Environmental Protection

3.1 Quality Management System

3.1.1 Environmental Protection Policies

Wistron is committed to abiding by environmental and energy regulations that are associated with our activities, products and services, as well as customer requirements in order to achieve our set goals and targets, or attain results better than regulated. We actively support government environmental protection policies and continue to mitigate and prevent pollution.

Environmental Management Direction

- We regularly implement regulatory compliance inspections to ensure that our current practices comply with new regulations.
- We perform internal audits and third-party verification each year to ensure the effective operations of the management system.
- In addition to paying continuous attention to international issues and trends, Wistron has adopted the ISO 14001 Environmental Management System and IECQ QC080000 Hazardous Substance Process Management System in all global operations. We seek to satisfy the requirements in environmental protection regulations of local governments. We aim to effectively reduce the impact of business activities on the environment and improve environmental management performance to attain our ultimate goal of sustainable development.

Environmental Complaint Channels

Wistron has set up the Stakeholder Communication Section on its official website for stakeholders such as customers, employees, shareholders, suppliers, government agencies, non-profit organizations, and the media to provide suitable communication channels. When we receive any environmental issue or complaint, Wistron will address the issue and respond in accordance with standard internal procedures.

Compliance with Environmental Laws and Regulations

In 2021, Wistron received 1 major fine in the amount of RMB333,000(approximately NTD1,445,420) related to environmental laws and regulations. The Chengdu Plant has actively worked with the relevant local competent authority to implement immediate improvements. Wistron will continue to focus on changes in environment related laws and regulations in various countries. We will update and implement internal operating procedures and regulations, periodically organize legal compliance training and include the training in the annual internal training plan, in order to ensure the legal compliance of every aspect of company operations. We will suitably respond to the stakeholders' expectations for Wistron.

Cause of the Incident	• In November 2020, due to the changes in government regulations, "no value certification" was no longer conducted for industrial waste without value, preventing the type of waste from exiting the bonded zone (temporarily stored in the factory until April 2021, 770t in total). • In January 2021, new information was received from customs: Industrial waste with no value can be declared out of the bonded area through a third-party platform online auction (customs review, announcement on the auction platform, auction, and legal contract procedures are slow, taking around 3 months). • In April 2021, when clearing the waste in the temporarily storage area, an EPA raid was being conducted at the same time. Waste activated charcoal was found in the waste onsite (43.5 kg), leading to the fines. • Internal audit results: The error was caused by negligence on the part of the administrative management personnel. The waste activated charcoal was cleaned up immediately and reported back to the EPA.
Internal Improvements	• In July 2021, the remaining 770t of valueless industrial waste was removed from the plant. Daily waste removal has been implemented and waste is no longer stored in the plant overnight. • The dangerous waste acceptance procedure was reorganized. Personnel training (to understand the operations) was implemented to transfer dangerous waste into the dangerous waste warehouse within 2 hours of waste creation (EHS accounts are created to strengthen management). • The administrative management unit (recycling) and managers were punished according to company regulations.
External Communication	• A hearing request was submitted (to explain the reasons) and the management committee, Maritime & Port Bureau, and related parties were contacted to assist in the coordination. • In June 2021, the EPA hosted the public hearing: The Company explained their defense and listed the results of the improvements.

[Note] Wistron defines fines of over NT$1 million as large fines.

Safety and Environmental Protection Month Campaign and Regulations

Wistron seeks to enhance the employees' awareness of environmental protection and occupational health and safety. Every plant organizes safety and environmental protection campaigns every year and uses promotions, contests, and activities to encourage employees to participate and learn more about the importance of environmental protection and occupational safety.

3.1.2 Environmental Investment and Benefits

Environmental Investment

Investment Type	Solar Power Generation Equipment	Solar Heating Equipment	Waste Reduction - Introduction of dehydrating Equipment for kitchen waste	Smart Energy Conservation
Description	Wistron has installed solar power generation equipment at the Neihu Headquarters, Zhongshan Plant, Kunshan Plant, and Kunshan Opt Plant. In 2021, the Company expanded the area dedicated to solar power generation by 3,521 square meters at Kunshan Plant and 6,322 square meters at Zhongshan Plant, increasing solar power capacity.	Wistron has installed large quantities of solar panels on the rooftops of Zhongshan Plant, Kunshan Plant, Kunshan Opt Plant, and Taizhou Plant (added in 2021) to make full use of the space. The panels are used to generate electricity for the plants or used for heating hot water in the dormitories to reduce carbon emissions from the use of electricity or natural gas.	Wistron purchased kitchen waste dehydrating equipment for the Kunshan Plant, Kunshan Opt Plant, and Taizhou Plant in 2021 to reduce the amount of kitchen waste generated. Automatic rice dispensers were also introduced in the Taizhou Plant to reduce rice waste.	Starting in 2019, Wistron began introducing smart energy saving systems. We used AI and IoT technologies to integrate digital technologies with environmental management. Optimized energy usage is based on supply and equipment performance to achieve energy saving effects.
Starting Year of the Investment	2017	1998	2021	2020
Accumulated Investment Amount (NTDK)	**207,782.2**	**106,591.8**	**947.3**	**10,029.4***
Created Benefits	▪ **7,637 KW** of installed capacity of solar panels ▪ It can generate **8.27** million kWh each year ▪ Reduces carbon dioxide emissions by **6,649t** CO_2e	▪ **1,148** sets of solar heating equipment ▪ Saves **NT$27,861** in natural gas usage ▪ Saves **1,834,255** cubic meters of natural gas each year	▪ Saves **NT$308.6** in kitchen waste processing fees each year ▪ Reduced average daily waste by **793.13 kg**	▪ Energy savings totaled **36.138** million kWh ▪ Reduced carbon dioxide emissions by **30,353.9t** CO_2e

Note: Investment amounts in 2021

3.2 Adoption of TCFD

Wistron adopted the framework of the Task Force on Climate-related Financial Disclosures (TCFD) in 2019 to identify climate risks and opportunities and used it to create measurement indicators and targets for management. Starting in 2020, the Chairman of the ESG Committee has begun reporting climate change risks, response measures, and progress of related targets to the Board of Directors each year. In 2021, Wistron officially became a TCFD Supporter.

3.2.1 Climate Governance Structure

Climate change and global warming are issues the global community must face now together. While floods, droughts, and other physical risks created by extreme weather threaten the continuity of corporate operations, as a proactive solution, the transition to low carbon economy to achieve sustainable goals will also bring massive opportunities for the industry. At this critical turning point in history, in order to strengthen climate governance, Wistron has named the Board of Directors as the highest supervising unit for climate issues. The Board is responsible for coordinating the overall climate strategy and supervising senior managers in the implementation of climate related risk management and key performance indicators. As a functional committee that reports directly to the Board of Directors, the ESG Committee consists of a risk management team with the CFO acting as the convener. The members consists of supervisors and representatives of each department and business unit. Each year, the risk management team formulates response and adjustment strategies through the comprehensive evaluation and analysis of various risks related to climate. The team produces the corporate risk management report and submits it to the ESG Committee to ensure that climate issues are included in the thinking of senior management and receive proper review and management.

The ESG Committee regularly reviews the Company's risk assessments and countermeasures for the environmental, social, and corporate governance aspects of CSR, which include but are not limited to the implementation status of climate change issues. The Chairman of the ESG Committee reports the results and future plans for sustainable development, including climate change issues, to the Board of Directors at least twice each year.

3.2.2 Mitigation and Adaptation Strategies

The climate related risks and opportunities are identified by the related departments in the various Wistron plants around the world. The management costs and financial impacts are estimated for the risks and opportunities. The departments responsible for the material risks and opportunities appointed by the Taipei head offices will hold joint meetings to identify the risks with material impacts on the Company's finances. Wistron has defined impacts amounting to more than NT$100 million as material impacts. This year, physical impact analyses of climate change for the operating locations in Taiwan were conducted according to the "Taiwan Climate Change Projection Information and Adaptation Knowledge Platform" (TCCIP) information. Scenario analyses related to major disasters, such as high temperatures, droughts, and flooding, which are of interest to stakeholders, are conducted to facilitate the formulation of impact adjustment plans for the future.

For Wistron, disasters with physical impact are the biggest source of climate risks in operations and directly affect the production capacity. On the other hand, opportunities appear as customers' demand for preventive products increases. They help increase business opportunities with customers and drive product development by R&D units.

As such, Wistron actively assesses investments and R&D for products with increased demand as a result of climate change. They include various medical devices, online video conference systems, analog conference phones, and cloud storage and servers. Climate change risks in the form of potential natural disasters such as floods, typhoons, and damage to agriculture may affect the timeliness of deliveries in the upstream supply chain. Wistron therefore requires suppliers to deploy flexible delivery capabilities and provide multiple shipment points for selection.

Climate Risk Scenario Analysis

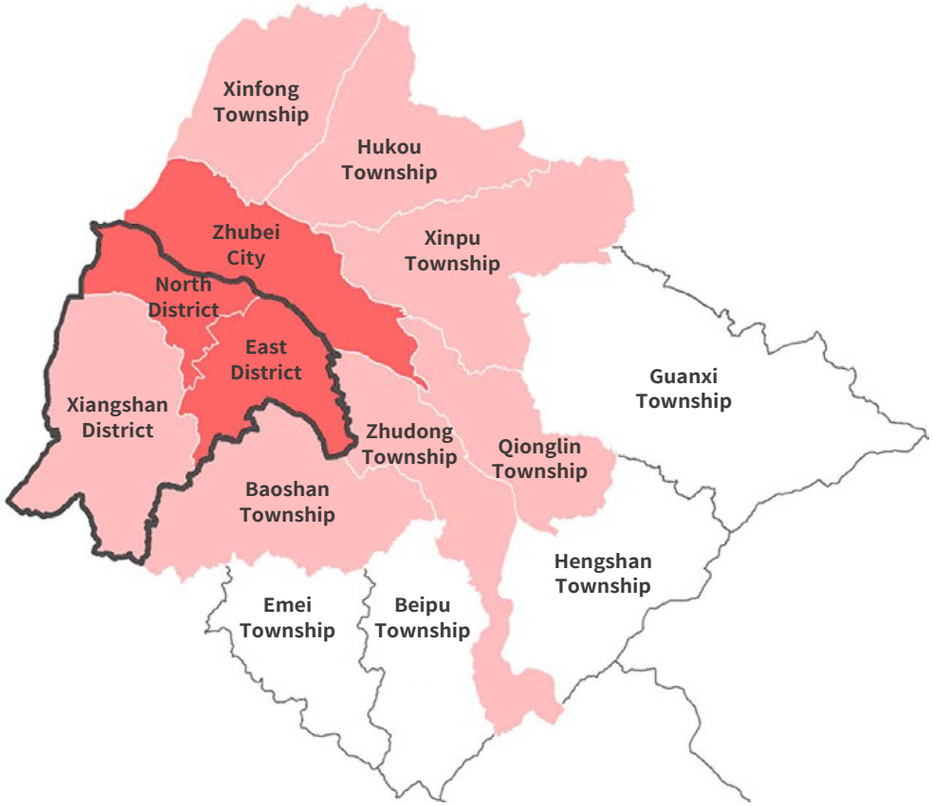
Climate Scenario Type	Scenario Name	Timeline	Assumed Parameters	Analysis Results		
				Upstream (supply chain)	Wistron	Downstream (customers)
Transition	SBTi 1.5°C	2021-2030	Annual carbon reductions reached 4.2% (Scopes 1+2). Wistron will achieve 100% green energy by 2030.	The needs of industry transformations will drive low carbon investments, which will in turn increase operating costs. Companies who are unable to adopt low carbon transformations will loss their competitive advantage.	According to international low carbon transformation trends and statutory and policy pressures, Wistron has stipulated the 80% green energy target for 2025 and 100% for 2030. Assuming the annual energy usage growth is 5% due to operational growth, the energy usage of the Group will increase by 1.5 times by 2030 compared to 2021. Therefore, the investments will be increased to accelerate energy transformations and increase green energy usage.	In response to sustainable tranformations, customers will place more importance on green manufacturing for their products. More renewable energy requirements will be placed on upstream suppliers.
	IEA 2° C	2021-2030	Carbon price: 80-100 USD ／ ton CO_2e	High carbon emission and high energy usage suppliers will continue to face stricter laws and regulations. Operating expenses are expected to increase and they may be passed to downstream customers.	In response to the continued expansion of operations and sales growth in recent years, we are considering the impacts of energy conservation, innovation, and other factors. Assuming the Group's annual carbon emission growth rate is 5%, carbon emissions will increase by 1.5 times by 2030 compared to 2021. Therefore, the Company is actively introducing carbon reduction projects and innovative technologies in order to reduce carbon risks.	As the international community begins to introduce carbon taxes, the market share of low carbon/green products will gradually increase. We expect to have more opportunities to work with upstream suppliers to develop green products and services.
	IEA below 2° C	2021-2030	Carbon price: 90-120 USD ／ ton CO_2e			
	IEA Net Zero Emissions by 2050	2040-2050	Carbon price: 160-200 USD ／ ton CO_2e			
Physical	RCP 6.0	2075~2099	Average annual temperature change is +0.95°C to +3.45°C	High temperature environments will increase work safety risks. The work environments of suppliers will become a key audit item to ensure the human rights of laborers.	Days of extreme heat have increased to over 90 days in Taiwan, which may cause production interruptions and revenue loss (around one quarter)	Extreme temperatures will increase energy consumption and lead to increased carbon emissions.
	RCP 2.6/ RCP 8.5	Middle of the century (2046 to 2065) and end of the century (2081 to 2100)	Longest consecutive rainless days in a year: The base period of Taipei City is (1986 to 2005) 28 days. The base period of Hsinchu County is (1986 -2005) 39.5 days	More frequent seasonal droughts will impact suppliers whose processes are water-consuming and may case supply delays or suspensions.	The fluctuation rate of Taipei City is 3.1%. The fluctuation rate of Hsinchu County is 5.6%. The drought problem in Hsinchu County will become more serious	Supply chain disruptions caused by severe droughts will impact the delivery schedule for downstream customers, thereby affecting the product revenue.
	RCP 8.5	Middle of the century (2039 to 2065)	For the 95th percentile of highest accumulated rainfall during extreme rains (region average), the level during the regional base period (1979 to 2008) in the Hsinchu Plant is 385mm. It is expected to rise to 444mm by the middle of the century.	Flooding caused by short-term, extreme rainfall will impact the science park in the Hsinchu area. The Hsinchu Science Park is an important manufacturing site for the electronics industry in Taiwan. Therefore, the flooding may cause delayed deliveries and risk of contract breaches in the supply chain.	The flooding occurrence probability analysis for global warming shows the changes to the probability of flooding above 0.5m. The changes between the base period to the middle of the century show significant increase.	Severe flooding will cause transportation disruptions and problems with logistics. It may cause delayed deliveries by customers, leading to expected revenue from products and services being impacted.

Adaptation Plan to Physical Risks

<table>
<tr><th>Physical Natural Disasters</th><th>Current Situation</th><th>Changes to the Return Period</th><th>Overall Adaptation Plan for the Group</th></tr>
<tr><td>High Temperatures</td><td>The average temperature of the Hsinchu Plant area in Taiwan was 22.39°C in 2018.</td><td>Changes to the 10 year return period:
The temperature increased to 23.3°C (RCP8.5)
The temperature increased to 23.62°C (RCP2.6)</td><td>The yearly average temperature is expected to continue to rise. With the extreme heat, outdoor operations will be suspended when necessary, or related laws and regulations will be complied with to implement necessary handling. The indoor temperature is regulated by the air conditioning system and green building designs have been actively introduced to maximize efficiency.</td></tr>
<tr><td>Drought</td><td>Longest consecutive rainless days in a year during the base period is 39.5 for the Hsinchu Plant in Taiwan.</td><td>Average change at the middle of the century (%):
<table><tr><th>RCP 2.6</th><th></th></tr><tr><td>95%</td><td>14.7</td></tr><tr><td>75%</td><td>6.1</td></tr><tr><td>50%</td><td>2.2</td></tr><tr><td>25%</td><td>-0.3</td></tr><tr><td>5%</td><td>-5.9</td></tr></table>Average change at the end of the century (%):
<table><tr><th>RCP 2.6</th><th></th></tr><tr><td>95%</td><td>14.8</td></tr><tr><td>75%</td><td>7.9</td></tr><tr><td>50%</td><td>2.4</td></tr><tr><td>25%</td><td>-1.2</td></tr><tr><td>5%</td><td>-6.9</td></tr></table>Average change at the middle of the century (%):
<table><tr><th>RCP 8.5</th><th></th></tr><tr><td>95%</td><td>18.1</td></tr><tr><td>75%</td><td>13.5</td></tr><tr><td>50%</td><td>5.6</td></tr><tr><td>25%</td><td>0.6</td></tr><tr><td>5%</td><td>-8</td></tr></table>Average change at the end of the century (%):
<table><tr><th>RCP 8.5</th><th></th></tr><tr><td>95%</td><td>29.6</td></tr><tr><td>75%</td><td>22.6</td></tr><tr><td>50%</td><td>14.8</td></tr><tr><td>25%</td><td>4.7</td></tr><tr><td>5%</td><td>-7.4</td></tr></table></td><td>The impacts of seasonal droughts are expected to become more severe with the continued effects of climate change. The main production processes of Wistron are heavily dependent on water use. In order to fulfill our corporate social responsibilities, we will continue to improve our water usage efficiency. We have established rainwater recycling systems in new plants and have included short-, mid-, and long-term targets in the routine performance evaluations, in order to reduce the operational water usage of each unit.</td></tr>
<tr><td>Floods</td><td>According to the base period (1979 to 2003) data, Hsinan Plant in Hsinchu Science Park, the major production location in Taiwan, is situated in a level 4 (level 5 is the highest level of risk) vulnerability area for flooding (combined evaluation of danger, vulnerability, and exposure).</td><td>Rainstorm changes in the next 5 days under RCP 4.5:
<table><tr><th>5 years</th><th></th></tr><tr><td>95%</td><td>51</td></tr><tr><td>75%</td><td>45</td></tr><tr><td>50%</td><td>29</td></tr><tr><td>25%</td><td>9</td></tr><tr><td>5%</td><td>1</td></tr></table><table><tr><th>25 years</th><th></th></tr><tr><td>95%</td><td>85</td></tr><tr><td>75%</td><td>51</td></tr><tr><td>50%</td><td>41</td></tr><tr><td>25%</td><td>12</td></tr><tr><td>5%</td><td>-5</td></tr></table>Rainstorm changes in the next 5 days under RCP 8.5:
<table><tr><th>5 years</th><th></th></tr><tr><td>95%</td><td>57</td></tr><tr><td>75%</td><td>47</td></tr><tr><td>50%</td><td>29</td></tr><tr><td>25%</td><td>11</td></tr><tr><td>5%</td><td>-11</td></tr></table><table><tr><th>25years</th><th></th></tr><tr><td>95%</td><td>84</td></tr><tr><td>75%</td><td>49</td></tr><tr><td>50%</td><td>38</td></tr><tr><td>25%</td><td>19</td></tr><tr><td>5%</td><td>-5</td></tr></table></td><td>Flood prevention facilities and designs have been reinforced in every operating location. Alarm and reporting mechanisms have been established to protect employee safety and reduce asset loss
Adjustment plans for specific assets or plants:
Regarding the newly constructed operating locations, the 24 hour rainfall flooding potential for the local 100 year return period is used for analysis. Appropriate drainage and flood prevention facilities are reviewed and emergency response plans (including typhoon flooding protection plant) are formulated for the various disasters (including typhoons and flooding), in order to reduce the negative impact of potential flooding in the next hundred years. In terms of design, 1. Install plant trenches, water permeable surfaces, and other low water impact facilities to reduce water flow during rain storms. 2. Reasonable rain drainage pipe diameters and drainage gradients are installed according to the calculations of the 24 hour rain water flooding potential during the 100 year return period, in order to prevent ground flooding at the foundation. 3. Increase the height of the foundation and the first floor of buildings to prevent flood water filling the foundation.
Regarding the emergency response measures:
(1) Planned to install rainwater collection systems and rainwater recycling: pools, in order to manage and reuse rainwater.
(2) Installed flood gates (panels) to prevent flood water entering the underground spaces.
(3) Stipulated the water pumping plan. The water pumping equipment is sufficient to drain flood water during continuous rain storms.</td></tr>
</table>

Risk graph for flooding due to climate change in the Hsinchu Plant (east district of Hsinchu City)

Base Period of Risk(1979-2003)



Risk graph for flooding due to climate change in the Hsinchu Plant (east district of Hsinchu City)

Future Estimates of Risk(2075-2099)

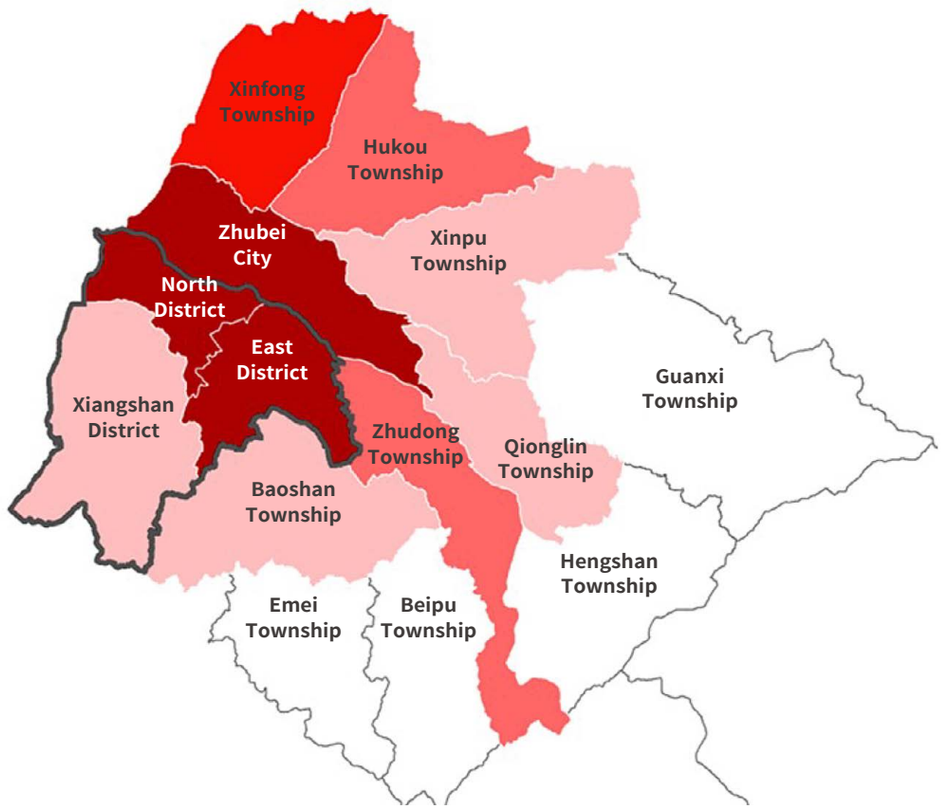


Figure Risk levels

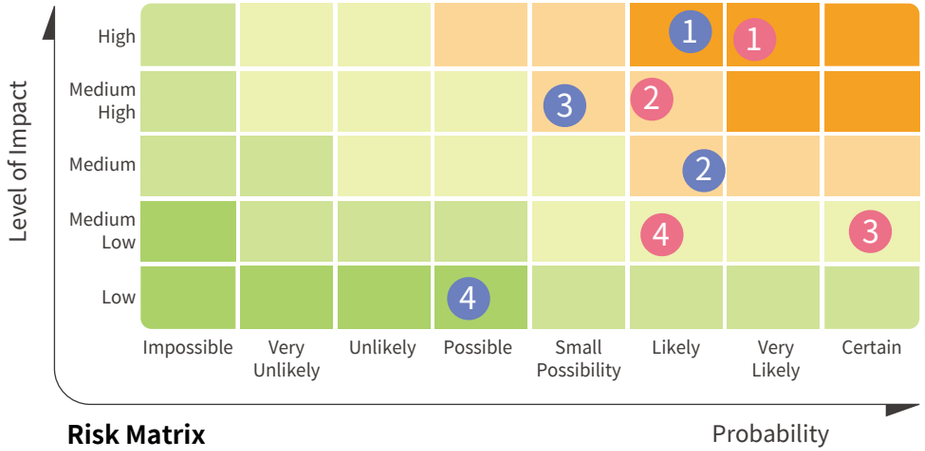
3.2.3 Identification of Climate Risks and Opportunities

Climate-related risks and opportunities have been integrated into Wistron's enterprise risk management (ERM) plans. The Company identifies material risks for management based on ERM survey results. Management measures include verifying whether risks can be averted (where applicable) or using mitigation measures to control risks.

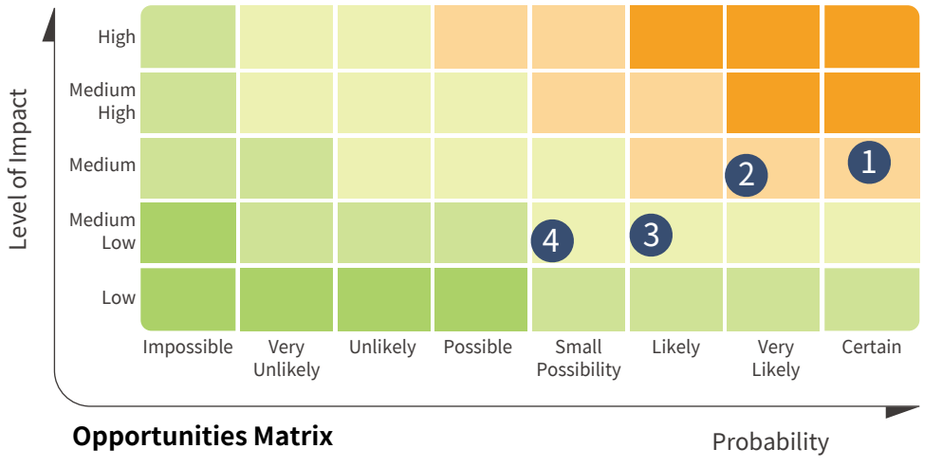
The Company has adopted the TCFD framework and referenced the risk items in the CDP climate change and water security questionnaires. Each year across the world Wistron identifies plant-specific transition risks and physical risks based on the location of plant business operations. All results of identification are compiled by the head office for an assessment of the scale and scope of the impact across the world. The head office then establishes related strategies and takes response actions.

The Company has adopted the ISO 31000 risk management and risk assessment framework and procedures and uses a risk map to evaluate the possibility of the occurrence of various potential risks and emerging risks and the extent of damage after they occur. The Company evaluates the level of potential threat that each short, medium and long-term risks (short-term: 1 to 3 years, medium-term: 3 to 5 years, long-term: 5 to 10 years) and opportunities to its future operations on the timeline from 2021 to the end of the century based on factors such as asset durability, potential climate risk and the industry sector and region of operation, and defines the priorities of risks and opportunities based on risks and opportunities level ratings to propose the risk and opportunities map.

Analyzing the probability of occurrence and the level of impact is used to make judgements regarding risks and opportunities. The results are classified into low-, medium-, and high-risk ratings. Five levels of impact are determined by the amount of monetary losses (extremely minor, minor, moderate, severe, and extremely severe). Risks classified as high or moderate are listed as main risks for which preventive measures and improvement plans must be established.



Risk Matrix



Opportunities Matrix

Transition Risks

1. Development of renewable energy regulations
2. Demand for low-carbon products and services
3. Mandatory filing
4. Investment in new technology

Physical Risks

1. Typhoons (acute)
2. Floods (acute)
3. Uncertainties in physical risks
4. Rise in average temperature(chronic)

Climate Change Opportunities

1. Seek new business opportunities
2. Energy-saving buildings
3. Low-carbon energy
4. Energy efficiency improvement

Climate Change Financial Impact Analysis (Risks)

Climate Change Risks	Financial Impacts	Response Measures
Development of renewable energy regulations	Increases in operating costs (such as higher legal compliance cost or increase in management fees). The Company is expected to reach the target of 100% renewable energy use in 2030. Green energy certificate fees are expected to increase annual cost by 300 to 600 million NTD. The annual carbon fees and costs due to legal requirements are: 1. 40 to 50 million USD in 2030 (IEA 2° C scenario) 2. 50 to 60 million USD in 2030 (IEA below 2° C scenario) 3. 240 to 310 million USD in 2050 (IEA NZE scenario)	The Company purchased over 200 million kWh of Renewable Energy Certificates in 2021 and will increase the use of renewable energy each year to 100%. We are actively establishing partnerships with renewable energy companies around the world (including direct purchase of renewable energy PPA and renewable energy project development), in order to strengthen the sustainable resilience of global operations.
Demand for low-carbon products and services	Reduce operating costs	Help customers obtain various environmental protection labels such as Energy Star, EPEAT, TCO, Taiwan Green Mark, and China Environmental Labelling. The revenue from products with environmental protection labels account for 91% of hardware revenue.
Mandatory filing	Increase operating costs	The Company established a comprehensive greenhouse gas inventory for all manufacturing sites across the world. We implement greenhouse gas inventory every year and obtain third-party verification from an impartial third party.
Investment in new technology	Increase in operating costs (e.g., higher R&D cost or increase in patent licensing expenses)	Wistron will continue to increase the ratio of R&D personnel per total employees. The percentage reached 8.5% in 2021. Wistron obtained 401 patents in 2021, with green products accounting for 15 patents.
Drought	Manufacturing is impacted, causing operating revenue loss. For the production capacity that has not been transferred, the operating losses due production stoppages caused by severe droughts were 180 million to 3 billion NTD (RCP 8.5).	The rainwater recycling system plans are improved for new plants. The existing plants work with local water suppliers to implement special water supply mechanisms during droughts, in order to maintain plant operations. Continue to increase the water recycling rate and stipulate short-, mid-, and long-term targets for the annual performance evaluations, in order to improve overall operating resilience.
Typhoons	Impact on production and loss of operating revenue	In the event of a typhoon, the Company monitors alerts and related information on whether employees should work or suspend work. If work is not suspended, the Company provides vehicles, transportation subsidies, or other necessary assistance.
Floods	Impact on production and loss of operating revenue	The foundation heights have been increased and drainage facilities have been improved for existing plants during construction, in order to prevent losses caused by disasters. Include "natural disaster assessment" items in the location selection process for new sites. Plan related flood prevention facilities to improve the disaster resilience of operating locations.
Uncertainty of physical risks Uncertainty of climate-related physical risks	Increase operating costs and impact operating revenue	Six major energy saving and carbon reduction measures are introduced each year by the air conditioning system, air compressor system, green lighting, management, production, and others, and annual performance targets are set for tracking and assessment. As of the end of 2021, a total of 16,422.77 tons of carbon emissions will be reduced, continuing to mitigate the negative impact of the operation on climate change.
Rise in average temperature	Increase operating costs (e.g., increase in water and electricity charges)	The Company complies with the SBT 1.5 C carbon emissions reduction methodology by setting annual targets for absolute greenhouse gas reduction starting from 2020, in order to achieve carbon neutrality.

Climate Change Financial Impact Analysis (Opportunities)

Climate Change Risks	Financial Impacts	Response Measures
Seek new business opportunities	Increase revenue from energy-saving products	Incorporate green design concepts in product development to reduce the energy consumption during product manufacturing. The sales from products with environmental protection labels account for 91% of hardware revenue. Develop green resources businesses and provide recycling and processing services to maximize benefits in the circular economy. The total shipped volume of post-consumer-recycled (PCR) environmentally friendly materials was 26,288 tons.
Energy-saving buildings	Reduce operating costs	Develop plant energy management information system and optimize settings with artificial intelligence technologies. We are evaluating the installation of solar panels and new generation energy-saving equipment at all our plants and operational sites to reduce the demand for purchased electricity and carbon emissions.
Low carbon manufacturing	Increase the use of low-carbon renewable energy to avoid carbon taxes	The Company purchased over 200 million kWh of Renewable Energy Certificates in 2021. Combined with the active expansion of solar power generation in plants, the percentage of renewable energy use has exceeded 50% of total energy usage, and the percentage will be increased year over year to reach 100%.
	Increase revenue	Continuing to increase the proportion of production lines using renewable energy by 100% through the procurement of green certificates and direct purchase of green power in our global operations to meet market demand for low carbon manufacturing.
Energy efficiency improvement	Reduce energy costs	The Company has established an energy project team which regularly inspects energy management conditions in plants and the results of energy conservation projects and shares the experience. By the end of 2021, more than 21 million kWh of electricity have been saved.

3.2.4 Climate Goals

Wistron decided to take proactive actions starting from 2020 in support of carbon reduction targets in the IPCC's "Special Report on Global Warming of 1.5° C ". The Company follows the recommendations of the "Science-based targets initiative (SBTi)" and changed "greenhouse gas emission intensity" and "electricity consumption intensity goals" to"absolute greenhouse gas reduction goals". The Company used 2016 as the baseline year and set a short-term goal of achieving an absolute greenhouse gas reduction of 21% by 2021. The medium-term goal is to reduce absolute greenhouse gas emissions by 37.8% by 2025 and the long-term goal is to achieve carbon neutrality by 2030. These goals were set to demonstrate Wistron's resolve for mitigating and adapting to climate change. Wistron has formulated short-, medium-, and long-term goals for renewable energy usage in response to international energy transformations and low carbon manufacturing, with the renewable energy usage targets of 57.5%, 80%, and 100% set for 2022, 2025, and 2030, respectively.

Short, medium and long-term targets	Absolute greenhouse gas reduction	Renewable energy usage
2022	25.2%	57.5%
2025	37.8%	80%
2030	Carbon neutrality	100%

3.3 Greenhouse Gas Emissions and Energy Management

3.3.1 Energy Usage

Electricity is the main form of energy consumption for Wistron. The remaining energy consumption consists of low amounts of fossil fuel usage (gasoline, diesel, etc.). Therefore, Wistron has increased energy efficiency and renewable energy ratio as its energy management strategy. Wistron introduced the ISO 50001 Energy Management System to implement systematic management of energy. Through the effective operation of the management system and the real-time energy dashboard, the Company identifies areas with high energy consumption for analysis. We use analysis results to set up energy projects. The Company regularly convenes energy project meetings and follows up on the implementation progress and results. We continue to improve energy efficiency through the exchange of information between the Plants.

Energy Usage

Energy		Unit	2018	2019	2020	2021
Electricity	Self-generation and self-consumption of renewable energy.	kWh	2,379,781.00	2,383,895.00	2,393,900.79	**6,889,549.45**
		GJ	8,567.21	8,582.02	8,618.04	**24,802.38**
	Purchased renewable energy	kWh	-	-	188,690,000.00	**202,817,000.00**
		GJ	-	-	679,284.00	**730,141.20**
	Purchased non-renewable energy	kWh	499,108,397.68	505,325,225.95	284,263,177.75	**187,514,768.52**
		GJ	1,796,790.23	1,819,170.81	1,023,347.44	**675,053.17**
Heating		kWh	588,875.00	583,225.00	920,347.22	**1,299,377.78**
		GJ	2,119.95	2,099.61	3,313.25	**4,677.76**
Diesel		kWh	3,952,944.70	3,222,292.85	155,102.78	**1,174,909.65**
		GJ	14,230.60	11,600.25	558.37	**4,229.67**
Gasoline		kWh	4,236,826.78	4,133,091.84	3,826,211.35	**3,315,532.56**
		GJ	15,252.58	14,879.13	13,774.36	**11,935.92**
Natural gas		kWh	33,697,803.39	34,996,888.15	34,838,471.71	**29,994,111.16**
		GJ	121,312.09	125,988.80	125,418.50	**107,978.80**
Liquid natural gas		kWh	284,579.90	358,545.03	502,668.73	**529,856.82**
		GJ	1,024.49	1,290.76	1,809.61	**1,907.48**
Total nonrenewable energy consumption		MWh	541,869.43	548,619.27	324,505.98	**223,828.56**
Total renewable energy consumption		MWh	2,379.78	2,383.90	191,083.90	**209,706.55**

Energy Performance Indicators

Performance Indicators	Unit	2018	2019	2020	2021
Unit revenue electricity consumption	kWh/NT$ billion	585.82	609.09	595.05	**505.42**
Percentage of renewable energy use	%	0.47	0.47	40.20	**52.79**

Note:Calculated with power usage of major Wistron production plants around the world / plant revenue.

3.3.2 Greenhouse Gas Emissions

With the challenges caused by global climate change, companies must reduce greenhouse gas emissions during operations to mitigate the negative impact on the climate. Wistron implements greenhouse gas inventory in accordance with ISO 14064-1. We also appoint a third-party attestation institution for rigorously monitor greenhouse gas emission sources and volume in all plants. In response to the requirements of the Science Based Targets (SBT), the evaluation plan for Scope 3 Greenhouse Gas Emissions was implemented in 2021. The aim was to include broader upstream and downstream indirect emissions into our own greenhouse gas reduction scope. We hope to utilize Wistron's influence and work towards the target of 1.5°C of the Paris Agreement together with the world.

Greenhouse Gas Emissions(tCO_2e)

Scope Category		2018	2019	2020	2021
Scope 1	Stationary combustion	7,577.72	7,622.77	6,993.68	**5,777.73**
	Mobile combustion	1,124.99	1,095.90	1,075.48	**862.02**
	Production emissions	0.25	0.25	4.75	**57.80**
	Fugitive emissions	17,398.34	19,351.94	15,375.89	**13,684.96**
Subtotal		26,101.30	28,070.86	23,449.8	**20,382.51**
Scope 2	Location base	400,442.96	400,583.72	357,010.93	287,909.87
	Market base	400,442.96	400,583.72	206,711.81	125,333.04
Total of Scope 1 + 2	Location base	426,544.26	428,654.57	380,460.73	308,292.38
	Market base	426,544.26	428,654.57	230,161.61	145,715.55

Scope 1 + 2 Greenhouse Gas Emission Types (tCO_2e)

Type	2018	2019	2020	2021
CO_2	409,092.13	409,252.50	365,036.32	**294,470.89**
CH^4	13,479.44	12,979.98	13,088.97	**9,023.93**
N_2O	40.66	38.54	36.76	**50.42**
NF_3	1,713.13	-	-	**-**
HFC	2,218.22	6,383.55	2,298.68	**4,747.14**
PFC	0.68	-	-	**-**
SF_6	-	-	-	**-**
Total	426,544.26	428,654.57	380,460.73	**308,292.38**

Greenhouse Gas Emissions Performance Indicators ($ktCO_2e$/ NT$ billion)

Performance Indicators		2018	2019	2020	2021
Emissions per unit-revenue	Location base	0.50	0.51	0.48	**0.39**
	Market base	0.50	0.51	0.29	**0.19**

Note 1:Greenhouse gas emission intensity and target:Calculated based on the greenhouse gas emissions/plant revenue of Wistron's global manufacturing plants.
Note 2:Only Category 1 and Category 2 greenhouse gas emissions were calculated.
Note 3:Wistron is not responsible for the management of the Chongqing Plant dormitories.

Scope 3 Greenhouse Gas Emissions

The Scope 3 inventory conducted this year found that at emission hotspots, the main source of emissions for upstream companies is purchased products goods and service. For downstream companies, it is the emissions from downstream transportation and distribution. The inventory results allows Wistron to manage the contribution of emissions of various activities between our own operations and upstream and downstream companies. It also provides potential opportunities for partnership between Wistron, the suppliers, and our customers. Wistron will use the Scope 3 inventory to strengthen supply chain management and create new opportunities to develop lower carbon electronic parts with our suppliers. For the energy use of downstream customer products, we will work with our customers to strengthen the energy efficiency of all Wistron and customer products, allowing Wistron to work with upstream and downstream companies to reduce greenhouse gas emissions and expand the influence of our climate strategy, so as to realize the vision of a low carbon supply chain.

Scope 3 Greenhouse Gas Emissions (tCO_2e)

Scope 3 Emission Sources	2018	2019	2020	2021
Purchased goods and services	0	0	0	**14,049,499.30**
Capital goods	0	0	0	**142,632.13**
Fuel- and energy related activities (not included in scope 1 or scope 2)	0	0	0	**76,107.22**
Upstream transportation and distribution	2,877.56	17,245.75	8,544.14	**21,134.68**
Waste generated in operations	0	0	0	**4,215.71**
Business travel	5,491.50	5,745.52	1,000.76	**1,027.22**
Employee commuting	0	0	0	**18,156.21**
Upstream leased assets	0	0	0	**5,666.65**
Downstream transportation and distribution	130,787.48	51,940.01	111,455.11	**278,700.73**
Processing of sold products	0	0	0	-
Usage of sold products	0	0	0	-
End-of-life treatment of sold products	0	0	0	-
Downstream leased assets	0	0	1.47	**20,206.67**
Franchises	0	0	0	-
Investments	0	0	0	**1,523,696.41**

3.3.3 Emissions Abatement and Results

Wistron uses energy efficiency improvements and energy transformations to implement reduction actions. To ensure the implementation of energy management and energy conservation projects, Wistron has set up the Energy Project Teams in all plants composed of units responsible for plant engineering affairs or related matters. They convene regular energy management meetings and review the current state of energy and project implementation progress in the plants. The plants also share information on the effectiveness and experience in each project with each other.

Wistron's energy conservation efforts encompass six major categories including the air conditioning system, air compressor system, green lighting, management, production, and others. As of the end of 2021, the Company saved a total of 21,261,490 kWh of electricity, which reduced carbon emissions by 16,422.77 tons. If we use the carbon dioxide absorption volume of the Daan Forest Park in Taipei of 389 tons per year (calculation based on data from the Bureau of Energy, Ministry of Economic Affairs), the carbon reduction was equivalent to the annual CO2 absorption volume of 42 Daan Forest Parks, which represented a significant increase compared to the carbon reductions in the previous year.

2021 Energy Conservation Results

Energy Conservation Type	Main Implemented Project	Annual Energy Savings (MWh)	Annual Energy Savings (GJ)	Annual Emission Reduction (t CO_2e)
Air conditioning system	Improved equipment efficiency and introduced smart frequency conversion	5,930.46	21,349.64	4,546.86
Air compression system	Replaced old equipment and introduced smart controls	4,661.20	16,780.31	3,727.63
Green lighting	Smart lighting system	505.61	1,820.18	361.66
Management	Temperature control	4,360.37	15,697.32	3,139.25
Manufacturing	Optimized production, improved production equipment efficiency, and introduced smart monitoring and management	692.77	2,493.96	557.08
Others	Installed solar power generation equipment	5,111.09	18,399.94	4,090.29
Subtotal		21,261.49	76,541.35	16,422.77
Purchased renewable energy certificates		-	-	162,576.84
Total		-	-	178,999.61

Extreme weather has become the new normal. Major international companies have joined the RE100 initiative to support the use of renewable energy to reduce carbon emissions and slow down global warming. Wistron responded to international renewable energy trends by purchasing 200 million kWh of Renewable Energy Certificates in 2021 to actively increase the use of renewable energy in plants around the world, and offset market-based greenhouse gas emissions. Apart from purchasing renewable energy certificates, Wistron is actively expanding solar power generation in operating locations around the world to utilize idle space. We continue to strengthen our partnerships with local renewable energy providers, in order to implement the ideas of energy transformation and green manufacturing in our corporate operations.

2,126 million kWh
Six major energy conservation projects
Total amount of energy saved

16,423 tons
Six major energy conservation projects
Reduces carbon emissions

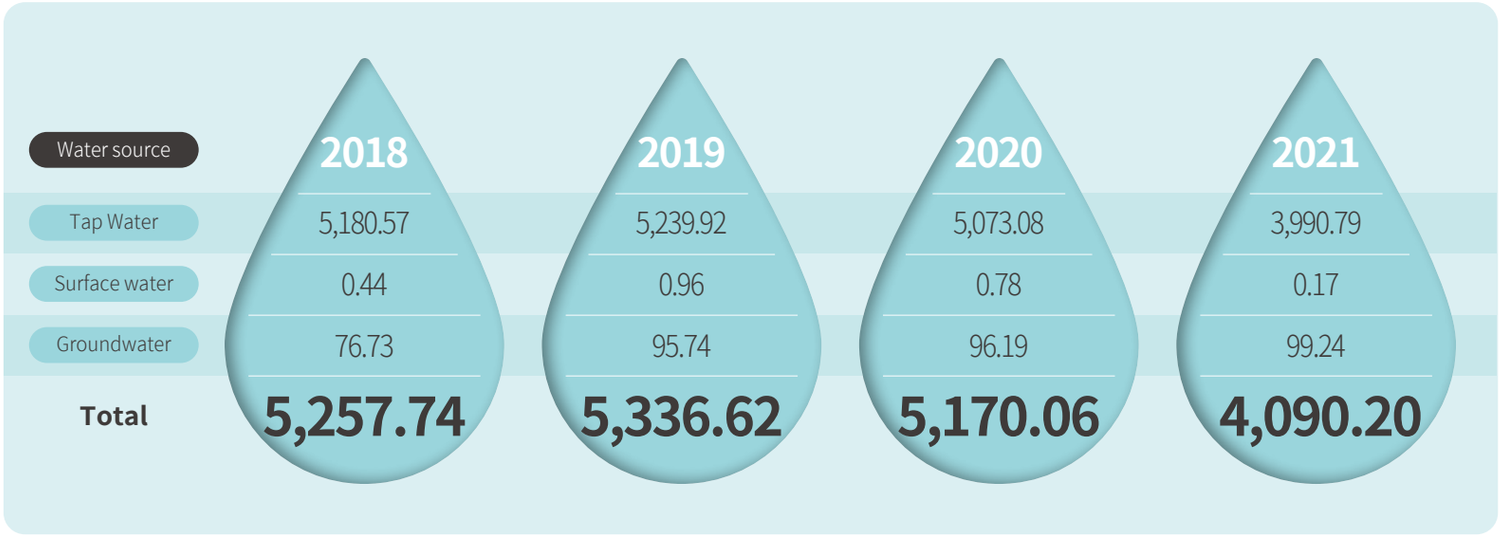
200 million kWh
Procurement
Renewable energy certificates

3.4 Alleviating Environmental Impact

3.4.1 Water Resources

While Wistron plants and offices use tap water, the Mexico Plant is the only plant that uses groundwater as the source of water. The Plant is located in a local industrial park and the water source is not the protected reserve or water reserve. Wistron's production processes mainly consist of product assembly which does not involve the use of a great amount of water. Most of the water demand is for domestic use and plant equipment such as kitchens and cooling towers. Based on our evaluations, Wistron's use of water resources and the ecological environment of water sources will not create significant environmental impact. Nevertheless, Wistron still actively collects water consumption data and regularly monitors water quality and consumption conditions. We organize water conservation campaigns from time to time for the purpose of protecting water resources. Wistron's management of water resources can be divided into "implementation of water resource management and day-to-day water conservation" and "implementation of water recycling and wastewater management". We conduct an inventory of high-risk areas for water resources based on an evaluation of the water stress indicators of our global operations. We then implement preventive measures based on the water resource management strategy. Dedicated units in different plants are responsible for water resource management, plan formulation and implementation, regular monitoring, resolution of irregularities, data analysis, and continuous improvements. Wistron is committed to rigorous compliance with the national regulations on water resources, reasonable use of water resources, prioritized selection of water conservation equipment, and use of energy conservation panels to monitor the consumption of water resources and improve water use efficiency. Wistron's water use target in 2021: Reduce water consumption intensity by 9% compared to 2016 and implement more ambitious goals for 2022, 2025, and 2030, and continuous tracking to disclose the water saving performance of each year.

Water Usage (million liters)



Water Usage Performance Indicators

Performance Indicators	Unit	2018	2019	2020	2021
Water usage per unit-revenue	thousand tons of water/NT$ billion	6.1	6.4	6.5	**5.2**
Water recycling rate	Percentage (%)	5.07	11.45	12.76	**8.93**

Note: Water usage intensity: Calculated with water usage of major Wistron production plants around the world / plant revenue.

Water Stress Index

Wistron uses Aqueduct tools to analyze water stress indicators of global operations. We evaluate the risk ratings of water resources to set up management and recycling equipment in advance. In addition, we also disclose the water sources, water bodies receiving the effluent, wastewater treatment unit, and water quality data to ensure compliance with effluent quality standards in local regulations.

Multiple stages of Wistron's manufacturing process is product assembly. Most processes do not require water and do not produce waste water. Only Taizhou Plant and Kunshan Opt Plant require the use of water and they have set up wastewater treatment plants. They implement real-time online monitoring to immediately respond to any anomalies. In 2021, a processing center was constructed in the Zhongshan Opt Park. The industrial waste water was directly sent to a third party industrial waste water treatment company for processing. The sewage and wastewater in other plants mainly consist of domestic sewage of employees. The domestic sewage is collected through the pipelines of the park and delivered through the sewage system to the wastewater treatment plant for processing and discharge. It is not directly discharged to natural bodies of water. To monitor the effluent quality, Wistron regularly inspects the water quality to ensure that the effluent meets regulatory requirements and does not affect the ecological environment of natural water bodies and habitats. Wistron implements the ISO 14001 Environmental Management System to ensure that the wastewater and sewage management meets effluent specifications in regulations. The Company systematically manages related environmental issues. By 2021, Wistron has attained zero effluent leaks and zero environmental complaints.

Water Stress Indexs

Items		Neihu Headquarters Xizhi Office	Hsinchu Plant	Kunshan Plant	Kunshan Opt Plant	Taizhou Plant	Zhongshan Plant	Chengdu Plant	Chongqing Plant	Mexico Plant	Czechia Plant
Water stress index		Medium low	Medium low	High	High	Medium high	Medium high	Medium low	Medium low	High	Medium low
Water source		Feitsui Reservoir Xinshan Reservoir	Baoshan Reservoir	Water drawn from the Yangtze River	Water drawn from the Yangtze River	Water drawn from the Yangtze River	Xijiang River	Min River	Jialing River	Hueco Bolson Aquifer Mesilla / Conejos-Medanos Basin	Vir Reservoir
Water body receiving effluent		Keelung River Tamsui River	Keya Creek	Wusong River	Wusong River	Yinjiang River	Shiqi River Hengmen Waterway	Fuhe River	Houhe River	Use in agricultural irrigation	SVRATKA River
Wastewater treatment unit		Neihu Sewage Treatment Plant Dihua Sewage Treatment Plant	Hsinchu Science Park Sewage Treatment Plant	Kunshan Development Zone Kuncheng Precision Water Purification Co., Ltd.	Precision Machinery Industrial Park Sewage Treatment Plant	Taizhou Chengnan Wastewater Treatment Plant No.2	Zhenjiashan Sewage Treatment Plant Linhai Industrial Park Wastewater Treatment Plant	Huayang Wastewater Treatment Plant No. 2	Yubei District Chengbei Wastewater Treatment Plant	Valle de Juarez water treatment plant	Brno water and sewerage plant
Effluent Quality	pH	6~9	5~9	6.5~9.5	6~9	6~9	6~9	6~9	6~9	6~9	Sewerage regulations of the city of Brno
	SS (mg/l)	30~50	300	400	70~400	400	400	400	400	180	
	COD (mg/l)	100~150	500	500	100~500	500	500	500	500	220	

Note: The water stress indicator is calculated based on Aqueduct tools: https://www.wri.org/aqueduct

3.4.2 Air Pollution

The gas emissions in Wistron's production process consist mostly of hot air and tin fumes. They also contain volatile organic compounds (VOCs) from the isopropyl alcohol used for cleaning. According to internal standard procedures, the gas is concentrated and collected in the ducts for the waste gas treatment equipment to absorb before emissions. The Company passes regular waste gas sampling inspections to ensure compliance with regulatory requirements.
The used isopropyl alcohol waste liquid is stored at a designated location and delivered to a qualified external supplier for removal. Wistron implements inventory and management of substances that contain VOCs to ensure that operators of all positions are equipped with personal protection equipment (PPE) and related ventilation devices in the usage and storage process. These measures ensure health and safety for personnel while reducing the potential negative impact of VOCs on the environment. Nitrogen oxides (NOx) and sulfur oxides (SOx) are only emitted in Wistron Plants when generators are used and fuel is incinerated in the process. The generators are only activated in the event of emergencies (e.g., power outages) and are not regular sources of emissions. Therefore, they are not listed as the main sources of emissions.

Emissions of Volatile Organic Gases (tons)

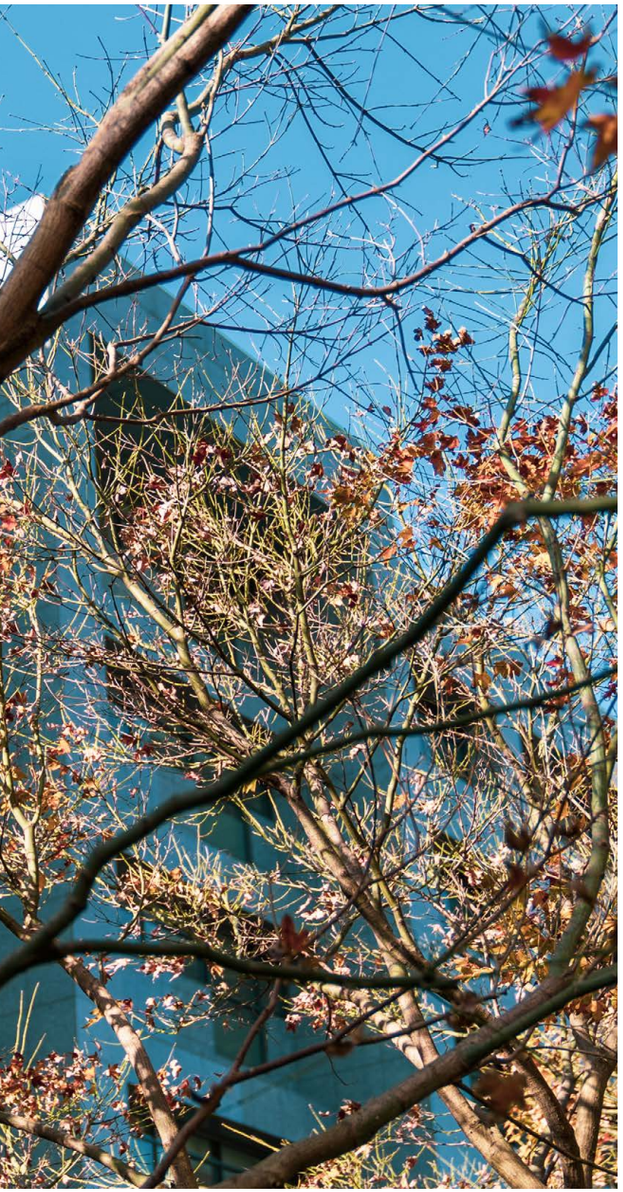
Categories	2018	2019	2020	**2021**
Isopropyl alcohol	54.0	94.92	90.83	**72.32**
Ethanol	80.9	62.5	22.8	**63.43**
Ethylene glycol monobutyl ether	5.2	7.1	5.9	**7.81**
Ethanolamine	2.8	3.9	3.3	**1.48**
Others (those that account for < 1% of total)	15.9	13.3	7.5	**7.54**
Total	159	182	130	**152.59**

3.4.3 Waste

Wistron is committed not to use banned substances or materials and actively promotes waste reduction, recycling, and reuse. The Company rigorously and carefully selects materials and suppliers and continues to implement technical improvement or seek environmentally friendly materials. We abide by environmental and customer regulations related to our activities, products, and services to attain, or even exceed set goals.
We must also perform a comprehensive evaluation and inventory of the generation and destination of waste and hazardous substances. We must minimize waste generation and recycle and reuse waste materials to reduce waste. Positive management of waste and hazardous substances can help protect the environment and reduce the burden of the environment. We can also create niches in business operations with improved material usage rate and lowered operating costs, which help the Company attain sustainability. The waste management method adopt by Wistron includes the "green product management system", "continuous implementation of waste classification and waste reduction", and "enhancement of waste recycling and reuse".

Amount of Waste Generated (tons)

Type		2018	2019	2020	**2021**
Non-hazardous	a.Reuse	-	-	215.67	**238.07**
	b.Recycle	38,586.46	38,180.84	37,613.77	**35,525.18**
	c.Replaced with alternative raw materials	-	-	-	**-**
	d.Landfill	406.73	370.70	373.00	**562.67**
	e.Incinerate (with energy recovery)	-	-	272.76	**1,670.37**
	f.Incinerate (without energy recovery)	3,971.48	3,760.48	2,666.89	**255.31**
	Subtotal	42,964.67	42,312.01	41,142.08	**38,251.60**
Hazardous	g.Temporary storage	-	-	-	**-**
	h.Transported to external treatment facilities	1,062.11	1,208.83	1,001.90	**1,043.50**
	Subtotal	1,062.11	1,208.83	1,001.90	**1,043.50**
Total	Total waste generated (d.+e.+f.+g.+h.)	5,440.32	5,340.01	4,314.55	**3,531.85**
	Total waste recycled/ reused (a.+b.+c.)	38,586.46	38,180.84	37,829.43	**35,763.25**



Waste Reduction

Wistron implements reduction at the source with resource classification and recycling plans,with recycling areas established in the plants and offices to reduce waste. We define recyclable waste generated in plant areas in accordance with regulations, including waste metal, packaging materials, plastic, paper, and batteries. We set up recycling areas in all plants and offices to collect these materials and appoint external recycling companies for clean-up and disposal.

Through waste classification and recycling, we have reduced operating costs by reducing waste disposal fees while meeting international waste reduction trends. Apart from recyclable waste, other special waste generated in the manufacturing process such as chemical solvents (isopropyl alcohol, fluxes, thinners, etc.), lubricating oil, solder paste, and dross are temporarily stored in special storage areas after classification and labeling and delivered to qualified waste disposal companies authorized by government institutions for processing. To monitor the final destination of the waste, Wistron also creates audit plans for waste disposal companies and performs regular audits.

To reduce waste more effectively, Wistron has changed the waste treatment target to "waste intensity reduction" starting from 2021. We use 2018 as the baseline year and set a target for reducing waste generation intensity (unit revenue waste generation) by 2% each year. Wistron has set the waste intensity reduction goal of 4% for 2022. The goal is 10% for 2025 with the introduction of UL2799 zero waste to landfill certification. In 2030, the reduction goal is 20% with continuous tracking and public disclosures of annual waste reduction.

Waste Recycling Rate (%)

Item		2018	2019	2020	2021
Non-hazardous	Reuse	0.0%	0.0%	0.5%	**0.6%**
	Recycle	87.6%	87.7%	89.3%	**90.4%**
	Replaced with alternative raw materials	0.0%	0.0%	0.0%	**0.0%**
	Incinerate (with energy recovery)	0.0%	0.9%	0.9%	**4.3%**
Total		87.6%	87.7%	90.4%	**95.3%**

Waste Management Performance indicators

Performance Indicators	Unit	2018	2019	2020	2021
Waste output per unit-revenue	Kilotons of waste output/ NT$ billion	0.05	0.05	0.05	**0.05**
Non-hazardous waste output per unit-revenue	Kilotons of waste output/ NT$ billion	0.0502	0.0508	0.0515	**0.0487**
Hazardous waste output per unit-revenue	Kilotons of waste output/ NT$ billion	0.0012	0.0015	0.0013	**0.0013**

Future Implementation Strategies

- **Continuous implementation of refined waste classification and increase the recycling ratio.**
- **Set up regular maintenance/inspection plans for rainwater and sewage pipeline networks and create a pollution effluent map.**
- **Introduce food waste dehydrators to reduce food waste.**
- **Evaluate the introduction of plastic packaging boxes for mechanical components that can be used repeatedly and the useful life can be extended to reduce waste generation.**
- **Development and introduction of a smart digital environmental management system.**

Resource waste reduction

11,002 tons

Waste reduction processing fee

NT$1.8 million

Waste Reduction Plan

Reduction Type	Description	Created Benefits
Recycle Reflow Oven Waste Liquid	We use waste liquid maintenance before new liquid is added for cleaning. We originally used 24 barrels of new liquid and generated 16 barrels of waste liquid every month. After the improvements, 16 barrels of new liquid were used and 8 barrels of waste liquid were generated.	Annual savings totaled **NT$127,022**
Recycle Reflow Oven Waste Liquid	We changed the settings from the default value to 4mm. The actual paper roll is 44mm, which saves 19% compared to the default value of 64mm. We thus reduced waste wiping paper by 21kg per month.	Annual savings totaled **NT$66,917**
Waste Reductions in Life	The plants in China dehydrate the kitchen waste by filtering the waste and using the kitchen waste dehydration equipment, in order to reduce the amount of kitchen waste and continue to implement the Clean Plate campaign Kunshan Plant and Taizhou Plant introduced automatic rice dispensers and set the machines to dispense 250g of rice per serving to reduce rice waste.	It has reduced average daily waste by **793.13** kg, decreasing kitchen waste by around **25%**
Recycling and Reuse of Packaging of Incoming Materials	Waste reductions start at the source. We have coordinated with suppliers to recycle the packaging of incoming materials. Traditional cardboard boxes were replaced with reusable plastic boxes to increase the usage rate of packaging and reduce waste generation.	Resource waste was reduced by around **11,002** tons every year and the total savings from waste disposal expenses were **NT$7,826,896**