carbon Border Adjustment Mechanism (CBAM) to include downstream steel products such as screws and bolts, and it has imposed carbon taxes. This will in turn increase RichWave's hardware material procurement costs. - As Taiwan releases regulations on GHG emissions and carbon credit trading, more detailed sub-regulations are emerging. The Company is implementing corresponding measures in accordance with the FSC's requirements, which may lead to increased operating costs.	Increased procurement costs and operating costs.	Medium- to long-term (3-10 years)	Upstream supply chain, own operations
	Transition risks	Mandatory regulations for products and services	To comply with environmental or climate regulations relevant to the sales region and those specific to the products and services, such as the Toxic Substances Control Act (TSCA) in the US, Restriction of Hazardous Substances (RoHS) Directive in the EU for electrical and electronic equipment, and Taiwan's Climate Change Response Act.	Increase in the operating costs	Medium- to long-term (3-10 years)	Own operations
	Transition risks	The cost of transitioning to low-carbon technologies	To accommodate customers' low-carbon product needs, the Company must increase R&D personnel and product costs to upgrade the specifications of its main products. For example, invest in the R&D of nonlinear power amplifier (PA) products to meet the market's demand for 25-30% energy saving benefits.	Increase in R&D costs	Medium- to long-term (3-10 years)	Downstream customers, own operations
	Transition risks	Shifts in customer behavior	In response to European customers' concerns about climate change and energy efficiency demands, power consumption regulations for Wi-Fi RF front-end products are becoming stricter. Consequently, various RF front-end manufacturers are actively developing non-linear PA products. Also, countries like the US and Japan are gradually increasing their requirements for improved product energy efficiency. The Company needs to invest in the R&D of emerging technologies, resulting in increased R&D costs.	Increase in R&D costs	Medium- to long-term (3-10 years)	Downstream customers
	Transition risks	Increase in the cost of raw materials	Raw materials and energy required by enterprises may face supply shortages or price increases due to climate change and the shifting of sustainability-related costs. For instance, electricity bills will increase due to the impact of the carbon fee mechanism or additional use of green electricity, or logistics expenses may be affected by delayed raw material shipment due to extreme weather, resulting in increased costs of production for the Company and its OEM partners.	Increase in the operating costs	Short-term (1-3 years)	Upstream supply chain, own operations
	Physical Risk	Heavy precipitation caused by extreme weather (including floods and typhoons)	Extreme weather such as floods and typhoons may directly or indirectly cause operational disruption or financial loss. For instance, employee absenteeism could lead to production downtime, damage to machinery and flooded facilities at OEM factories could interrupt production lines, and disruptions in the delivery of imported raw materials or an increase in shipping costs due to typhoons or floods.	Operation interruption Increase in procurement costs	Short-term (1-3 years)	Upstream supply chain, own operations
	Physical Risk	Rising average temperature	To maintain the production line's operating performance, the data center must operate within a specific temperature range. Continuous high temperatures will lead to lower temperature settings and increased operating hours, resulting in increased electricity consumption and higher operating costs.	Increase in the operating costs	Short-term (1-3 years)	Own operations

Climate risks and opportunities		Risk/opportunity description	Financial Impact	Impact duration	Scope of impact on the value chain	
Climate opportunities	Market	Develop new market	● In response to the market demand for products in the smart home, smart lighting, and security sectors, RichWave has continued to develop the radar sensor market. The Company supplies its products to manufacturers of lighting fixtures, lighting control modules, televisions, air conditioners, and surveillance cameras. RichWave strives to increase its market share and revenue by expanding the application of radar sensors in relevant end products such as smart sensing lights and smart bathtubs.	Increased operating revenue	Medium- to long-term (3-10 years)	Own operations, downstream customers
	Innovative products and services	Development of low-carbon products and innovative services	● Driven by increasingly stringent global energy-saving regulations, especially those from European customers concerning power consumption standards for Wi-Fi RF front-end products, the RF front-end industry is compelled to develop more energy-efficient solutions to meet market demands. RichWave continues to provide diverse green products in a bid to increase competitiveness and market share.	Increased operating revenue	Medium- to long-term (3-10 years)	Own operations, downstream customers
	Innovative products and services	Shifts in consumer preferences	● RichWave develops a variety of high-efficiency products and actively demonstrates its GHG reduction effectiveness, responding to consumer interest in green products and the carbon reduction needs of its customers’ supply chains. Completed the GHG inventory and inspection of the parent company in 2022, and the baseline year for the GHG inventory of subsidiaries is expected to be 2025.	Increased operating revenue	Medium- to long-term (3-10 years)	Downstream customers
	Resource use efficiency	Energy-efficient production and transportation	● The Company continues to operate its ISO 14001 environmental management system by implementing an annual energy-saving and carbon reduction plan. This plan includes office energy conservation and equipment upgrades, collaborating with logistics partners to use electric or low-emission vehicles, and optimizing logistics routes and transportation modes. Furthermore, starting in 2024, we have introduced renewable energy to reduce the Company’s overall carbon emissions and operating costs.	Reduced operating costs	Medium- to long-term (3-10 years)	Own operations, logistics
	Resilience	Supply chain adaptation capability	● We work with suppliers to implement BCP management plans, establish emergency response procedures and measures, and quickly respond to supply chain emergencies to reduce the impact of business interruption, increase supply chain reliability and operational capacity, and enhance market competitiveness and supply chain resilience.	Enhance resilience	Medium- to long-term (3-10 years)	Upstream supply chain



2. RichWave's material climate risks and opportunities

The three material climate risks and opportunities identified by RichWave this year include mandatory regulations for products and services, developing new markets, low-carbon products, and innovative services. We analyze the potential and actual impact of climate risks and opportunities on the Company, basing our assessment on current market conditions, international trends, and external research reports. We also review our resource allocation and future business development to formulate appropriate response strategies.



Financial Impact Evaluation and Adaptation Measures for RichWave's Material Climate Risks and Opportunities

Risk/ opportunity	Topic	Financial impact items ^(note)	Adaptation measures
Risk	Mandatory regulations for products and services	● Increase and maintain various ISO certifications to avoid regulatory violations. Take RoHS as an example, if the levels of hazardous substances in electronic and electrical equipment exceed the limits, it could result in fines ranging from 400,000 to 4,000,000 EUR. This would severely impact our reputation. ● The Company continues to implement energy conservation and carbon reduction measures in response to domestic and international regulatory trends, as well as implement strategies and guidelines for various net-zero initiatives, resulting in increased operating and labor costs.	● Appoint full-time staff to continuously monitor domestic and international regulatory requirements and trend shifts. ● Continue to increase and maintain various ISO international certifications, and develop energy-saving products. Furthermore, verify hazardous substances in the selection of raw materials during the product development phase to comply with international environmental regulations. ● Continue to implement energy conservation-related solutions and measures, and renewable energy was introduced in 2024, with the goal of ensuring that it accounts for 3% of the parent company's total electricity consumption by 2030.
Opportunity	Develop new market	● Expand the sales scope by supplying energy-efficient new products to meet new market demands, thereby increasing operating income. For example, RichWave has developed microwave radars integrated with signal processing sensors for use in home appliances, enabling automatic on/off switching through smart detection to reduce energy consumption. ● Investing in the R&D of emerging technologies leads to increased R&D costs. ● Invest in additional labor costs to develop new products.	● Develop low-power new products by adjusting design specifications to reduce current consumption. For example, reduce the current used in the pulse wave motion sensing mode of our 8 – 10 GHz ultra-wideband (UWB) microwave radar with built-in signal processing sensors. These products are widely used in applications such as smart homes, smart lighting, surveillance systems, and dashcams. ● Expand the multifaceted application of products: Expand the application of 5.8 GHz and 8-10 GHz radar sensors in smart lighting, electronic locks, security systems, and other smart home appliances. Continue to develop millimeter-wave radars to design products with diverse applications. ● Develop new clients and vigorously pitch radar sensors to customers in the home appliance sector.
Opportunity	Development of low-carbon products and innovative services	● Develop and launch low-carbon new products to expand market share and increase operating income. In 2024, the RF FEM for Wi-Fi 7 applications will evolve from a linear to a non-linear version. Under high power, the 2.4 GHz module saves 30% current, the 5 GHz module saves 25%, and the 6 GHz module saves 10%. Continue to expand its Wi-Fi IC front-end RF chip product line, with an estimated market share of 30% by 2027.	● Continue to develop nonlinear power amplifiers: Develop and optimize product performance in conjunction with Wi-Fi main chip manufacturers and measuring instrument suppliers to ensure that the products perform as expected. ● Improve the power efficiency of flagship products: Continue to R&D low-power product portfolios to meet or exceed domestic and international manufacturer requirements, thereby increasing market share.

3. Quantification the financial impact of climate risks and opportunities

RichWave has quantified and analyzed a key topic selected from physical risks, transition risks, and opportunities, and used the impact pathway method to assess the impact of climate risks and opportunities on its operations. It has also developed potential quantification methods and calculated the financial impact of each climate topic to ensure stakeholders fully understand these impacts and their consideration in financial planning.

Topic	Impact duration	Scenario description	Assumptions and parameters for calculation	Potential financial impact
Transitional risks				
Mandatory regulations for products and services	Mid-term	- In response to mandatory product regulations, the Company has assigned dedicated personnel to monitor the latest standards and avoid penalties. Violations of RoHS and REACH regulations, which restrict the use of hazardous substances, may result in fines ranging from EUR 400,000 to EUR 4,000,000 when entering the EU market. In more severe cases, violations could lead to imprisonment of six months to six years. - In response to mandatory GHG regulations, the Company has invested in carbon reduction projects, implemented supply chain carbon footprint management, and increased its use of renewable energy.	- Given the extremely low likelihood of violating product-related laws and regulations, we are only considering the increased manpower management costs related to regulatory compliance. - In the future, the Company's new products will focus on the fundamental goal of energy saving and carbon reduction. While the Company has not yet planned long-term carbon reduction projects, it has plans to strengthen supply chain carbon footprint management and increase the use of renewable energy, and will invest in related verification fees and increase green power procurement costs.	It is expected that operating expenses will increase by NTD 6,919,000 in 2030, accounting for 0.2% of annual operating revenue.
Physical risk				
Rising average temperature	Short-term, long-term	As the average temperature rises, the air conditioner temperature setting in data center or offices is lowered, leading to increased electricity consumption. Coupled with rising national power generation costs, this results in higher electricity prices and overall electricity expenditure.	- Considering the impact of the COVID-19 pandemic on energy demand, the estimated increase in Taipower's electricity price in 2050 was linearly projected based on historical electricity prices after 2020, assuming a 6% increase in electricity consumption for every 1° C reduction in air conditioning temperature. - The IPCC AR6 Synthesis Report: Summary for Policymakers and the Taiwan Climate Change Assessment Update Report were used, adopting the SSP5-8.5 climate scenario. Assuming a similar warming trend across Taiwan, the average temperature in 2050 is projected to increase by 1.8° C compared to 2024.	- It is expected that the electricity bill will increase by NTD 126,000 in 2025, accounting for 0.003% of the annual operating revenue - Electricity costs are expected to increase by NTD 3,688,000 in 2050, accounting for 0.1% of the annual operating revenue.
Opportunity				
Opportunity - Development of lowcarbon products and innovative services	Mid-term	In response to growing customer demand for low-carbon products, the Company is upgrading its flagship products, developing new products, and collaborating with measurement companies to ensure new product performance meets expectations. These initiatives are expected to increase operating revenue.	The operating profit that may be generated by low-carbon products in 2030 is estimated by considering the operating revenue growth of low-carbon products in 2030, the expected increase in low-carbon product R&D expenses, and the outsourcing fees for supplier measurements.	Excluding certain uncontrollable political, environmental, economic, and other external factors, the operating income from low-carbon products in 2030 is projected to be 155.7 times greater than that in 2024.

Note : The outcome of climate-related financial impact analysis can vary depending on factors such as assessment scope, scenario assumptions, data scope, and data availability. Please evaluate the applicability of the data with caution when citing the data.

4. Metrics and Targets

RichWave regularly monitors the development of material climate risks and opportunities, and formulates corresponding management metrics and targets. We have set targets for emission reduction, water conservation, power saving, and waste reduction, and planned renewable energy use programs. We have also expanded relevant management requirements to our supply chain partners to jointly promote environmental sustainability. We will regularly monitor the achievement of various metrics and report it to the Board of Directors, and continue to optimize and improve various management measures to enhance the Company's climate resilience.

Metric	Target
Environmental Sustainability	- Management of energy and GHG emissions: Using 2022 as the base year, electricity consumption and GHG emissions will be reduced by 3% within five years. - Waste management: Using 2022 as the base year, electricity consumption and GHG emissions will be reduced by 3% within five years. - Water resource management: Lower WI by 2% before 2030 compared to 2022 - Supply chain partnership: Vigorously encourages the supply chain to obtain ISO certifications for carbon emissions and energy management, enabling suppliers to strive for environmental sustainability and ensuring that the green development of the overall supply chain conforms to international standards. - Renewable energy: We are committed to progressively increasing the use of renewable energy within the next five years by participating in the renewable energy power trading market and establishing a renewable energy utilization strategy to materialize the long-term environmental sustainability targets, which is to reach a 3% renewable energy consumption by 2030 and a cumulative renewable energy consumption of 18,000 kWh by 2025.
Product regulatory compliance	- Regularly maintain various ISO certifications. - Maintain zero violations of international or domestic environmental laws. - Ensure that all products are 100% compliant with regulations regarding hazardous substances and meet customer specifications.
Low-carbon product R&D	- Continue the R&D of millimeter radars. - By 2025, products with nonlinear PAs are expected to achieve a 15% market share and save 6.02 million kWh of electricity. - By 2027, Wi-Fi product shipments are expected to capture a 30% share of the global market. - Surpass 900 global patents in RF front-end technology R&D and application by 2028. - Overall local procurement accounts for 71% annually. - Local procurement of key raw materials accounts for 52% annually.

GHG Management

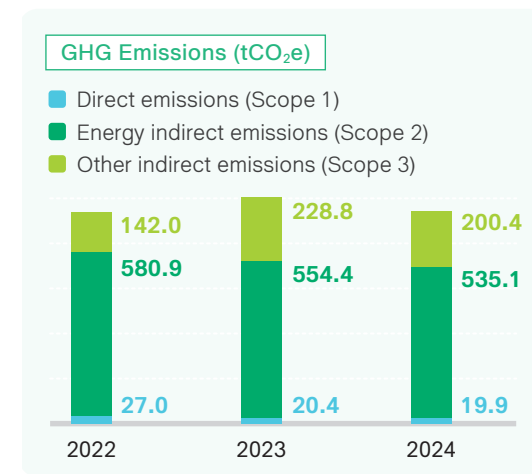
■ Operational GHG Management

Since June 2022, RichWave has introduced the ISO 14064-1:2018 GHG management system and obtained third-party verification. We have adopted the operational control approach to conduct a Scope 1, 2, and 3 GHG inventory for our Taiwan locations, actively promoting various GHG emission reduction measures based on the inventory results, and setting a reduction target of 3% for Scope 1 and Scope 2 GHG emissions by 2028, compared to the 2022 baseline year. The Company does not have energy-intensive equipment or production processes, and purchased electricity accounts for the majority of its energy consumption. Please refer to [5.2 Energy Management](#) for details on GHG reduction initiatives.

RichWave's Scope 1 GHG emissions in 2024 were 19.9100 tCO₂e, a decrease of 2.5% compared to 2023. Scope 2 GHG emissions were 535.0735 tCO₂e, a 0.6% increase compared to 2023. The emission intensity of Scope 1 and Scope 2 is 0.1509 tCO₂e/million operating revenue, a decrease of 22.9% compared to 2023. The main reason for the increase in Scope 2 is a 17% increase in purchase and sales volume compared to the previous year, which led to increased electricity consumption during operations and a 16% increase in public electricity consumption in the Taipei leased office building compared to the previous year.

For 2024, the Company's Scope 3 emissions inventory was evaluated based on the principle of materiality. The categories inventoried include Category 3 and Category 4 emission activities such as upstream product transportation, downstream product transportation, employee commuting, raw material extraction, manufacturing and processing, as well as the disposal of solid and liquid waste. In 2024, Scope 3 GHG emissions totaled 200.4103tCO₂e, equivalent to a 12.4% decrease compared to 2023. In particular, emissions from employee commuting were identified as the primary indirect GHG emission source.

RichWave's GHG Emissions Over the Last 3 Years



Note1 : In 2024, the organizational boundary for the Company's GHG inventory was defined using the operational control approach and encompassed all its sites in Taiwan. The inventory was conducted in accordance with the ISO 14064-1:2018 GHG Inventory Standard. Emission factors were derived from the "EPA GHG Emission Factor Management Table 6.0.4," and calculations were based on Global Warming Potential (GWP) values published in IPCC AR6.

Note2 : The seven gas types included in the calculation are: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride.

Note3 : The Scope 3 emission categories include Category 3 and Category 4, and the emission activities include upstream/downstream product transportation, employee commuting, raw material extraction, manufacturing and processing, as well as the disposal of solid and liquid waste.

Note4 : According to the results of third-party verification on October 21, 2024, the 2023 GHG emissions have been revised: Scope 1 emissions were adjusted from 29.0 tCO₂e to 20.4 tCO₂e, Scope 2 emissions changed from 555.8 tCO₂e to 554.4 tCO₂e, and Scope 3 emissions were revised from 219.0 tCO₂e to 228.8 tCO₂e.

Note5 : The 2024 emission data has not yet been verified by a third party and will be adjusted based on the third-party verification results in 2025.

■ Other indirect GHG Emissions Management

RichWave's business operations include IC R&D, design and sales, where product manufacturing is completely reliant on the processing of our supply chain partners. The supply chain is an important link in mitigating product life cycle carbon emissions, hence we stress scope 3 GHG management and vigorously promote the reduction of GHGs outside of the organization's business scope. Through continuous refinement, increasing the performance of our high-power, energy-efficient products, and implementing supply chain energy management, we can minimize the carbon footprint of various terminal electronic products. In doing so, the company will be able to attain the sustainability of energy resources while offering consumers high-performance, high-quality products.

1. Green Product Design

We have taken the environmental impact of the products' life cycle during the IC design stage and continue to facilitate innovations in energy-saving designs. Besides effectively reducing energy consumption during the production process and lowering production costs, RichWave can also decrease energy consumption while using the products, thereby mitigating production/consumption costs with our suppliers and consumers, as well as cherishing the Earth and engendering a green, sustainable future.

2. Supply Chain Management

To promote the decarbonization plan from our supply chain, we require our suppliers to obtain ISO 9001 Quality Management System, ISO 14001 Environmental Management System, ISO 45001 Occupational Safety and Health Management System, QC 080000 Hazardous Substance Process Management System, and IATF 16949 Automotive Quality Management System certifications. This helps to mitigate the negative environmental impacts of product manufacturing processes. In addition, we have conducted an audit of our 23 primary suppliers across the three categories of wafer, packaging and testing, to make sure that they engage in ongoing energy and GHG emissions reduction improvements. Also, the zero-carbon objective and action plan guidelines for 2030 and 2050 have been formulated.

3. Green Transport

In terms of the daily commute, we encourage our colleagues to make use of public transport or carpool; in terms of business travel, besides asking our colleagues to utilize public transport, they are encouraged to conduct meetings using the video conferencing system to minimize carbon emissions from transportation.

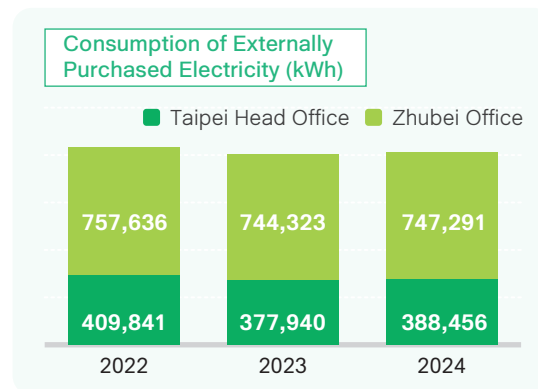
5.2 Energy Management

Energy Utilization

RichWave is a member of the IC R&D industry. We do not operate any high energy-consuming equipment or production processes, nor do we own company vehicles or emergency generators. As a result, our energy usage primarily consists of externally purchased electricity. To achieve effective energy management, we regularly calculate electricity consumption to monitor RichWave's energy usage. Based on this information, we have developed improvement strategies and, in 2023, set a target to reduce the overall electricity consumption of our Taiwan sites by 3% by 2028, using 2022 as the baseline year.

RichWave has adopted renewable energy since 2024. In 2024, its purchased electricity consumption was 1,135,747 kWh (4,088.6 GJ), including 6,900 kWh from renewable sources. Cumulative consumption is projected to reach 18,000 kWh by 2025, representing 0.7% renewable energy use in 2024, with a target of 3% by 2030. The overall electricity consumption in 2024 increased by 1.2% compared to the previous year, but decreased by 2.7% compared to the base year. This was mainly due to a 17% increase in import and export volume compared to the previous year, which in turn boosted electricity consumption during operations. Concerning Energy Use Intensity (EUI), our 2024 EUI was 216.9 kWh/m², marking a 2.7% reduction compared to the 2022 baseline. RichWave will continue to develop energy usage plans to enhance efficiency and achieve green sustainability.

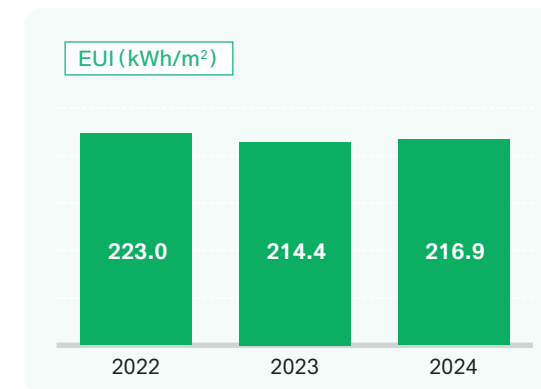
RichWave's Energy Consumption Over the Last 3 Years



Note1 : The scope of purchased electricity consumption data has been expanded to include building-specific meters and public area electricity usage, aligning with the Scope 2 GHG emissions boundary for the current year. This adjustment has also been retroactively applied to the 2022 data.

Note2 : The calorific value of electricity is calculated using the conversion factor of 1 kWh = 0.0036 GJ.

RichWave's EUI in the Past 3 Years



Note : EUI = Total electricity consumption of all operating sites in Taiwan (kWh) / Total floor area of all operating sites in Taiwan (m²)

Green Operations

RichWave is committed to environmental sustainability and upholds green environmental principles. The Management Department regularly reviews energy consumption, coordinates energy management policies, and collaborates with the BCP Management Office to implement energy-saving and carbon-reduction initiatives. This includes annual energy improvement plans, office energy-saving measures, improvements in air conditioning systems, and the adoption of energy-efficient equipment and technologies. Product R&D focuses on high power efficiency and low energy consumption to enhance energy use efficiency.

RichWave has obtained ISO 9001:2015 certification and maintains compliance with IECQ QC080000. The company has also been certified as a SONY GP (Green Partner) and achieved dual international certifications for ISO 14001 Environmental Management System and ISO 14064-1 GHG Inventory. In 2024, RichWave continued to operate under the ISO 14001 Environmental Management System and conduct ISO 14064-1 GHG Inventory. Third-party verification for both certifications was completed in November and December of the same year.

In 2024, in response to the environmental indicators and actions outlined in the Ministry of Environment's "Net Zero Green Life, Green Office" initiative, the Company enhanced environmental awareness campaigns and implemented workplace initiatives focused on energy conservation, source reduction, and environmental greening. Employees were also encouraged to participate in environmental protection activities, fostering a shared commitment to a sustainable lifestyle. Following review and approval by the Ministry of Environment, 26 environmental protection measures were officially registered, and the Company was recognized as a member of the Enterprise Green Partner Program.

Since 2023, RichWave has partnered with KGI Bank to carry out green deposits. As of January 08, 2025, the deposit amounted to NTD 30 million, and it will be allocated to green financing projects and initiatives, including renewable energy, energy conservation, air pollution control, sewage treatment, wastewater treatment plants and associated infrastructure, and green buildings.

By establishing a comprehensive environmental management system, RichWave aims to minimize energy consumption during operations, realize sustainable business goals, as well as meet customer and public expectations towards green operations.

Item	Chinese name	Certification scope	Certification validity period
ISO 9001:2015	Quality management system	Taipei head office, Zhubei office	2024.06.05 ~ 2027.06.04
IECQ QC080000:2017	Hazardous substance process management system	Taipei head office, Zhubei office	(Note 1)
ISO 14001:2015	Environmental management system	Taipei head office, Zhubei office	2022.12.07 ~ 2025.12.06
ISO 14064-1:2018	GHG inventory standards	Taipei head office, Zhubei office	(Note 2)

Note1 : IECQ QC80000:2017 is confirmed for compliance with management standard requirements annually but is not continuously certified.

Note2 : The latest ISO 14064-1:2018 verification scope covers data from the entire year 2023.

RichWave's Energy-Saving and Carbon Reduction Plan



- Continue to operate ISO 14001 Environmental Management System and conduct ISO 14064-1 GHG inventories with third-party verification, as well as effectively plan and implement annual energy-saving and carbon reduction initiatives
- Office energy conservation measures: Encourage employees to change their habits by adjusting air conditioning temperature settings and operating times, switching off lights when not in use, ensuring computers are powered down, and turning off conference systems after meetings, along with implementing energy-saving incentives and conducting air conditioning equipment inspections to lower energy consumption. We began participating in the "Net Zero Green Life" campaign in 2024.
- Continue to evaluate and introduce new energy-saving equipment such as replacing traditional lighting fixtures with LED energy-saving lights and participating in MOEA's energy-saving equipment subsidy program.
- Engage in R&D and design of low-carbon products, incorporating low energy consumption, high efficiency, energy conservation, and carbon reduction as key design criteria.
- Promote digitalization in daily operations and encourage routine waste reduction, such as Enhancing the digitalization of daily operations, such as replacing paper documents with electronic documents, encouraging employees to bring their own thermos when purchasing beverages, and bringing their own chopsticks and spoons when eating out.
- Since 2023, we have entered into green deposit agreements with banks.
- Introduced the renewable energy utilization program in 2024.

RichWave's Energy-saving Action Plans in 2024

Action Plan	Description	Annual Performance
Office energy conservation measures	- In response to the government's net-zero transformation policy, the Company refined its existing energy-saving and carbon reduction measures. - Air conditioners in the office are inspected daily to maintain the set temperature values. - Replaced lights that consume more power. - Organized employee energy-saving incentive activities to encourage them to save electricity voluntarily.	- In 2024, the company passed the "Green Office" review by the Ministry of Environment and became a "Green Partner." - Electricity consumption in the Taipei Office was reduced by 190 kWh on average every month in 2024. - A total of 115 high-efficiency LED lamps was installed this year, and daily electricity consumption is expected to decrease by 55% compared to the original lamps. - In 2024, the Company gave away 218 cups of coffee to reward colleagues who voluntarily saves energy consumption through air conditioners and lights.
Datacenter energy-saving measures	- Consolidated workstation functions to minimize unnecessary equipment power consumption. - Replaced old information equipment to reduce power consumption of equipment operation. - To minimize cold air leakage and improve cooling efficiency, the computer room implemented the 3S methodology: sorting (Seiri), setting in order (Seiton), and sweeping/cleaning (Seiso).	In 2024, we purchased three new high-end workstations for approximately NTD 7.1 million. After function consolidation, we will decommission old machines and expect to reduce daily electricity consumption by 0.4 GJ.
Laboratory energy-saving measures	- Introduced smart welding equipment to reduce standby power consumption. - Implemented a rotational energy management mechanism for instruments and equipment.	In 2024, a total of 104 person-times were dedicated to the energy-saving management of laboratory instruments and equipment.
Product warehouse energy-saving measures	Keep entrance and exit doors closed but unlocked to minimize air conditioner air loss	In 2024, import and export volume grew by 17% compared to 2023, leading to increased electricity consumption.

Responding to the Green Office Initiative – RichWave Advances Towards Net Zero Green Living

In response to the Ministry of Environment's "Net Zero Green Life – Green Office" policy, RichWave has implemented measures for office energy conservation and waste reduction, resource recycling and reuse, environmental landscaping, promotion of green living information to colleagues, and organization of environmental protection initiatives such as mountain cleanups and tree planting activities. RichWave has successfully passed the green office metrics and measures and become a member of the "Green Partners" program. Creating a green, low-carbon space has become the standard for modern offices. RichWave continuously strengthens environmental awareness and integrates carbon reduction initiatives into its daily operations, fostering a sustainable and pleasant workplace and lifestyle for both the company and its employees.

List of green partners

Participation date	County/City	Unit type	Unit name	Number of measures supported
2024/10/09	Taipei City	Business	RichWave	26

-Green Office Partners-

Date	Company Name	Response Indicators
2024/10/09	RichWave Technology Corporation	26

Afforestation Program: RichWave Plants Trees to Foster Ecologically Sustainable Development

To fulfill our commitment to green sustainability and support the global goal of achieving net-zero carbon emissions by 2050, and to elevate our international competitiveness, RichWave partnered with the organizer “TOAF” for the third consecutive year to adopt and plant 80 trees. We also sponsored NTD 44,000, with an estimated carbon sequestration of approximately 320 kg.

Taiwan is an island nation surrounded by the sea on all sides, and the coastline is heavily affected by artificial development and erosion, resulting in severe coastal retreat and the disappearance of coastal forests. Through this tree-planting and afforestation program, we aim to raise awareness of and importance of tree planting and environmental conservation among our colleagues and the general public. By taking part in these efforts, we contribute to carbon reduction and make meaningful investments in creating a sustainable green environment for our planet.

Achievements of Previous Afforestation Programs:

2022	2023	2024			
Number of tree planted					
200	80	80			
Growth status					
The overall survival rate was 73%, with an average height of 155 cm, a 225% increase, and an average crown diameter of 104 cm, a 497% increase.	The overall survival rate exceeded 70%, with an average height of 176 cm, a 304% increase, an average crown width of 133 cm, and an 804% increase.	The overall survival rate is approximately 80%, with an average height of 80 cm, a 18% increase, and an average crown width of 51 cm, a 46% increase.			
Photos of growth					
					
2022.04 Beef Wood	2024.12 Sea Hibiscus	2023.05 Beef Wood	2024.12 Beef Wood	2024.06 Sea Hibiscus	2024.12 Beef Wood

5.3 Water Consumption

In recent years, water shortages occurred frequently in Taiwan, compelling the government and enterprises to pay attention to the scarcity of water resources and their impact on production and operations. RichWave has conducted a water risk assessment for its operating locations in Taiwan using the Aqueduct Water Risk Atlas of the World Resources Institute (WRI). The results show that the overall water risk level for the Taipei head office and the Zhubei office is low to medium.



The water risk level in the areas surrounding the Taipei head office and the Zhubei office is low to medium. Both offices use tap water and do not source water from areas with water stress.

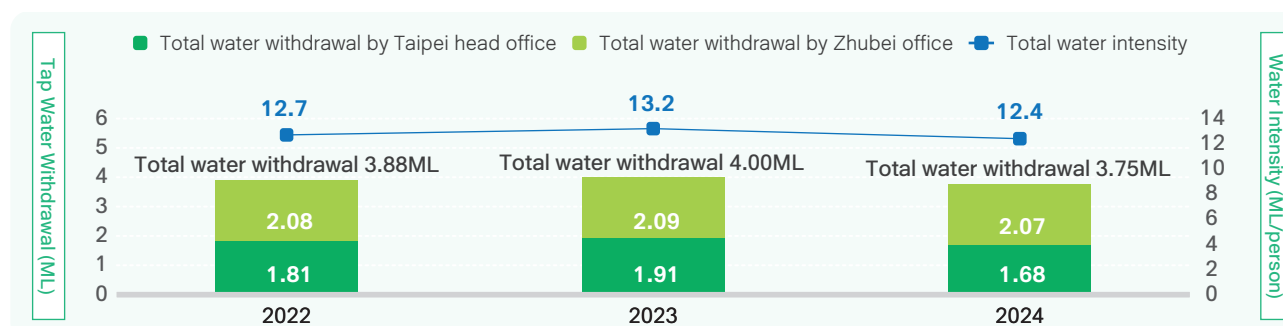
Water consumption at RichWave's operating locations mainly consists of tap water for office use and we do not extract water from water shortage zones and waste water is discharged centrally from the Science Park to the water processing plant. Consequently, total water consumption cannot be calculated. Water consumption is typically measured based on usage in industrial manufacturing processes. However, for office domestic water use, the volume of discharged wastewater is considered equal to the volume of water withdrawal. As a result, the net water consumption is zero. In 2024, RichWave's tap water withdrawal was 3.75 megaliters (equivalent to 3,750 cubic meters), a 6.3% decrease compared to 2023. Additionally, our WI in 2024 was 12.4 megaliters per thousand people, a 6.0% decrease from 2023. We will continue to enforce water resource management for the sake of elevating water efficiency and making sure water resources are utilized most efficiently.

We believe that water is an extremely valuable shared resource, so we regularly control our water consumption in our daily operations and continue to conduct water-saving campaigns, hoping to instill water conservation awareness in our colleagues' everyday life. RichWave's current leased office is located in a park where overall water consumption is centrally managed. The Company is actively cooperating with the park's management unit to implement water-saving measures, such as reducing the frequency of garden irrigation, discontinuing the use of landscape water features, installing water-saving toilets and faucets, and continuously exploring and testing additional solutions to minimize water resource waste.

Water Resource Management Target

Category	Management policy	Reduction target	Measures implemented	Achievement status
Water consumption	Lower WI by 2% before 2030 compared to 2022	Conduct 4 water-saving campaigns annually	1. Conduct electronic campaigns internally	V
		To obtain annual external certification	2. Monitor water consumption and obtain external certification	V

RichWave's Water Consumption Over the Last 3 Years



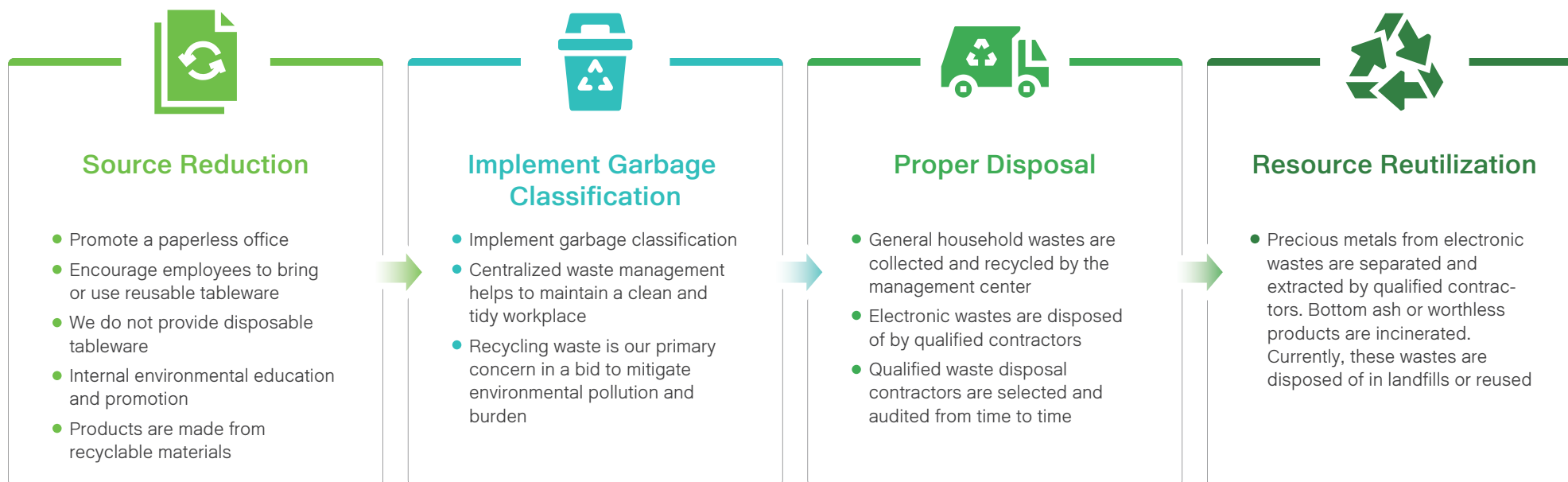
Note1 : In terms of water resources statistics, RichWave's boundary includes our Taipei head office and Zhubei office. The water withdrawal for our offices is calculated based on the building's total water consumption, proportioned by RichWave's leased floor area.

Note2 : Overall WI = Total tap water withdrawal for all operating sites in Taiwan (megaliters) / Number of employees (thousands).

5.4 Waste Management

RichWave's operating locations do not engage in production, thus the waste generated consists of mainly office waste. Electronic wastes mainly come from laboratory tests and product samples preserved for QA purposes; these include hazardous wastes such as electronic scraps and defective products. RichWave has established a dedicated waste management unit in charge of hazardous waste declaration, disposal, and reduction. It is also responsible for monitoring waste disposal to make sure that the process complies with the government's environmental policies and regulations. The Company also implements proper waste disposal and reduction practices, and has set a target to reduce waste generation at its Taiwan sites by 3% by 2028, using 2022 as the baseline year.

To materialize responsible production and mitigate our operating wastes' potential environmental impact, RichWave has implemented the following waste management strategies in various stages.



Waste Management Target

Category	Management policy	Reduction target	Measures implemented	Achievement status
Wastes	Starting in 2023, achieve a 3% waste reduction over the next five years	● General business waste recycling rate>50%	1. Source reduction 2. Implement Garbage classification	√
		● Hazardous business waste recycling rate of 95%	3. Proper disposal 4. Resource Reutilization	√

In 2024, the Company's waste generation totaled 11.3006 tonnes, resulting in a waste intensity of 0.0031 tonnes per million revenue. Notably, general industrial waste accounted for 97.4% of the total, with incineration being the primary treatment method. Hazardous industrial waste, primarily consisting of scrapped products and electronic waste, amounted to 0.2900 tonnes, making up approximately 2.6% of the total waste. This hazardous waste achieved a recycling rate of about 95%, with 5.66% of it being re-circulated into various stages of the product life cycle. Waste generation in 2024 decreased by 9.35% compared to 2023, mainly due to the continuous promotion of waste processing as a resource.

RichWave's current waste recycling items are mainly packaging materials related to products, IC scraps, and defective products, with a total recycling volume of 2.22 tonnes in 2024, which was delivered to qualified and professional waste processing vendors for recycling and reuse. In the future, RichWave will proactively plan and expand the diversified use of recycled materials to achieve the goals of a circular economy and improve resource utilization efficiency.

RichWave's Electronic Wastes Generated Over the Last 3 Years

Category	Category	Key Processing Methods	2022	2023	2024
Non-hazardous business waste (tonnes)	General garbage	Incineration	5.4361	3.5031	3.4427
	Waste paper	Recycling	14.9107	5.9301	5.5385
	Waste plastic	Recycling		2.3152	1.8829
	Scrap metal	Recycling		0.1039	0.0526
	Waste glass	Recycling		0.0853	0.0940
Hazardous business waste (tonnes) ^{Note 2}	Waste electronic components, scraps, and defective products	Recycling	0.2087	0.5290	0.2900
Total (tonnes)		Incineration	5.4361	3.5031	3.4427
Total (tonnes)		Recycling	15.1193	8.9636	7.8580

Note1 : The estimation method for general waste in 2024 at the Hsinchu branch involves measuring the daily general waste production per person, extrapolated to estimate the company-wide daily general waste production per person.

Note2 : The hazardous business waste consists of electronic scraps and defective products.

Note3 : Waste is disposed of 100% off-site by qualified contractors, with statistics covering operations in Taiwan.

