WNC
Wistron NeWeb Corp.

2022
啓碁科技氣候相關財務揭露報告書
WNC TCFD Report

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About This Report

This 2022 TCFD Report is the first climate change report of Wistron NeWeb Corporation (WNC) and is drafted based on the 2017 recommendations of the Task Force on Climate-Related Financial Disclosures. The purpose of this TCFD Report is to provide stakeholders with information about risks and opportunities related to climate change and WNC's business operations. For more information on WNC's ESG measures, please refer to our 2022 WNC Sustainability Report.
This Report shows WNC's determination to maintain positive and transparent communications with its stakeholders and is available in both Chinese and English. You may access the report on the ESG section of WNC's website.

Scope

Information disclosed in this Report encompasses WNC's headquarters on Park Avenue II (or Yuanchiu 2nd Rd.), Hsinchu Science Park, Taiwan (HQ), the S1 manufacturing site on Lihsin Road VI, Hsinchu Science Park, Taiwan, and the S3 site in the Southern Taiwan Science Park. Some content also covers the following subsidiaries in China and Vietnam but the research center in Neihu District, Taipei City, Taiwan, representative offices and service centers in the US, Europe, and Japan and other business entities over whom WNC does not have direct control are not included:

- WNC (Kunshan) Corporation
- Wistron NeWeb (Kunshan) Corporation
- NeWeb Service (Kunshan) Corporation
- WebCom Communication (Kunshan) Corporation - Kunshan Plant
- WebCom Communication (Kunshan) Corporation - Nanjing Branch
- NEWEB VIETNAM CO., LTD. (the VN site)

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Introduction

Extreme weather phenomena such as global average temperature rises, storms, blizzards and droughts caused by climate change have impacted business operations and production and brought about financial losses and threats to workers' safety and health, hindering many sustainability efforts. Companies worldwide and their supply chains must take action and work together to enhance their climate resilience and problem solving capabilities.

The report framework formulated by the TCFD provides companies with a tool to clearly identify actual and potential risks to business operations brought about by climate change. Companies are thus able to strengthen risk management and pinpoint transformation opportunities. Through this process, businesses can create a clear roadmap for strategy formulation and decision-making, thereby enhancing their resilience and competitiveness.

2022 was a significant year for WNC's sustainability actions. Internally, WNC has implemented measures such as the establishment of a Sustainable Development Steering Committee. The Committee enables top-tier management to keep track of the latest progress of sustainability actions on a regular basis and provides top-down support for WNC's sustainability measures. In addition, the ESG Sustainable Development Center promotes cross-department sustainability projects, fostering collaboration within the Company to achieve our sustainable development goals.

In January 2022, WNC added its signature to the TCFD official website to support the TCFD initiative. We fully understand that in the face of climate change, we should pay more attention to climate-related risks while also take action. By becoming a signatory to the TCFD initiative, WNC wants to raise awareness of climate change issues among the industry and the public. This reflects WNC's commitment to improving the quality of its disclosure of climate related information. Starting in 2023, WNC is publishing an annual TCFD report to inform stakeholders of WNC's climate change actions.

We believe that information disclosure concerning climate-driven risks is a corporate responsibility that WNC must embrace. Through regular publication of TCFD reports, WNC can track the status of related indicators, targets, and risk mitigation strategies. Taking action and mitigating risks will help lay the foundation for sustainability in our business operations. To this end, WNC aims to transform into a low-carbon enterprise by developing innovative green products, setting targets for green energy usage and committing itself to the SBTi initiative. It will continue to move toward the goal of becoming a net-zero enterprise.

01

Climate Governance

Governance Structure

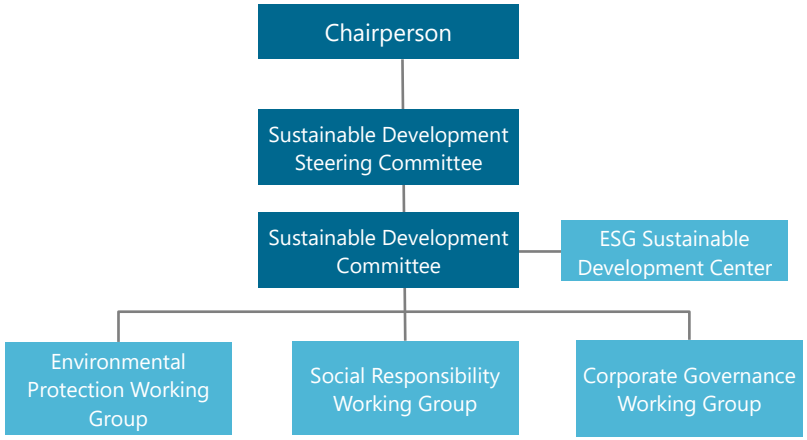
Risk Management

Scenario Analysis

1.1 Governance Structure

In 2021, according to the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD), the Sustainable Development & Marketing Division of WNC formed a Working Group. The Working Group collects and discusses information about energy resources, administration and assets, markets and business, products and technology, and supply chain management to identify potential climate risks and opportunities related to each topic and their materiality. Furthermore, the Working Group formulates management strategies for major climate risks and opportunities through scenario analysis, quantifying the financial impact to the company of these risks and opportunities. The Working Group plans and prepares relevant response measures as early as possible to boost the Company's ability to adapt to climate change. In January 2022, WNC added its signature to the TCFD official website to support the TCFD initiative. In addition to urging the industry and the public to focus on climate change issues, WNC is also committed to the continued improvement of the quality of information disclosure in its handling of climate related issues. WNC also regularly convenes working groups to review changes in climate risks and opportunities relating to climate risks, and will publish an annual independent TCFD report starting in 2023 to disclose detailed information on its TCFD management activities.

WNC Climate Governance Organizational Structure



Board of Directors

The Board of Directors is the highest governing body of WNC. Its responsibilities include providing strategic guidance to the management team related to the Company's operations, evaluating the Company's performance on financial, environmental and social issues, and approving corporate sustainable development related matters proposed by functional units or the Sustainable Development Committee. Starting in 2022, the Chief Sustainability Officer is responsible for making quarterly reports to the Board of Directors about the results of stakeholder communication, and the planning and performance of sustainable development related matters.

Sustainable Development Steering Committee

WNC established a Sustainable Development Steering Committee in 2022. The committee is chaired by the Chairman, and is composed of the President/CEO as well as top-tier managers from all units. The committee is the highest decision-making body in WNC regarding ESG related topics, and is responsible for reviewing sustainable development policies, managing WNC's ESG guidelines and mid- and long-term goals, and implementing sustainable development initiatives. It also provides guidance on how to develop ESG projects in accordance with WNC's business management guidelines, business development strategies, and customer requirements.

ESG Sustainable Development Center

WNC also established a Sustainable Development Committee in 2022, consisting of top-tier managers from functional units. The position of Chief Sustainability Officer, held by the most senior director of the Sustainable Development Marketing Division, was created. The Committee holds regular meetings to review compliance with regulations and customer requirements, progress of ESG projects and planning of new operations.

TCFD Working Group

In 2021, the Sustainable Development Center under the Sustainable Development Marketing Division coordinated the establishment of a TCFD Working Group. It identifies climate-related risks and opportunities, evaluates potential financial impacts, and formulates corresponding management policies and action plans for major risks and opportunities according to factors such as climate conditions, environmental changes and market fluctuations.

1.2 Risk Management

WNC manages its operational risks by leveraging the existing organization structure and internal controls and management mechanisms. Business groups and functional units perform risk assessment in the execution of their duties and develop management strategies and reaction plans to prevent, lessen, or off-set risks. Managers from each team meet weekly to review potential internal and external operations-related variables and analyze the threats and opportunities they present. These variables include the overall economy, industry and technology, customers and markets, supply chains and internal personnel, and issues related to operating procedures. Furthermore, after careful evaluation of all aspects, if the risk item poses a significant threat to WNC's operations, it will be designated as a material risk. Material risks may change over time or due to changes in the internal and external environment.
In addition to implementing risk control measures proposed by functional unit managers and department heads, strengthening internal risk control mechanisms, and improving emergency response and recovery capabilities, we also seek to learn and cooperate with our suppliers to assist each other in enhancing our resilience to different types of risks and respond to the ever-changing business environment.

1.3 Scenario Analysis

WNC conducts scenario analyses concerning transition and physical risks in accordance with the recommendations of the TCFD and by taking into consideration international standards developed to mitigate and adapt to climate change. In this report, WNC uses the SSP1-1.9 and SSP5-8.5 scenarios as the assumptions of the analyses. In this assessment, WNC analyzed and compared the outcomes under the two aforementioned scenarios if WNC maintains the status quo without making any changes. We found that the major financial impacts caused by climate change will be carbon taxes, carbon penalties and market risks. The main administrative costs will come from energy management measures such as the deployment and purchase of renewable energy.

	SCENARIOS	EXPLANATION OF THE ASSUMPTION	ANALYSIS RESULTS	RESPONSE MEASURES
TRANSITION RISKS	SSP1-1.9 (SBTi 1.5 ℃)	A linear reduction of 4.2% of absolute emissions according to SBTi guidelines until 2030.	1. The continued growth of WNC's revenue comes along with a rise in carbon emissions. 2. Countries around the globe are introducing measures in response to climate change, including carbon taxes and other carbon fees. The projected cost of these measures is expected to increase by 2030 due to the decrease in total emissions amounts allowed, which will have a considerable financial impact on WNC and its customers. Therefore, market demand for low-carbon products will grow.	Increase the percentage of renewable energy usage: Establishment of solar panels, signing of PPAs for green energy, purchase of REC and reduction in carbon emissions from electricity consumption. Enhance energy management: Introduction of energy management/analysis systems and highly efficient energy-saving equipment, enhancement of energy efficiency and reduction in energy wastage. Low-carbon products: Introduction of carbon footprints, development of low-carbon materials and energy-saving products that meet customers' low carbon requirements.

PHYSICAL RISKS	SSP5-8.5	Mean warming of +0.4 to +1.2 °C per year until 2040	The mean temperature in Taiwan is rising, resulting in prolonged droughts. Companies will increase their energy consumption to maintain environmental conditions, thus generating more carbon emissions. Prolonged droughts may also impede reservoir water replenishment, causing water shortages and potentially affecting factory operations.	Enhance energy management: Introduction of energy management/analysis systems and highly efficient energy-saving equipment, enhancement of energy efficiency and reduction in energy wastage. Water resource management: Implementation of water-saving measures, water storage inside the company and expansion of backup water supply such as water trucks.

02

Risks and Opportunities

Identification Process

Identification Results

2.1 Identification Process

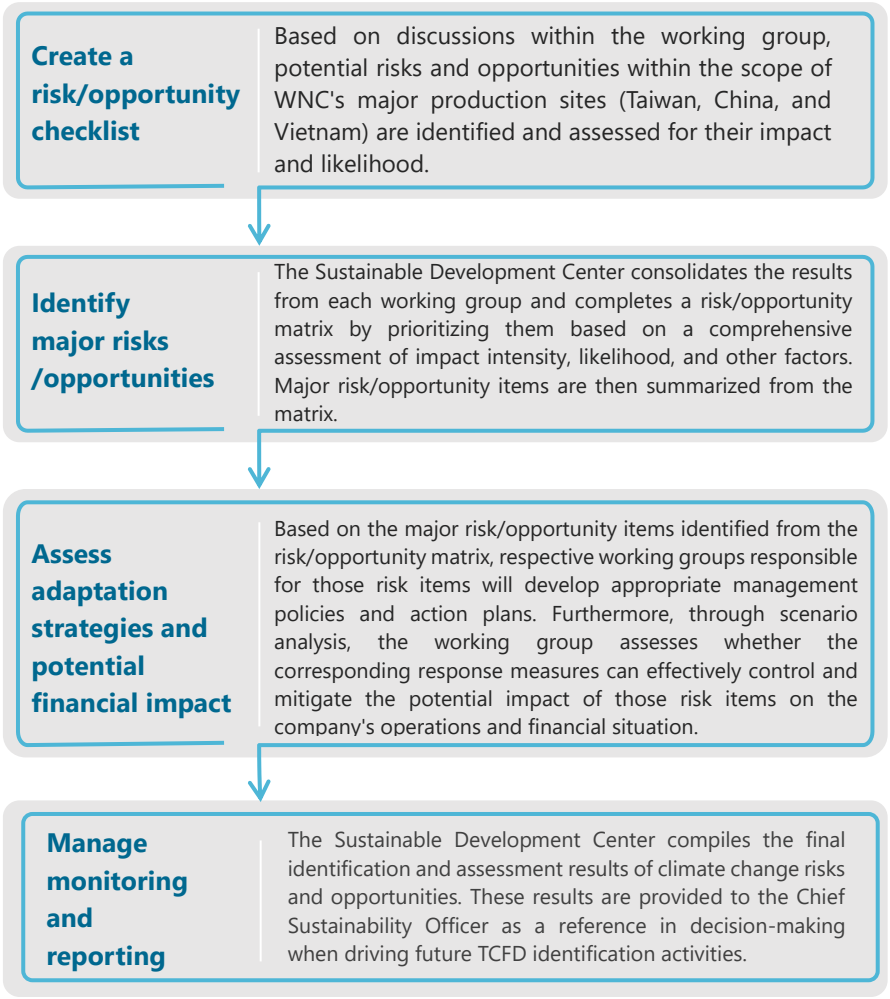
WNC's risk management involves adopting individualized identification methods based on different risk issues. After completing analysis, results are compiled. In terms of climate change risk and opportunity management, WNC references international trends, collects and takes inventory of industry-related climate issues both at home and abroad, and screens and consolidates them into a list of climate risks and opportunities. Through discussions within the internal TCFD working group, WNC examines the impact of climate change risks and opportunities from different aspects.

The TCFD Working Group, coordinated by the Sustainable Development Center and comprising representatives from relevant internal units, holds regular meetings to identify risks and opportunities. It focuses on five key areas: energy and resource management, products and technologies, business and markets, supply chain management, and assets and administration. Climate issues are discussed based on two aspects of risks and opportunities. The risks aspect is further categorized into transitional risks and physical risks. Possible risk issues include regulations, litigation, technology, market and business reputation, with immediate and long-term concerns. Opportunities are divided into resource efficiency, energy sources, products and services, and resilience issues. The assessment of short, medium, and long-term climate risks and opportunities in the organizational value chain is conducted using the three aspects of impact intensity, likelihood, and time frame. Based on the risks and opportunities analysis results, a climate risk and opportunity matrix chart is drawn using probability and impact intensity as axes. The chart is then sorted based on the multiplication of these values to determine issues with significant impact. Corresponding measures are then formulated to address those issues.

Grading Scale Containing the Three Aspects of WNC's Risks and Opportunities Assessment

Aspect	Description	Grading Method
Impact Strength	The potential level of impact of the issue or event on the five aspects of finance, products and services, personnel injury, regulations, and business reputation.	Impact levels are categorized as: high, moderately high, moderate, moderately low, and low.
Likelihood	The probability of occurrence of the issue or event	The probability of the issue or event occurring is categorized into seven levels: certain (>99%), highly probable (>90%), probable (>66%), moderately probable (>50%), possible (33-50%), unlikely (<33%), highly unlikely (<5%).
Time frame	The potential timing of occurrence of the issue or event	The timing of occurrence for the issue or event is categorized into three periods: short term (1-2 years), medium term (3-5 years), and long term (6-10 years).

WNC Climate-related Risks and Opportunities Identification Process



2.2 Identification Results

The TCFD Working Group provides WNC's climate related risk and opportunity information based on group members' roles, expertise and experiences and identifies the main risks and opportunities in the short term (1–2 years), medium term (3–5 years) and long term (6–10 years). It then draws up a climate risk and opportunity matrix that looks at likelihood of occurrence and degree of impact to determine issues that will have a major impact and formulate corresponding response measures. The following table represents the significant impact issues identified through the 2022 climate risk and opportunity matrix.

WNC's 2022 Climate Risks and Opportunities

Transformation Risks	
1	GHG emissions regulations
2	Renewable energy regulations
3	Conventions or agreements on climate change mitigation and adaptation
4	Self-declared commitments and targets relating to GHG emissions reduction
5	When choosing products or services customers have different considerations than before.
6	It is difficult to grasp the market demand for future products or services.
7	Customers begin to prefer or reject specific products and services
Opportunities	
8	Low carbon products or services
9	Products or services that contribute to climate adaptation and climate solutions
10	Innovative processes that change the way services are provided
11	Provide more low-carbon products and services

Risks, Opportunities, Potential Financial Impact, and Response Measures Relating to Climate Change

	Source	Impact	Time Frame	Potential Financial Impact	Response Measures
Transformation Risks	GHG emissions regulations	WNC's operations	Short term	Expanding the scope of greenhouse gas inventories leads to increased operating costs.	Establish a global inventory of GHG emissions for all WNC sites and provide education and training on emission reduction measures. Starting from 2024, conduct third-party verification of greenhouse gas emissions annually.
	Renewable energy regulations	WNC's operations, upstream supply chain vendors	Long term	Installation and maintenance requirements of solar panels lead to direct cost increases.	Purchased 6.8 million kWh of renewable energy certificates in 2022, gradually increased the number of solar panels installed in WNC sites, and formulated a group-wide strategy to achieve 100% use of renewable energy.
	Conventions or protocols that contribute to climate change adaptation and mitigation	WNC's operations	Long term	Complying with international net-zero goals results in increased expenditure.	Stay updated on government policies and implement carbon reduction projects.
	Self-declared commitments and targets relating to GHG emissions	WNC's operations	Short term		Continue to implement GHG emissions reduction initiatives. Progress on these initiatives is reviewed quarterly by the Sustainable Development Committee.
	When choosing products or service customers have different considerations than before	WNC's operations, downstream customers	Short term	Decreased product orders and additional communication costs with clients lead to increased costs.	Keep track of (1) international trends and relevant regulations, (2) customer environmental goals and practices, (3) overall customer requirements for suppliers and WNC, and (4) practices of industry benchmark companies. Develop or adjust strategies and practices for climate change and other sustainability issues.
	It is difficult to grasp market demand for future products or services	WNC's operations, downstream customers	Short term		Stay informed on international trends, customer goals, and industry practices, invest in relevant technology research and development. Provide customers with products and services that meet their expectations.
	Customers beginning to prefer or reject specific products and services	WNC's operations	Short term		
Opportunities	Low carbon products or services	WNC's operations, downstream customers	Short term	■ Launching eco-friendly products leads to increased revenue. ■ Expanding the application scope of network communication products brings new business opportunities. ■ Developing low-energy technologies or systems can help reduce production costs.	■ Allocate research and development resources to communications product technologies while simultaneously implementing energy-saving and green design concepts to enhance the competitiveness of said products. ■ Align with the global trend of low-carbon and net-zero emissions and explore potential applications for wireless communications technologies. (e.g. products relating to Mobility as a Service). ■ Develop low energy consumption technologies or systems, such as using low-temperature reflow solder paste and implementing Firmware Over the Air (FOTA) technologies.
	Products or services that contribute to climate adaptation and climate	WNC's operations, downstream customers	Short term		
	Innovative processes that change the way services are provided	WNC's operations, downstream customers	Short term		
	Provide more low-carbon products and services	WNC's operations	Short term		

03

Low Carbon Transition

Low Carbon Operations

Sustainable Supply Chains

Sustainable Products

3.1 Low Carbon Operations

To avoid potential risk caused by the inability to effectively control greenhouse gas emissions, including failure to meet customers' expectations for a low-carbon supply chain, the need to pay carbon taxes regulated by governments, and damage to its brand value, WNC has adopted the concepts of energy conservation in factories and use of renewable energy and green product design as the two main focuses of its carbon management.

Energy conservation in plants and offices and use of renewable energy

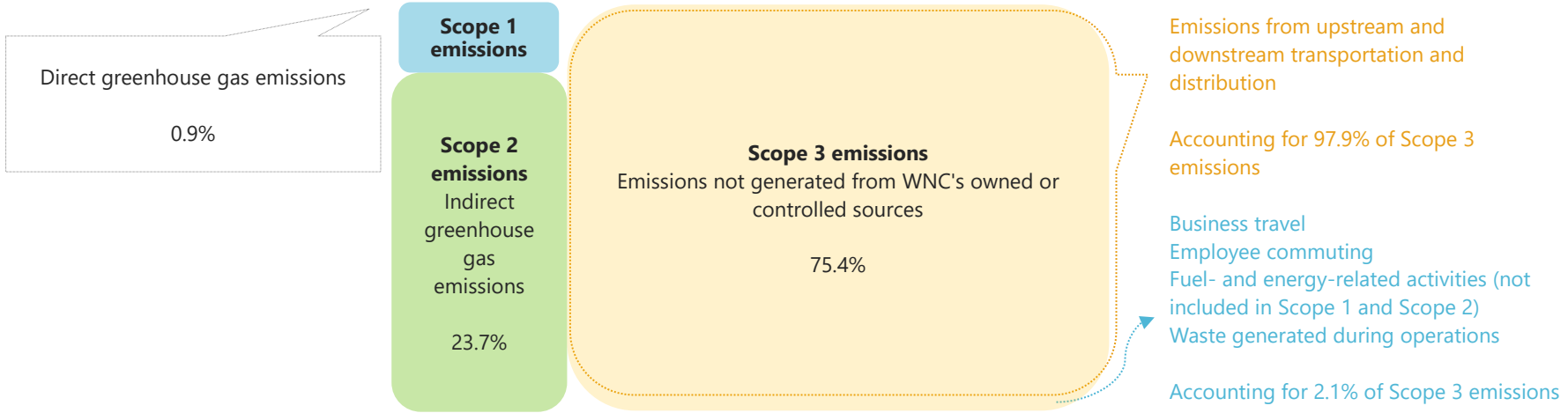
Including implementation of greenhouse gas inventories, energy conservation and carbon reduction, and improved renewable energy consumption.

Green product design

Including life cycle assessment (LCA), adoption of recyclable materials, and use of environmentally friendly packaging and energy saving designs for products.

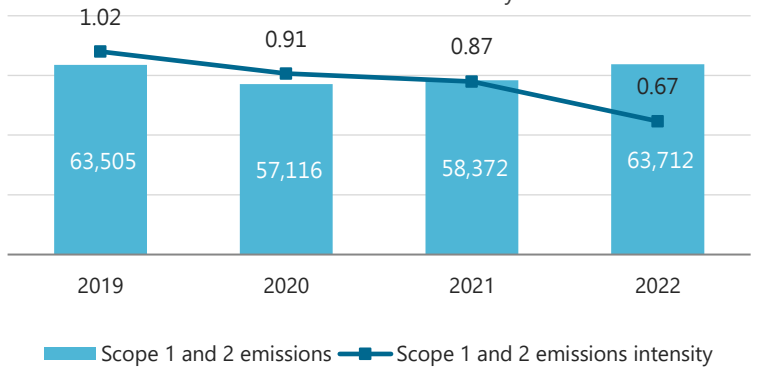
3.1.1 Greenhouse Gas Emissions

Starting in 2012, WNC has conducted greenhouse gas inventories. We established 2019 as the base year to plan the carbon reduction path and conduct regular reviews, so as to monitor overall carbon reduction effectiveness. In 2022 WNC included all its sites, including subsidiaries, offices, and other non-production locations, within the scope of its GHG emissions reporting. The goal is to compile GHG emissions inventories for all sites by 2023 and achieve 100% GHG inventory verification by 2024. In addition, the items in Scope 3 GHG emissions reporting were also expanded to include report items such as emissions from upstream/downstream transportation and employee commuting, on top of existing report items such as emissions from waste, business travel, and energy consumption.
Based on the diagram below, Scope 3 emissions represent the primary sources of WNC GHG emissions. Therefore, in recent years, WNC has been actively conducting an inventory of Scope 3 emissions to obtain a more comprehensive understanding of carbon emissions sources in order to promptly update and advance carbon reduction strategy planning and actions.



Due to operational growth and production line expansion, WNC's energy usage has been increasing year by year. To accurately reflect how changes in production capacity have impacted greenhouse gas emissions and reduction target attainment, emissions intensity is used to show the relationship between production capacity and emissions. WNC's GHG emissions intensity has been decreasing in the most recent four years. In 2022, Scope 1 and Scope 2 emissions intensity was 0.67 tonnes CO_2e/million NTD, which represents a decrease of 34.31% compared to the base year of 2019.

WNC's Scope 1 and Scope 2 (market-based) Greenhouse Gas Emissions for the most recent four years



(Unit for calculating total emissions: tonnes CO_2e, unit for calculating emissions intensity: tonnes CO_2e/million NTD)

3.1.2 Greenhouse Gas Emission Management Indicators and Targets

To align its GHG reduction goals with the Paris Agreement and global objectives of achieving net-zero emissions by 2050, WNC has established carbon reduction targets based on the SBT framework. Therefore, starting from 2023, WNC has made changes to its performance indicators by shifting from Scope 1 and Scope 2 GHG emissions intensity to absolute carbon reduction targets. WNC aims to achieve a 46.4% absolute reduction in Scope 1 and Scope 2 emissions by 2030 with 2019 being the base year. For more information about carbon reduction path planning and greenhouse gas management, please refer to Section 3.2.2 Greenhouse Gas Management in the 2022 WNC Sustainability Report.

Greenhouse gas emission management indicators

Accounting Metric	Unit	2020	2021	2022
Scope 1 and Scope 2 GHG emissions (market-based)	Tonnes CO_2e	57,115.54	58,372.15	63,711.74
Scope 1 GHG emissions	Tonnes CO_2e	1,433.82	2,668.02	2,361.30
Scope 2 GHG emissions (market-based)	Tonnes CO_2e	55,681.72	55,704.14	61,350.44
Scope 2 GHG emissions (location-based)	Tonnes CO_2e	55,681.72	55,704.14	65,301.24
Scope 3 GHG emissions	Tonnes CO_2e	83.41	2,678.73	195,385.10
Scope 1 and Scope 2 GHG emissions intensity (market-based)	Tonnes CO_2e/million NTD	0.91	0.87	0.67

Greenhouse gas emission management targets

Accounting Metric	Unit	2022	2023	2025	2030
Reduction in Scope 1 and Scope 2 GHG emissions intensity (base year: 2019)	Tonnes CO_2e/million NTD	-10%	-	-	-
Absolute reduction of Scope 1 and Scope 2 GHG emissions (base year: 2019))		Starting from 2023 WNC will adopt absolute carbon reduction targets.	-16.8%	-25.2%	-46.4%

3.1.3 Other Climate-related Management Indicators and Targets

Other climate-related issues management indicators

Item	Accounting Metric	Unit	2020	2021	2022
Energy	Energy usage	Gigajoule	371,352	383,215	425,434
	Electricity	Gigajoule	370,036	373,511	419,821
	Diesel	Gigajoule	1,316	9,704	5,613
	Power usage intensity	Gigajoule/Million NTD	5.91	5.56	4.41
	Power usage intensity	MWh/million NTD	1.64	1.54	1.22
Renewable Energy	Solar power generation	Gigajoule	7,652	7,684	9,273
	Solar power generation/Total electricity consumption	%	2.07	2.06	2.21
	Self-consumption of renewable energy	Gigajoule	1,329	1,413	3,428
	Purchased renewable energy	Gigajoule	0	0	24,480
	Renewable energy/Total electricity consumption	%	0.36	0.38	6.65
Water resources	Water usage	Million liters	480.008	484.728	530.711
	Water discharge	Million liters	189.400	202.621	300,858
	Water consumption	Million liters	290.608	282.107	229.853
	Water withdrawal intensity (recycled water excluded)	Cubic meters/million NTD	7.22	6.75	5.27
Waste	Waste yield	Tonnes	4,575.42	4,583.20	6,072.01
	Waste recycling rate	%	85.34	84.02	84.70
	Waste output intensity	Tonnes/million NTD	0.07	0.07	0.06

Other climate-related issues management targets

Item	Accounting Metric	Unit	2023	2025	2030
Renewable energy	Ratio of renewable energy use to total electricity consumption	Tonnes CO_2e/million NTD	10%	20%	50%
Water resources	Reduction of water usage intensity (excluding recycled water) (base year: 2020)	Cubic meters/million NTD	-12%	-13%	-18%
Waste	Reduction of waste generation intensity (base year: 2021)		-5%	-10%	-
	Waste recycling rate		85%	90%	-

3.1.4 Climate Action

To achieve set targets for climate-related indicators, WNC follows initiatives such as energy conservation in factories, use of renewable energy and implementation of environmental projects. These initiatives include the introduction of energy management systems, transforming facilities into green buildings, installing renewable energy generation equipment, and energy and water conservation and reduction projects.

Energy conservation in factories

WNC has set energy conservation in its factories as a core strategic policy. Since 2017, ISO 50001 energy management systems have been gradually introduced at its sites with the aim of aligning internal energy management policies with international standards. This process encourages responsible units and personnel to regularly propose energy conservation improvement plans to achieve the set goals as well as ensure regular evaluation and improvement. In 2023, primary production sites have passed verification for ISO 50001 energy management systems.

Since 2019 was established as the base year to calculate our carbon emissions, 141 energy conservation initiatives in factories have been implemented, resulting in a cumulative energy conservation of over 11.6 million kWh and an accumulated carbon reduction of approximately 7,000 tonnes CO_2e. In 2022, a total of 54 energy conservation initiatives in factories were implemented at all WNC sites, resulting in an energy conservation of approximately 6.02 million kWh and a carbon reduction of about 3,800 tonnes CO_2e. The total investment for these initiatives amounted to approximately NTD 40 million.

2022 energy conservation in WNC factories

Item		Illumination	Exhaust	Air conditioning
Electricity saved	(kWh)	27,977	97,7256	3,335,357
Carbon reduction	(Tonnes CO_2e)	19	674	2,124
Measures		Optimizing energy efficiency for outdoor motorcycle lane illumination	Replacing exhaust blowers	Adjusting the operation of chilled water/cooling water pumps
Item		**Air compression**	**Production processes**	**Other**
Electricity saved	(kWh)	760,642	454,557	459,820
Carbon reduction	(Tonnes CO_2e)	420	247	268
Measures		Adding variable frequency air compressor, zero loss drain, and decreasing the output pressure of the air compressor	Replacing the nitrogen reflow soldering oven	Implementing energy conservation measures for laboratory equipment

Use of Renewable Energy

The adoption of renewable energy is one of WNC's key carbon reduction strategies. In 2022, WNC installed additional rooftop solar panels at all its production sites, and a further plan involving the installation of additional solar panels at plants in Kunshan and Vietnam was realized in the same year. These newly installed panels began generating power at the end of 2022. Currently, WNC's solar farms have a total installed capacity of 6.3 MW and have generated a total of 2,575,838 kWh of electricity, 37% of which was for self-use. In addition, WNC has also purchased International Renewable Energy Certificates (I-REC). The ratio of renewable energy use to total electricity consumption at WNC was 6.65% in 2022. To support the development of renewable energy, WNC has referenced the goals of the RE100 initiative. WNC aims to comply with RE100 requirements and achieve 100% renewable energy usage by 2040. WNC is planning to apply to join RE100 in 2023.

WNC's ratio of renewable energy usage to total power consumption in the most recent four years

Item		2019	2020	2021	2022
Renewable Energy (A)	Self-generated solar power for self-use	363,371	369,084	392,465	952,116
	I-REC	0	0	0	6,800,000
	Subtotal	363,371	369,084	392,465	7,752,116
Total power consumption (B)		92,950,566	102,787,806	103,753,130	116,616,943
Ratio of renewable energy usage to total power consumption (A/B)		**0.39%**	**0.36%**	**0.38%**	**6.65%**

Water Resource Management

By drawing a water balance diagram and installing monitoring devices, WNC can monitor water usage and implement water conservation and recycling measures. WNC reduced its water usage intensity by 27.01% in 2022 (excluding recycled water) compared to 2020 (base year). Recycled water accounted for approximately 13.68% of the total water withdrawn by WNC, which saved about NT$3.04 million in water withdrawal costs.

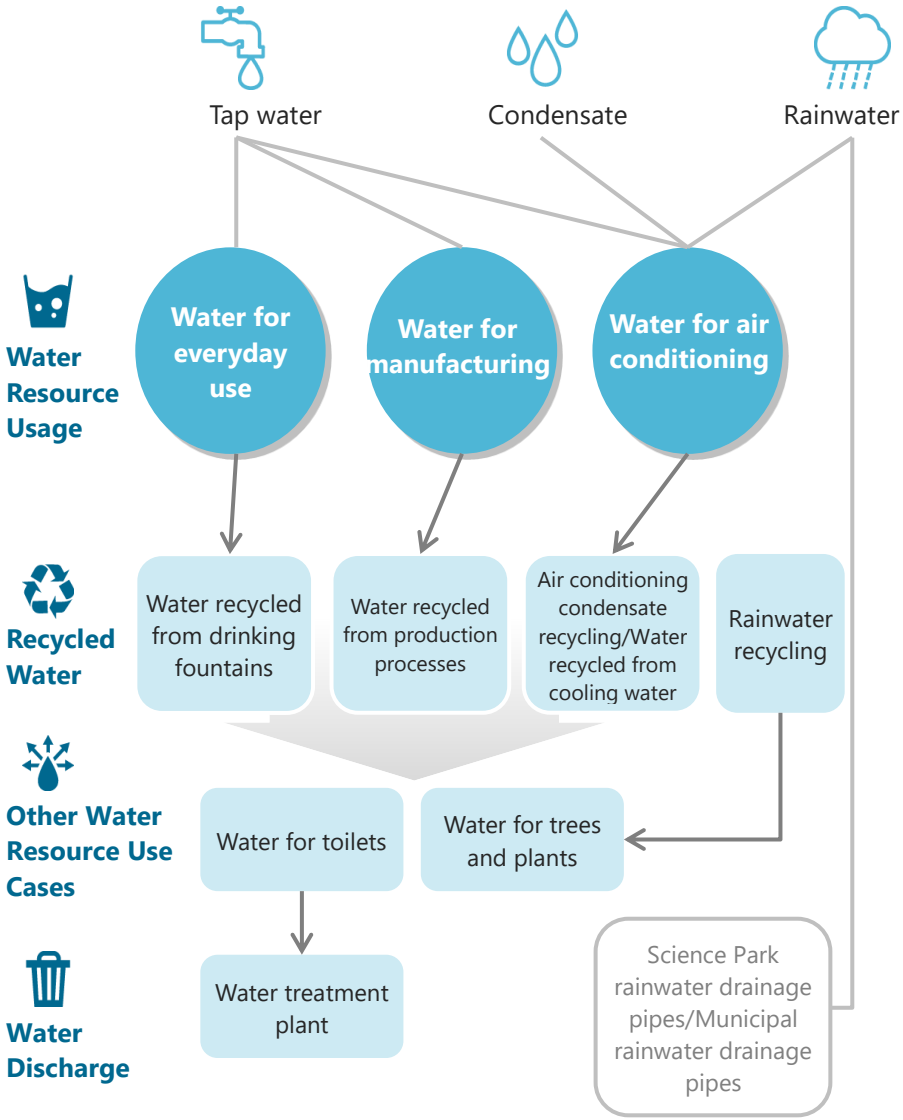
Wastewater Management

The S1 plant is a plant with washing processes that generate wastewater. Therefore, wastewater treatment equipment was installed at S1 in 2020, and wastewater processing permits were obtained in 2021 to handle the increased amount of generated wastewater due to plant expansion. Water discharge monitoring instruments were installed in the plant to ensure that the wastewater complies with the water quality management regulations of the Hsinchu Science Park's sewage system. The Hsinchu Science Park Administration tests the water discharged by WNC every month, and WNC has passed all tests. Every six months, WNC contracts an inspection agency approved by the Environmental Protection Administration to test the water discharged by WNC to ensure that said discharge meets wastewater discharge standards.

Wastewater from sites other than S1 is mainly wastewater from everyday use, which is planned discharge. WNC complies with the management regulations for wastewater discharge in each plant area. WNC (Taiwan) complies with the Regulations for the Use and Management of Wastewater Treatment and Sewage Systems in Science-based Parks. Before discharging wastewater into the Hsinchu Science Park sewage system and to the sewage treatment plant, WNC determines whether the water quality meets wastewater discharge quality standards of the Hsinchu Science Park and uses a dedicated pipeline to treat the wastewater until it meets national effluent standards and the values stated in Hsinchu Science Park environmental evaluations.

The plants located in Kunshan discharge wastewater to the Kunshan sewage treatment plant in accordance with the Wastewater Quality Standards for Discharge to Municipal Sewers; the plants located in Nanjing discharge wastewater to the sewage treatment plant at the Nanjing Jiangning Economic and Technological Development Zone in accordance with the Nanjing City Water Drainage Management Regulations; the plant in Vietnam discharges wastewater into the Third Dong Van sewage treatment plant in accordance with the National Technical Regulation on Industrial Wastewater Regulations. Water withdrawal and discharge by WNC sites have not had any significant impact on water sources.

Water Balance at WNC Sites



Waste Management

The main raw materials used in production by WNC are electronic parts, mechanical parts, and packaging materials. The waste generated is mainly from packaging materials and pallets used by suppliers during deliveries and production and storage processes. These include waste paper, waste plastic, and waste wood. To reduce our impact on the environment, we continue to implement green product designs, waste recycling projects, and waste management through Life Cycle Assessment (LCA). We aim to reduce raw materials usage starting from the beginning of production processes and use reusable materials (including recycling and reuse by suppliers). WNC contracts waste handling companies to convert its waste into resource products. Materials that cannot be recycled or reused are incinerated or disposed of in a landfill. Waste storage areas that meet regulations have been established in plants, and waste is sorted into different categories. The waste handling companies weigh the different types of waste before removing it from plants. WNC reports the waste it generates online and makes sure that relevant waste handling forms are filled in correctly. We conduct annual evaluations of cleaning companies and potential partners to ensure that they comply with WNC requirements.

Apart from reuse of recycled waste, WNC also uses waste as an auxiliary fuel for energy recycling. In 2022, WNC's waste recycling rate reached 84.7%, exceeding the goal of 83%. Apart from recycling solder dross and metal scrap from printed circuit boards and providing them to suppliers for metal recycling, WNC has fully implemented recycling and reuse projects. We also require suppliers to recycle and reuse packaging materials, including the plastic trays used in production and the cardboard boxes used in shipments. In 2022, gains from recycling totaled NT$41.268 million, and the estimated carbon reduction benefit was around 554.3 tonnes CO_2e.

WNC waste recycling benefits in 2022

	Measures	Amount recovered (tonnes)	Recycling benefits (NT$ 10,000)	Carbon Reduction[Note] (tonnes CO_2)
Solder waste	Recycle solder waste generated during production processes for recycling vendors to turn into electroplated plates.	70.89	2,987.57	25.52
PCB trim scraps	Provide PCB trim scraps generated during production processes to recycling vendors for them to recycle heavy metals (such as copper and gold).	263.02	731.19	94.69
Used pallets	Provide unusable pallets to recycling vendors to remanufacture into fuel balls. These are used by cogeneration plants as combustion aids.	0.45	0.03	0.16
Used plastic containers	Provide empty plastic containers to recycling vendors for washing and processing. The containers are then broken up into plastic pellets which can be remanufactured into other plastic items.	10.51	22.84	3.78
Paper waste	Internal documents shredded by WNC are sent to Zhenglong Co., Ltd. for recycling into Dandelion Ecofriendly paper, which is manufactured from 100% recycled pulp and does not use forest resources.	1,134.88	351.31	408.56
Plastic trays	Scrap plastic trays from production lines are sent to recycling vendors for sorting and recycling.	15.50	21.53	5.58
Styrofoam	Scrap styrofoam packing material is sent to recycling vendors and turned into styrofoam balls for reuse.	37.12	0.00	13.36
Other	Epoxy resin recycling	7.36	12.36	2.65
	Total	**1,539.7**	**4,126.83**	**554.30**

3.1.5 Goal Achievement Progress

WNC's climate-related goals for 2022 are listed below. Short-term goals for next year are adjusted in accordance with the goal achievement progress for the current year and trends in the external environment.

Aspect	Performance Indicators	Unit	2022 Goals	2022 Results	Status Achievement[Note]
Greenhouse gases	Scope 1 and Scope 2 GHG emissions intensity (base year: 2019)	Tonnes CO_2e/million NTD	10% reduction in emissions intensity compared to 2019	Emissions intensity decreased by 34.31% compared with 2019	Yes
	Absolute reduction of Scope 1 and Scope 2 GHG emissions	Tonnes CO_2e	(Added science-based carbon reduction targets in 2023)	-	-
Renewable Energy	Ratio of renewable energy use to total electricity consumption	%	≥6%	6.65%	Yes
Water resources	Water usage intensity (excluding recycled water)	Cubic meters/million NTD	10% reduction compared to 2020	27.01% reduction compared to 2020	Yes
Waste	Waste recycling rate	%	≥83%	84.7%	Yes
	Waste generation intensity	Tonnes/million NTD	3% reduction compared to 2021	5.88% reduction compared to 2021	Yes

Note: In 2022, environmental indicators such as GHG emissions, amount of waste generated, and water usage all increased compared with previous years due to an increase in the scale of WNC's operations. However, due to a corresponding growth in revenue, we were still able to achieve our goals for 2022.

WNC also continued to participate in international ESG assessments to better understand key environmental indicators. In 2022, WNC scored a B rating in the CDP questionnaires for "climate change" and "water security", and was also included in Business Weekly's Carbon Competitiveness Top 100. Our S2 plant was recognized as an Outstanding Energy Efficient Manufacturer by the STSP.

3.2 Low-Carbon Supply Chain

3.2.1 Green Supply Chain

To build a green supply chain and respond to international trends and customer needs, WNC actively promotes green products and green production. The company is also committed to the promotion of green purchasing concepts and actions in the supply chain and the incorporation of green management principles into the supplier management mechanism, to implement source management for manufacturing processes, green product design and hazardous substances of suppliers. WNC is gradually building a sustainable supply chain by implementing supplier management policies, providing training to suppliers and asking them to fill out questionnaires, signing relevant contracts, complying with relevant regulations, and conducting regular RBA audits on suppliers and tracking their improvement progress. Our aim is to work with our supply chain partners to increase operational resilience and establish mutually beneficial partnerships.
Key green supply chain initiatives and achievements are listed in the table below. Refer to Chapter 2.3 in the 2022 WNC Sustainability Report for more information on supplier management.

Green Supply Chain Initiatives and Achievements

Item	Content	2022 Results
Supplier Commitment to Sustainability Declaration	New suppliers are asked to sign the Supplier Commitment to Sustainability Declaration and work with WNC to build a sustainable supply chain. The response rate goals for the declaration are: 80% in 2023, 85% by 2025 and 90% by 2030.	88.86% of suppliers who had business transactions with WNC in 2022 signed the declaration.
Supplier ESG Questionnaire	New suppliers are asked to complete a Supplier ESG Questionnaire so WNC can understand suppliers' implementation of ESG initiatives.	47.35% of suppliers who had business transactions with WNC in 2022 filled out the questionnaire.
Local procurement	WNC has established a dedicated procurement team for each country/region, responsible for the selection and management of local suppliers to support the development of local economies and reduce costs and carbon emissions of transportation.	Local procurement of headquarters, subsidiaries in China, and subsidiaries in Vietnam are at 49%, 37% and 10% respectively. WNC will continue to evaluate and plan for the establishment of local supply chains in Vietnam.
RBA audits for suppliers	WNC regularly conducts RBA audits on suppliers, and there are eight audit items in the environment category. Refer to the "RBA audit processes for WNC suppliers" table for details on audit processes.	In 2022 our goal was to conduct RBA audits on 50 suppliers. We reached our goal for an achievement rate of 100%.

3.2.2 RBA Audits for Suppliers

WNC divides different types of major suppliers into A (high risk: printed circuit board, spray painting, injection molded plastics, electroless plating, and stamped product suppliers), B (medium risk: antennas, packaging materials, wiring, converters, connectors, and passive component suppliers) and C (low risk: Other electronics part suppliers) according to the risk level of labor, ethics, health and safety, environmental and management system. Every year, suppliers that require RBA audits are selected and included in the audit plan for the current year according to "top 10 suppliers providing the most materials in the previous year and that have not been audited in the past year", "suppliers that must meet customer RBA requirements", and "priority issues in the previous year's audit". Except for Category C, which is ranked as low risk and for which only desk reviews are conducted (with some exceptions for suppliers designated by customers), supplier RBA audits are conducted on the other two categories according to the following four steps: signing of ESG related documents, actual audits, continuous improvement and results reporting, as well as from the five aspects stipulated by the RBA: labor, health and safety, environment, ethics and management systems.

RBA audit processes for WNC suppliers

A
Printed circuit boards, spray painting, injection molded plastics, electroless plating, and stamped product suppliers

B
Antennas, packaging materials, wiring, converters, connectors, and passive component suppliers

C
Other electronics parts suppliers

4 Steps

1. Suppliers fill out and sign ESG documents, including the Supplier Commitment to Sustainability Declaration and the WNC Supplier ESG Questionnaire
2. WNC sends personnel to conduct onsite audits of suppliers' production lines and offices
3. Suppliers are required to correct non-compliant items as soon as possible and continue to implement improvements
4. Compile audit results into a report

5 Aspects

Labor
- Freedom to choose employment
- Youth labor
- Work hours
- Remuneration and benefits
- Humane treatment
- Anti-discrimination/ anti-harassment
- Freedom of association

Health and Safety
- Occupational safety
- Emergency preparation
- Occupational injuries and illnesses
- Occupational hygiene
- Manual labor
- Machinery protective measures
- Public hygiene and accommodation
- Health and safety communication

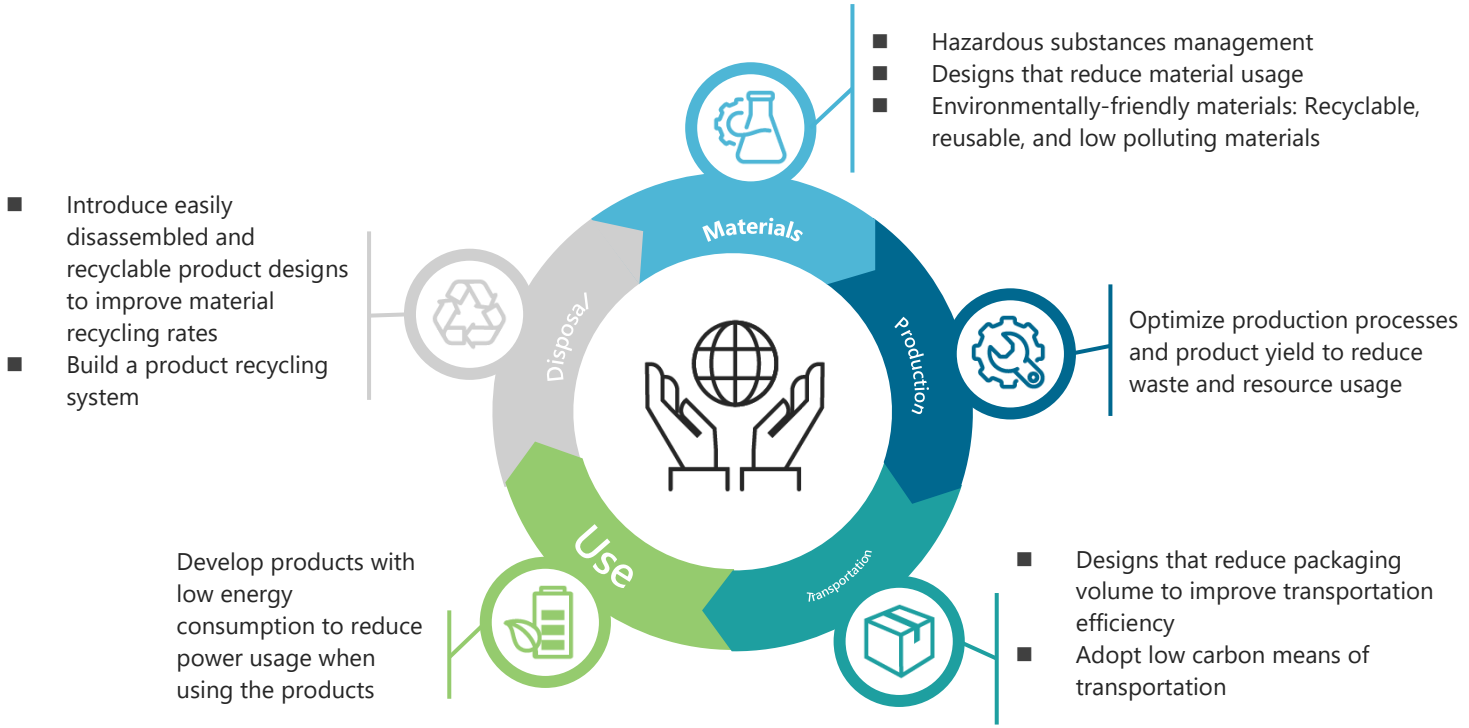
Environment
- Environmental permits and reports
- Pollution prevention and resource conservation
- Hazardous materials
- Solid waste
- Gas emissions
- Material restrictions
- Water resource management
- Energy consumption and greenhouse gas emissions

Ethical Standards
- Ethical management
- No unlawful gains
- Information disclosure
- Intellectual property
- Fair trade, advertising and competition
- Identity protection and retribution prevention
- Responsible procurement of minerals
- Privacy

Management System
- Company commitment
- Management duties and responsibilities
- Laws and customer requests
- Risk assessment and risk management
- Improvement goals
- Training
- Communication
- Employee feedback, participation and complaints
- Review and assessment
- Corrective measures
- Documents and records
- Supplier responsibilities

3.3 Sustainable Products

WNC is dedicated to the development and commoditization of communication technologies and products. Through the management of prohibited and restricted substances, adoption of recyclable, environmentally-friendly materials, development of energy conservation technologies, and the introduction of easily disassembled and recyclable designs with reduced packaging, we aim to reduce the negative environmental impact of products during each stage of their lifecycle, providing customers with non-toxic, low polluting, recyclable, energy efficient products and manufacturing services.



Eco-design

WNC has established Regulations for Eco-design Requirements of Energy-using Products, enabling it to use life cycle assessment (LCA) to evaluate the environmental impact of products from three major aspects: chemical substances contained in products, energy efficiency, and recycling. We introduce eco-product management processes in accordance with customer needs and have turned eco-design requirements into a basic aspect of early product design to incorporate environmental considerations into product designs. The considerations include hazardous substance restrictions, energy usage efficiency, recycling and reuse, and environmental information disclosure. Furthermore, we have requested our suppliers to provide components that meet the standards in our Regulations for Eco-design Requirements of Energy-using Products. In 2022, we assisted customers in passing third-party verification for three products, ensuring that they meet Energy-related Products Directive (ErP) regulations for product energy consumption.

Energy-saving Products Initiatives

The energy consumption of 5G high-power customer premises equipment (CPE) developed by WNC in 2020 was reduced via adjustment of the LED current during the initial design stage. According to our tests, this energy-saving design helps reduce energy consumption by about 2% (around 40 mW). Based on our estimation, when one of these units is in continuous use 24 hours a day, it saves 0.35 kWh of electricity every year.

Carbon Footprint

In 2022, WNC launched a carbon footprint initiative. Four target products were selected from WNC sites in Taiwan, China and Vietnam for a carbon footprint inventory, which is expected to be completed in 2023. Based on this carbon footprint inventory, information about the carbon footprint of product raw materials will be gradually integrated into the existing raw materials database in order to facilitate future inventory and management of carbon emissions of products.

Training Courses

In cooperation with SGS and National Cheng Kung University, WNC offered a series of green product design courses in 2022, including circular economies in the manufacturing sector, recycled materials and green design guidelines, EU guidelines for packaging materials, and eco-marks. Units related to product development, quality assurance, production and manufacturing, and sustainable development were invited to enroll for the courses. Moving forward, WNC will offer new courses depending on the needs of business operations and development, and seek opportunities for industry-academia collaboration.

Examples of WNC applying sustainable product design in product lifecycles

Design	Raw materials	Manufacturing	Transportation	Use	Disposal
Introduction of circular economy at initial stage	**Adoption of recyclable materials**	**Energy consumption optimization in production processes**	**Improve transportation efficiency**	**Energy saving product design**	**Design for recyclability and easy disassembly**
■ Provide customers with the option of using recycled materials for mechanical components ■ During product design and development stages, use shared databases to search for existing components and molds that can be used to develop and manufacture the product. This will help reduce product development costs, waste, and resource usage.	■ Usage of PCR recyclable plastics for mechanical parts Reduced the use of virgin plastic by 1.3 metric tonnes in 2022, equaling a carbon emissions reduction of 4,044 metric tonnes of CO_2e. ■ In 2022, packaging and mechanical components made from recycled materials accounted for 11.46% of total packaging materials and mechanical components purchased	■ Introduction of the ISO 50001 management system, and establishment of energy saving goals ■ Use of hot melt adhesives can be reduced through adjusting mechanical design and assembly	■ Continue to optimize packaging designs to reduce packaging volume and improve transportation efficiency	■ Improve the energy usage efficiency of products to reduce carbon emissions during use ■ In 2022, three products passed ErP testing for energy consumption	Continue to implement recyclability and easy disassembly designs in products to improve the recycling rate of scrap electronics products and materials and comply with related environmental protection requirements such as the WEEE Directive.

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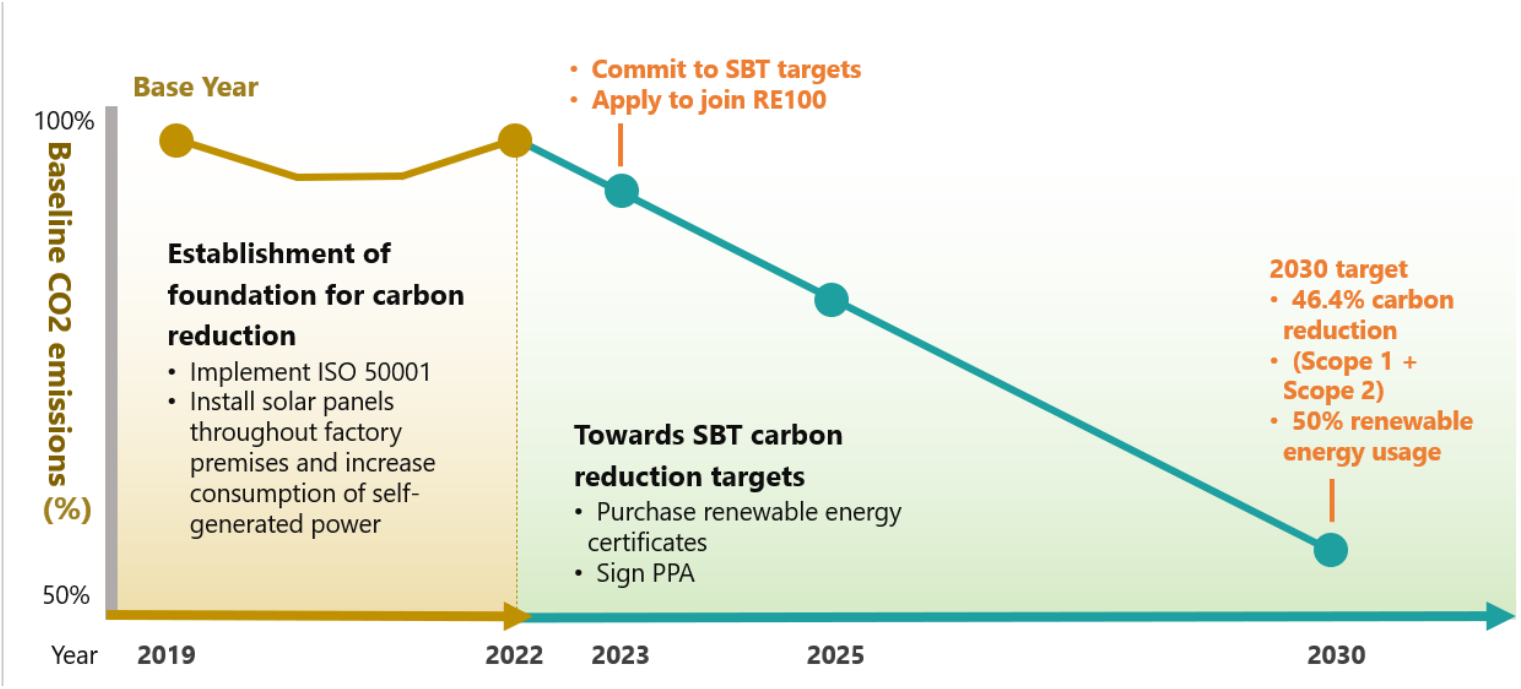
Future Outlook

WNC is fully aware that carbon reduction is a necessary step towards sustainability for businesses. Achieving the target early not only contributes significantly to the environment but also enables businesses to adapt to external changes and build resilience at an early stage. Furthermore, climate initiatives play a crucial role on how businesses respond to climate change issues. Therefore, WNC will also pay close attention to and respond appropriately to climate change issues by participating in internationally recognized climate initiatives. For example, the RE100 initiative encourages businesses to commit to a complete transition to using 100% renewable energy. Use of clean energy boosts a company's decarbonization efforts. Setting science-based emissions reduction targets through initiatives like SBTi further helps companies establish a scientifically grounded consensus for carbon reduction goals, enabling more precise emissions reductions. Responding to international climate initiatives enhances WNC's response to climate change, improves the resilience of its business operations, and demonstrates a strong commitment to carbon reduction.

WNC has been implementing greenhouse gas inventory and carbon reduction measures for many years. To ensure alignment with the global net-zero target by 2050, we established absolute greenhouse gas reduction targets based on the SBTi framework. Using 2019 as the base year, WNC aims to achieve a 46.4% absolute reduction in Scope 1 and Scope 2 emissions by 2030, and plans to commit to the SBTi in 2023 and further develop Scope 3 reduction targets and strategies in line with SBTi requirements. It is expected that joining SBTi will drive collaboration between companies within WNC's supply chain.

WNC's Carbon Reduction Path



We would like to express our gratitude to all WNC employees, customers, suppliers, investors, and partners for their trust, support and efforts. WNC will continue to exert and expand our influence, commit to transitioning to a low-carbon business, and work towards the goal of net-zero emissions. We aim to build a friendlier and more sustainable future for ourselves and future generations.

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Appendix

TCFD Recommended Disclosures

TCFD Recommended Disclosures

Recommended Disclosures	Chapter	Page
Governance		
a) Describe the board's oversight of climate-related risks and opportunities.	1.1 Governance Structure	5
b) Describe management's role in assessing and managing climate-related risks and opportunities.	1.1 Governance Structure	5
Strategy		
a) Describe the climate-related risks and opportunities the company has identified over the short, medium, and long term.	2.2 Identification Results	9
b) Describe the impact of climate-related risks and opportunities on the company's business, strategy, and financial planning.	2.2 Identification Results	9
c) Describe the resilience of the company's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	1.3 Scenario Analysis	6
Risk Management		
a) Describe the company's processes for identifying and assessing climate-related risks.	1.3 Scenario Analysis, 2.1 Risks and Opportunities Identification Process	6, 8
b) Describe the company's processes for managing climate-related risks.	2 Risks and Opportunities	7
c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the company's overall risk management.	2 Risks and Opportunities	7
Metrics and Targets		
a) Disclose the metrics used by the company to assess climate-related risks and opportunities in line with its strategy and risk management process.	2 Risks and Opportunities, 3.1 Low Carbon Operations	7, 12
b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	3.1 Low Carbon Operations	12
c) Describe the targets used by the company to manage climate-related risks and opportunities and performance against targets.	3.1 Low Carbon Operations	12

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