

Sustainable Supply Chain

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Scope: Unless otherwise noted, the scope covers the Winbond Group.

Winbond, building on the governance foundation of "Practicing Responsible Procurement," and remaining "People-oriented," adopts an ecosystem-based approach to design the work for promoting supply chain sustainability. It continues to implement sustainable supply chain management through the dual-axis transformation tools of digitalization and low-carbonization. In 2024, Winbond made significant progress in three key areas, leveraging strong supply chain partnerships and sustainability principles. Firstly, in responsible procurement, procurement efforts comprehensively promoted local, green, and circular procurement. In regular supplier evaluations, it has developed into sustainable regular evaluations, providing follow-up incentives to encourage suppliers to become Winbond's sustainable "+1".

Additionally, to effectively enhance supply chain resilience, Winbond integrated climate change, sustainable materials, human rights due diligence, information security, etc., into the existing supply chain risk investigation, elevating them to comprehensive supplier sustainability due diligence, maintaining overall supply chain resilience based on a people-oriented approach. Finally, in promoting a low-carbon and green supply chain, Winbond's sustainable supply chain team used science-based reduction targets to guide Scope 3 carbon reduction efforts, aiming to reduce carbon by 30% before 2030 and 5% annually to drive carbon reduction work design in various departments.

Facing a highly challenging business environment, we believe that only by constantly maintaining innovative management thinking, quickly adjusting and responding, and evolving appropriate business capabilities with suppliers can we truly practice the common good and common benefit of the supply chain, which is the truth of corporate sustainable governance.



Through responsible procurement, Winbond continuously enhances supply chain resilience and promotes a low-carbon supply chain, collaborating with supplier partners to build a sustainable and resilient ecosystem.

Shu-Cheng Chang

Assistant Vice President,
Supply Chain Management Center



2024 Performance Highlight



Suppliers directly related to Scope 3 emissions achieved a **100%** response rate to energy resource usage surveys

- ▣ The baseline year for supply chain carbon reduction was set as 2021, including data either self-reported or verified by third-party certification bodies.



Supply chain ecosystem co-learning activities totaled **38,646** hours

- ▣ Actively engaged diverse stakeholders in advancing sustainable supply chain initiatives, achieving an annual growth rate of over 56%



100% of OSAT suppliers have established production capacity for renewable energy-based products

- ▣ The annual carbon emissions reduction from OSAT suppliers handling Winbond products was equivalent to the carbon sequestration of 16 Daan Forest Parks.



100% response rate achieved from OSAT suppliers to the electronic carbon data exchange

- ▣ All OSAT suppliers participated in the PACT early-stage verification program in 2024



Digital management of supply chain communication

- ▣ Winbond launched the ESG interactive network (<https://sscm.winbond.com/>)



100% completion rate for supplier sustainability audits and guidance

- ▣ All high-risk suppliers underwent on-site audits and received guidance

4.1 Supply Chain Overview

4.1.1 Composition and Type of Suppliers

Winbond is one of the leading global memory manufacturers. In the supply chain, Winbond undertakes upstream IC/IP design requirements, produces 12-inch wafers at Winbond, and outsources backend packaging and testing to complete the memory manufacturing process. In 2024, Winbond's operational scope included Winbond and Nuvoton. Our primary operational sites are in Taiwan, with additional locations in Mainland China, Japan, South Korea, and Israel. Nuvoton's major operational sites are mainly in Taiwan and Japan, with business locations in Mainland China, Japan, South Korea, Israel, the United States, Germany, India, and Singapore to meet customer service needs. To ensure timely product delivery, suppliers trading with Winbond and Nuvoton also come from around the world, including Japan, the United States, South Korea, Belgium, and Germany, with a total of 1,117 suppliers for Winbond and 791 suppliers for Nuvoton. According to procurement categories and applications, the main categories include raw materials, outsourcing, backend packaging and testing, machinery and equipment, spare parts, maintenance services, plant engineering, and others (such as transportation and logistics, waste disposal, waste removal, information equipment and software, and general affairs).

To maintain global supply capabilities, Winbond Group actively screens suppliers for risks related to production bases (national aspect), products, technologies, and services (industry and product aspects). When potential suppliers enter the qualification stage for formal trading, Winbond Group incorporates Business Principles, Significant Supplier Identification Criteria, and Environmental, Social, and Governance (ESG) Criteria to comprehensively screen and evaluate supplier operations and ensure supply chain stability.

Suppliers Composition

Composition of Winbond Suppliers	
Raw Materials	Outsourcing
Outsourced semiconductor assembly and testing (OSAT)	Machinery and equipment
Factory engineering	Components
Maintenance and repair	Others

Supplier Focus Criteria

- National Aspect:** Political and country-specific stability, rigor of laws and regulations, frequency of social events (such as strikes, demonstrations), completeness of national infrastructure.
- Sector-specific Aspect:** Intensity of energy resource consumption, uniqueness of natural resources (specific minerals), specialization of technology and services.
- Commodity-specific Aspect:** Degree of supply and demand balance, degree of price fluctuation, degree of labor balance, background of required fixed equipment and capital.
- Business Principles:** Market share, industry competitiveness, supply performance and reputation in the industry, product, technology and service quality, operational facilities and production equipment.
- Significant Supplier Identification Criteria:** Annual procurement amount, diversity of supply sources, key spare parts.
- Sustainability (ESG) Criteria:** Environmental protection and climate change response, maintenance of human rights and labor rights, corporate governance capability and transparency.

Winbond (Taiwan)	2023	2024	Nuvoton (Subsidiaries)	2023	2024
1-1 Number of Tier-1 suppliers	1,026	1,117	1-1 Number of Tier-1 suppliers	451	477
1-2 Number of significant suppliers in Tier-1	44	60	1-2 Number of significant suppliers in Tier-1	46	61
1-3 % of total spend on significant suppliers in Tier-1	80%	80%	1-3 % of total spend on significant suppliers in Tier-1	80%	80%
1-4 Number of significant suppliers in non Tier-1	6	5	1-4 Number of significant suppliers in non Tier-1	5	5
1-5 Number of significant suppliers (Tier-1 and non Tier-1)	50	65	1-5 Number of significant suppliers (Tier-1 and non Tier-1)	51	66

Winbond (Subsidiaries)	2023	2024	Nuvoton (Japan)	2023	2024
1-1 Number of Tier-1 suppliers	505	505	1-1 Number of Tier-1 suppliers	60	53
1-2 Number of significant suppliers in Tier-1	108	107	1-2 Number of significant suppliers in Tier-1	9	9
1-3 % of total spend on significant suppliers in Tier-1	80%	80%	1-3 % of total spend on significant suppliers in Tier-1	93%	89%
1-4 Number of significant suppliers in non Tier-1	183	184	1-4 Number of significant suppliers in non Tier-1	5	5
1-5 Number of significant suppliers (Tier-1 and non Tier-1)	291	291	1-5 Number of significant suppliers (Tier-1 and non Tier-1)	14	14

Nuvoton (Taiwan)	2023	2024
1-1 Number of Tier-1 suppliers	814	791
1-2 Number of significant suppliers in Tier-1	5	6
1-3 % of total spend on significant suppliers in Tier-1	80%	81%
1-4 Number of significant suppliers in non Tier-1	71	70
1-5 Number of significant suppliers (Tier-1 and non Tier-1)	76	76



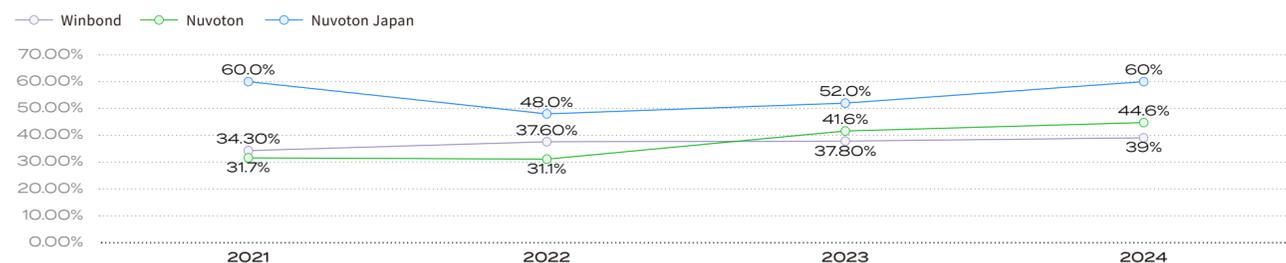
4.1.2 Local Procurement

Winbond expects more suppliers to become sustainable "+1" members of its supply chain. Therefore, we actively leverage the economic benefits generated by procurement activities to collaborate with existing and potential suppliers as long-term partners. In 2024, Winbond fully promoted economically beneficial sustainable procurement practices, including local procurement to reduce greenhouse gas emissions from international transportation, circular procurement to create material recycling and reuse, and green procurement to encourage domestic suppliers to provide Green Products/services.

To ensure the sustainability of Winbond's CTSP Fab, Kaohsiung Fab, Nuvoton, and Nuvoton (Japan) manufacturing, raw materials closely related to wafer manufacturing, including chemicals, gases, targets, and wafers, were the main focus of Winbond Group's promotion of local procurement. In 2024, Winbond Group faced external challenges such as climate change, reforms to international climate agreements, inflationary pressures, and geopolitical conflicts including the Russia-Ukraine and Israel wars; internally, to meet the needs of Winbond Group's green products and process improvements, in addition to setting management goals annually, we actively adjusted the procurement ratio of local raw material suppliers. Overall, Winbond Group made good progress in local procurement performance, including the proportion of local procurement of raw materials for Winbond increasing from 37.8% in 2023 to 39% in 2024, an annual increase of 1.2%; the proportion of local procurement of raw materials for Nuvoton increased from 41.6% in 2023 to 44.6% in 2024, an annual increase of 3%; the proportion of local procurement of raw materials for Nuvoton (Japan) increased from 52% in 2023 to 60% in 2024, an annual increase of 8%.

Examining Winbond's local procurement strategy for raw materials in 2024, it not only improved the economic benefits of local semiconductor suppliers but also significantly reduced international transportation, resulting in a reduction of over 7.2 tCO₂e emissions. This clearly shows the sustainability benefits of the local procurement strategy for the overall industry. Looking ahead, Winbond Group will continue to explore the possibilities of localizing various raw materials and, through various sustainability agreements, encourage local semiconductor suppliers to develop green products/services, leveraging the scale of supply chain organizations to achieve the synergy of corporate sustainability.

Proportion of local procurement amount of raw materials



4.1.3 Green Procurement

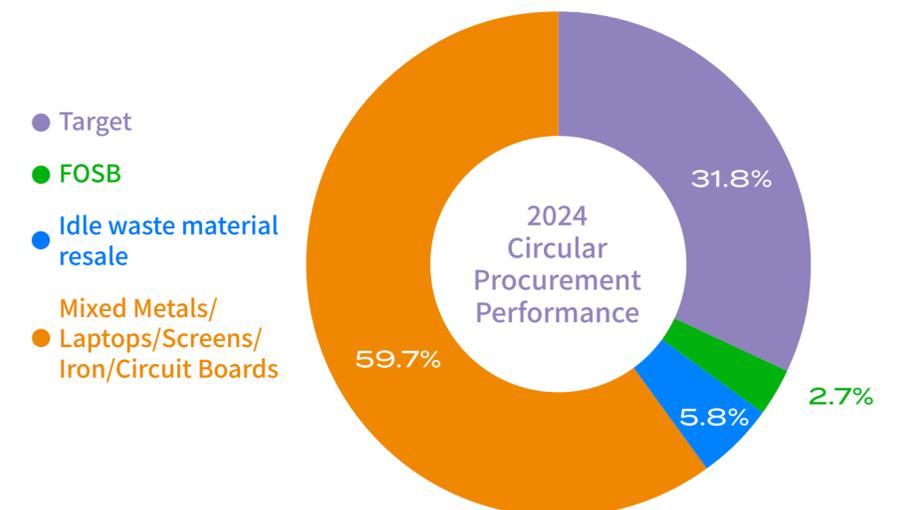
"Sustainable Living" is an eco-friendly lifestyle. In 2024, Winbond Group utilized its procurement power to effectively influence the supply side. In the production and manufacturing sector, the group gradually promoted the adoption of energy-saving, low-pollution, recyclable, reusable, and green building materials and equipment. On the employee lifestyle side, the group actively advocated the benefits of green living for individuals and the environment. In 2024, Winbond Group officially reported a green procurement amount exceeding NT\$265 million on the Green Procurement Declaration Platform of the Environmental Protection Administration of the Executive Yuan. In the future, to continue exerting the sustainable influence of green procurement on the environment, society, and economy, Winbond Group will not only continue to promote the benefits of green living but also seek suitable Green Products/services for administrative and manufacturing use.



4.1.4 Circular Procurement

According to the EU's explanation of circular procurement, Winbond utilizes the concept of maximizing resource utilization efficiency emphasized by the circular economy's "Closing the Loop" to identify products or services that can generate circular economic benefits during the operations of the CTSP Fab and Kaohsiung Fab. By fully leveraging procurement bargaining power and negotiating with relevant suppliers, Winbond has achieved significant results. In 2024, through the recycling and sale of recyclable waste, including waste targets, quartz, waste wafers, O-rings, FOSBs, Mixed Metals/Laptops/Screens/Iron/Circuit Boards, Winbond generated over NT\$6.52 million in revenue from recyclable waste sales, a 64% increase compared to 2023. Looking ahead, Winbond will continue to seek products that can be repaired, reused, or recycled during the procurement process, emphasizing resource utilization efficiency through circular procurement to promote the achievement of sustainable development goals.

2024 Circular Procurement Performance



4.2 Sustainable Supply Chain Management

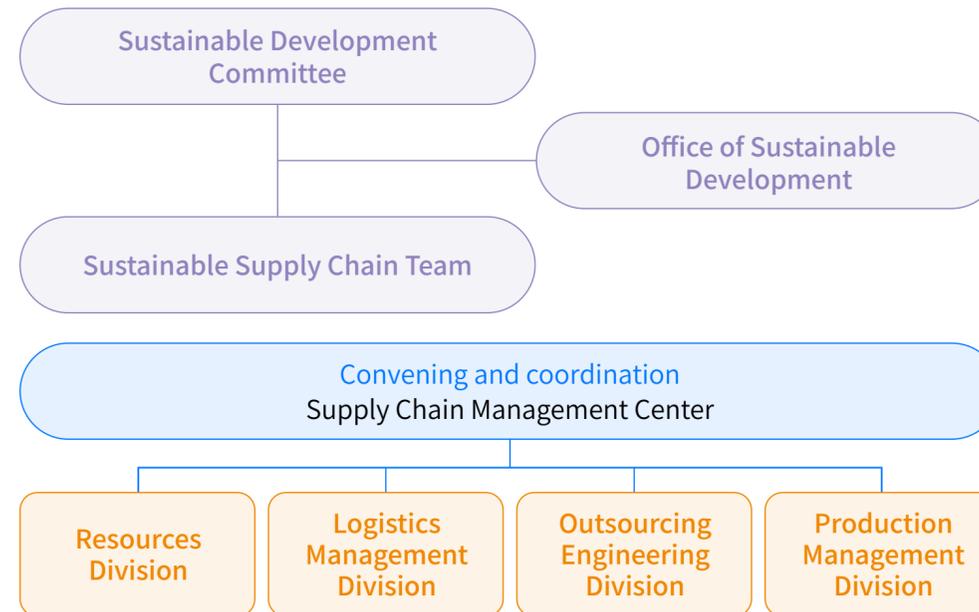
4.2.1 Supply Chain Management Strategy and Policy

Under the Sustainable Development Committee (composed of the Chairman and Independent Directors), Winbond has established the Sustainable Supply Chain Group, led by the Assistant Vice President of the Supply Chain Management Center, with dedicated personnel from various departments forming the Sustainable Supply Chain Group. Oversight of supplier ESG implementation is conducted by the Sustainable Development Committee, which reports to the Board of Directors and convenes twice a year. Implementation begins only after formal resolution by the committee. Additionally, the group reports its progress to the Sustainability Office four times a year to ensure the achievement of supply chain sustainability goals.

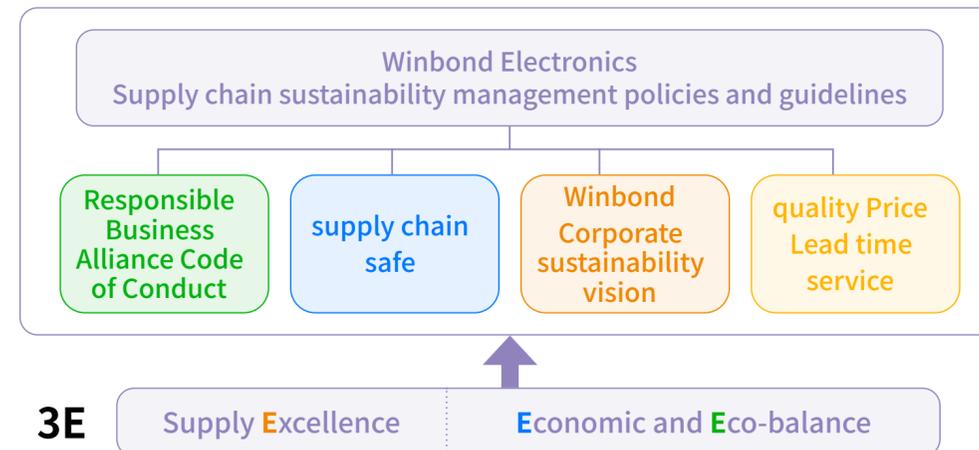
The work of the Sustainable Supply Chain Group includes existing supplier management and responsible procurement practices, such as the Responsible Business Alliance (RBA), Hazardous Substance Free (HSF) policy, traditional supplier management (quality, price, delivery, and process capability), and Authorized Economic Operator (AEO) certification. The group incorporates the concepts of environmental and ecological well-being and mutual benefits with suppliers, planning and enhancing the promotion and management of supply chain sustainability.

In 2024, Winbond continued to promote and implement related sustainability tasks, using digital measures to enhance the speed of sustainability information dissemination and impact within the supply chain. This includes promoting sustainability (environmental friendliness, social well-being, and good governance) among suppliers and contractors, managing Green Product production operations, and maintaining internal green logistics systems. In terms of supply risk control, Winbond revised and published the <Winbond Electronics Supplier Code of Conduct> based on international standards, incorporating human-centric principles into supply chain risk investigations, elevating it to due diligence.

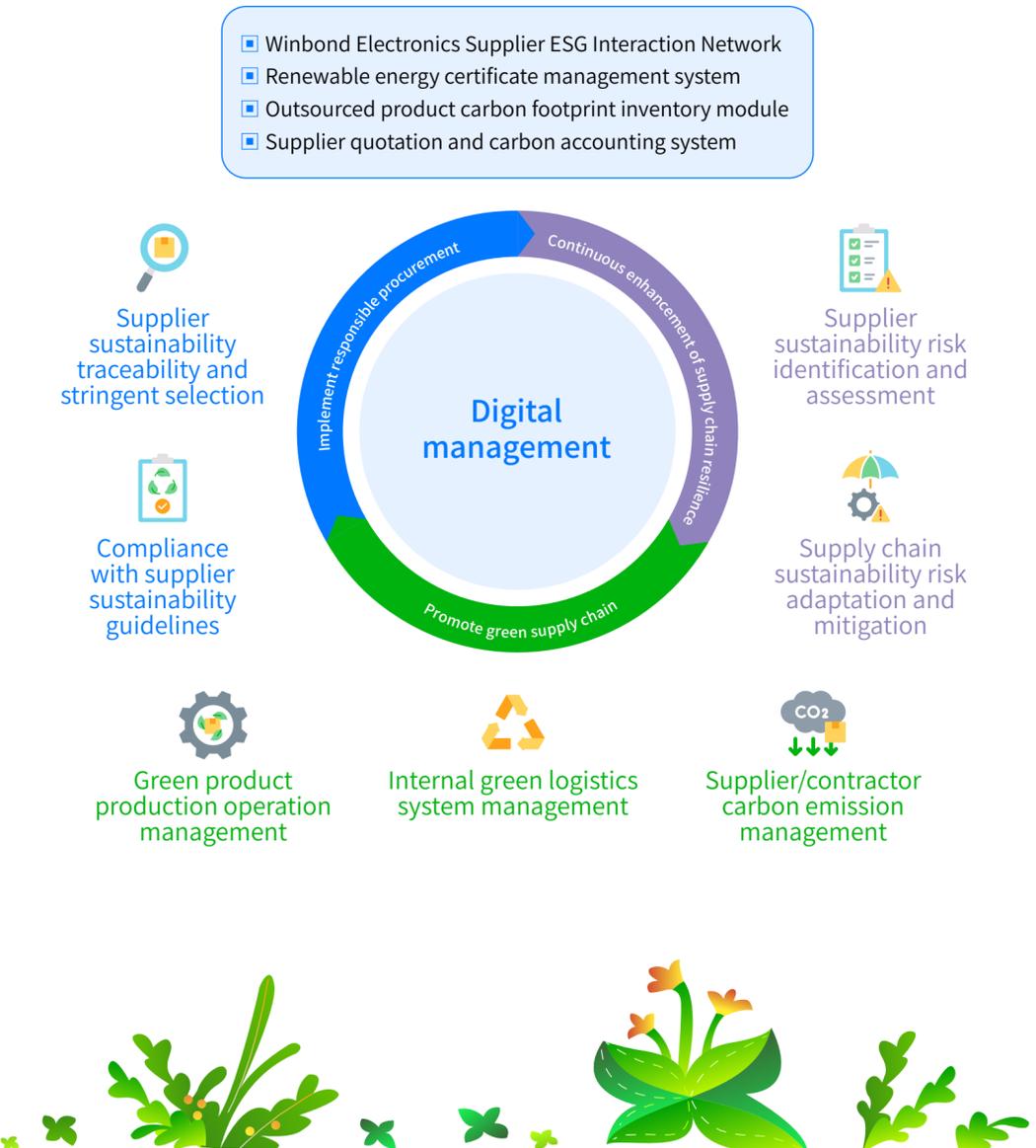
Sustainable Supply Chain Organization Chart



Supply Chain Management Policy



Supply Chain Management Framework



Sustainable Supply Chain Activity

 <p>Responsible Procurement</p>	<ul style="list-style-type: none"> ▪ New supplier traceability and sustainability selection ▪ Signing and regular promotion of the Integrity Commitment Letter ▪ Compliance with Winbond Electronics Corporation's Supplier Code of Conduct ▪ No use of prohibited substances ▪ No use of conflict minerals ▪ Regular supplier evaluations
 <p>Strengthening Supply Chain Resilience</p>	<ul style="list-style-type: none"> ▪ Internal Compliance Program, ICP ▪ Authorized Economic Operator, AEO ▪ Sustainable risk Due Diligence in the supply chain ▪ Supplier on-site audits, coaching, improvement, and enhancement ▪ Suppliers ESG ecosystem engagement ▪ Develop supply chain risk management plans (including climate change, environmental impact, human rights, governance, etc.) ▪ Sustainable education and training by the Supply Chain Management Center.
 <p>Low-carbon Supply Chain</p>	<ul style="list-style-type: none"> ▪ Sustainable procurement (including local, circular, and green procurement) ▪ Conduct energy resource usage surveys for major suppliers ▪ Achieve a 10% carbon reduction in the supply chain and a 60% carbon reduction in OSAT products ▪ Facilitate and guide sustainable resources in the supply chain ▪ Internal green logistics systems management ▪ Green product production management

4.2.2 Suppliers Management Process and Mechanisms



Under the principle of sustainable supply chain development, building long-term and stable cooperation with suppliers is the foundation of a stable management system. Winbond adopts the systematic Plan-Do-Check-Act (PDCA) cycle as the core design of the Sustainable Supply Chain management system. The first step is the traceability and selection of new suppliers. Before becoming qualified suppliers, they must sign and comply with the Winbond Electronics Supplier Code of Conduct to become officially tradeable suppliers. Subsequently, we conduct regular evaluations of qualified suppliers and perform key desk and on-site assessments based on the evaluation results, followed by tracking and improvement of deficiencies. We actively implement the requirements of SDG 17.16 "Partnerships for the Goals." Internally, we strictly control the quality of materials and technology supplied by suppliers; externally, through regular supplier evaluations, on-site audits, and the identification and improvement of deficiencies, we work with suppliers to identify areas for improvement in operational or production activities. Winbond hopes to achieve the concept of Sustainable Supply Chain management by regularly tracking, discussing improvement status, and other refinement methods, working collaboratively with suppliers.

Traceability and Assessment of New Suppliers

Winbond's new supplier selection mechanism includes quality system evaluations (covering quality, delivery, service, technology, supplier quality systems), RBA Code of Conduct, and corporate sustainability development standards. Additionally, Winbond is a member of the Ministry of Economic Affairs' International Trade Administration's Internal Compliance Program (ICP), and during the traceability stage, it closely monitors the sanction lists updated by the United Nations Security Council and Taiwan's Ministry of Justice to effectively maintain supply chain security and safety.

Suppliers that comply with the previously noted stages must subsequently provide third-party quality system certification, Process/Product Change Notice (PCN) management principles, and complete the hazardous substance management questionnaire. Outsourcing suppliers of safety products must also provide international safety certification and complete the "Safety Product Outsourcing Safety Control Measures Audit Questionnaire." In 2024, all nine new suppliers of Winbond Group (including 4 for Winbond, 3 for Nuvoton, and 2 for Nuvoton Japan) achieved 100% compliance with environmental, social, and economic standards evaluation.

Percentage/number of new suppliers passed based on economic, social, and governance standards in 4 year

Year	Number of New Suppliers	Number that Passed
2021	3	100%
2022	5	100%
2023	9	100%
2024	9	100%
Total	26	100%



Regular Evaluation of Qualified Suppliers

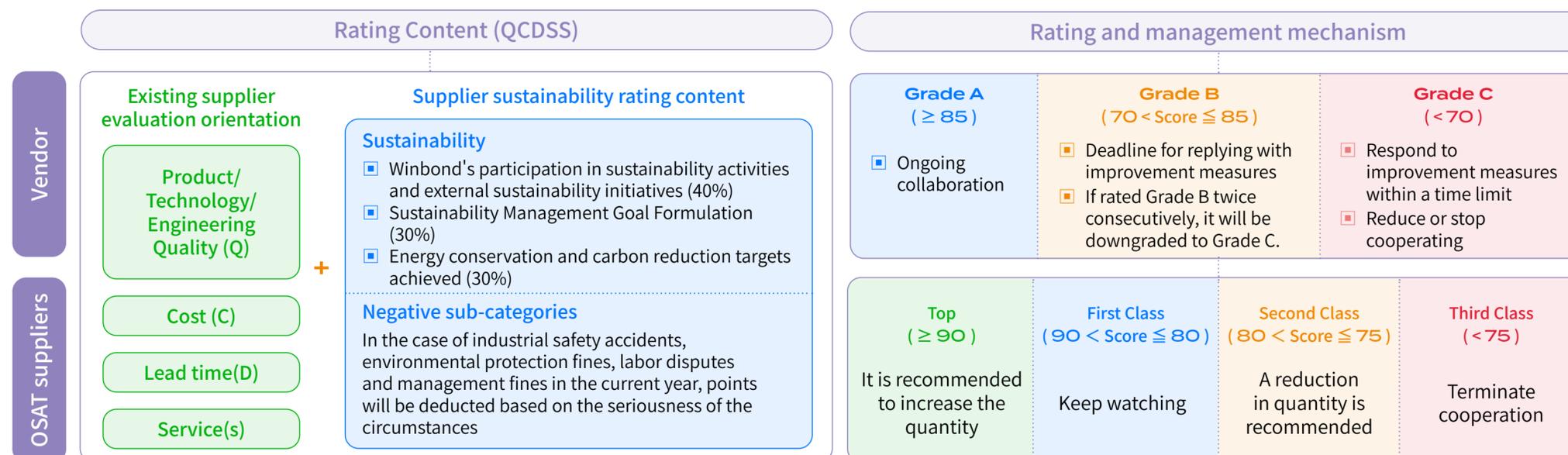
Winbond conducts annual systematic assessments of qualified suppliers, categorized into suppliers and OSAT (Outsourced Semiconductor Assembly and Test) suppliers. The evaluation covers quality (product/technology), delivery, service, and price. Suppliers are categorized into three levels: A, B, and C (Excellent, Good, Under Review), while OSAT suppliers are categorized into four levels: Excellent, Grade A, Grade B, and Grade C. These classifications serve as the basis for tiered management and continuous improvement measures.

To encourage all suppliers to actively implement initiatives that contribute to sustainable development, Winbond officially incorporated supplier sustainability performance into regular evaluations of all suppliers in 2024, with a weighting of 5%. The weighting is scheduled to increase to 15% in 2025 to further strengthen supplier commitment to corporate sustainability. The evaluation covers participation in Winbond's sustainability activities, development of sustainability goals, and achievement of energy-saving and carbon reduction targets. To ensure fairness in the evaluation process, Winbond also deducts points for suppliers subject to disciplinary actions in the areas of environment, social, or governance. Suppliers who fail to meet the evaluation standards are required to submit a corrective action plan within one month. Those who still fail to meet the corrective requirements will have their partnership terminated. In 2024, all qualified suppliers achieved B grade (suppliers) or Grade A (OSAT suppliers) or above, with no terminations due to major sustainability deficiencies. Looking ahead, Winbond will continue to maintain active communication and promotion with suppliers, closely monitor disciplinary actions announced through official government channels, and track developments in suppliers' operational management to ensure that all supply activities are conducted in full compliance. In addition, Winbond will establish a reward mechanism to recognize and reward suppliers who demonstrate excellence in sustainable performance.

Mechanism for Rewarding Suppliers with Sustainable Performance

- 1 Awarding and public recognition at supplier forums/OSAT supplier conferences
- 2 Assistance from the Sustainable Supply Chain Team in conducting sustainability evaluations, audits and guidance of suppliers/OSAT suppliers, with results used for preferential procurement management measures (such as priority selection, increased quantities, etc.) in transactions.

Suppliers/OSAT suppliers Evaluation and Management Mechanism



Qualified Supplier Audit and Improvement

In order to effectively control the operation of all qualified suppliers, Winbond's supplier audit team conducts annual key audits of all qualified suppliers. First of all, in terms of written audit, the audit content includes the effective holding of various certificates such as "quality management" and "green audit". On-site audits focus on the core items outlined in the RBA 8.0 Audit Manual, and comprehensively incorporate "sustainability reviews" into their execution. In 2024, there are 63 audits, including 19 raw material suppliers, 15 OSAT suppliers and 29 waste disposal suppliers. In 2024, additional sustainability criteria were integrated into the audit scope to further reinforce the importance that suppliers place on sustainability practices.

According to the audit records, the performance of suppliers is in line with Winbond's requirements, and no qualified supplier will be disqualified as a supplier due to non-compliance with environmental and safety and health, labor and ethics, product and technical quality, and sustainability management system. In order to promote the sustainable development of suppliers, a total of 146 recommended improvement work items were collected in a total of 63 audit work, and with the active communication of Winbond's audit team, the improvement rate increased by 3.4% compared to 2023. Winbond firmly believes that only by allowing suppliers to identify potential risks in advance from their daily operations can they achieve the proactive prevention of audit work and effectively improve the sustainability of suppliers.

The number and passing rate of new suppliers selected based on environmental, social, and economic standards

ESG aspect	Audit Item	Passing Rate
Economic	ISO 9001 Quality Management Systems	100%
	IATF 16949	100%
Environmental	ISO 14001 Environmental Management Systems	100%
	REACH	100%
	RoHS	100%
Social	HSPM Hazardous Substance Process Management	100%
	RBA Social Responsibilities	100%

Improvement Items in Economic, Environmental, and Social for Qualified Suppliers and Winbond Responses

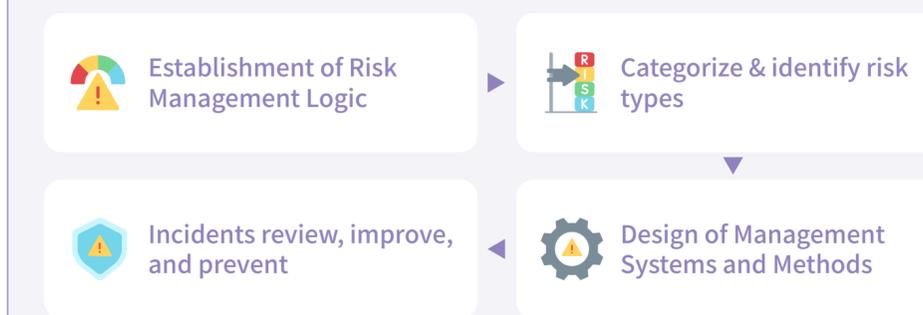
Aspect	Improvement Items	Our Responses
Environmental and Safety Health	<ol style="list-style-type: none"> The temporary storage area of oxygen and acetylene cylinders on site is only marked outside the fence, and the hazard is not clearly marked. The relevant emergency rinsing eyewash equipment does not meet the specifications and is not properly cleaned, resulting in dirty water quality. The location of the protective clothing is not clearly marked 	<ol style="list-style-type: none"> Comprehensive inspection of the temporary storage area for oxygen and acetylene cylinders and hazard labeling. Regular inspection of water quality status and monthly feedback on inspection records. Require suppliers to document the configuration of protective clothing.
Fire protection system	<ol style="list-style-type: none"> The evacuation exit/evacuation direction indicator lights are not kept on. The pressure of a fire extinguisher in the electronic component disassembly area exceeds the upper limit. The placement of materials is messy and affects the handling and escape routes. 	<ol style="list-style-type: none"> Regular inspection of indicator lights and fire extinguisher status, and attach inspection records. Recommend implementing 5S management courses to ensure cleanliness and orderliness of the work site.
Labor & Ethics	<ol style="list-style-type: none"> The frequency and upper limit of the gift acceptance policy were not defined. Policies related to integrity and ethics are not announced in multiple languages for foreign employees. Multiple complaint channels are not set up. 	<ol style="list-style-type: none"> Set the upper limit and management methods for gift acceptance. Announce multilingual versions based on the nationality of employees within the fab. Require suppliers to establish electronic and physical complaint channels.
Product & Technical Quality	<ol style="list-style-type: none"> The grading process for handling non-conforming products lacked clearly define standards. The shipping specification system input was reviewed by quality control, but there were no defined procedures and execution records. The switching standards for product filling were not defined. The in-process products did not have the required accompanying label cards. The description of the abnormal handling specifications for the manufacturing process was incomplete. 	<ol style="list-style-type: none"> Require clear definition of grading standards. Require formal definition of procedures and retention of execution records. Require clear definition of switching standards for pressure difference. Require improvement and implementation of operating procedures. Require clear definition of procedures.
Management System	<ol style="list-style-type: none"> The supplier evaluation items and scoring content are inconsistent. There is no clear timing for on-the-job training. The internal audit records do not clearly record the audit deficiencies. The business continuity plan does not have a risk management concept. 	<ol style="list-style-type: none"> Clearly and uniformly define the evaluation methods for each item. Require on-the-job training to be implemented regularly. Require specific documentation of deficiencies. Incorporate the concept of risk level assessment into the business continuity plan.
Corporate Sustainability	<ol style="list-style-type: none"> The ESG management concept of senior executives is not yet complete. There are no clear subsequent carbon reduction measures reflecting the relationship with the achievement of carbon reduction targets. Conflict mineral management data is not clearly classified by product category. 	<ol style="list-style-type: none"> Recommend introducing advanced sustainability education and training, and regularly track to ensure learning effectiveness. In the future, regular sustainability evaluations of suppliers will be conducted to strengthen incentives for suppliers to implement energy-saving and carbon reduction measures, and regular meetings will be held to track progress. Require suppliers to classify data according to RMI management rules.

4.2.3 Sustainable Supply Chain Risk Management

2024 Key Suppliers' Sustainable Achievement highlights

- The signing rate of all suppliers committing to Winbond's ethical and integrity policies.
- The proportion of first-tier significant suppliers implementing sustainable due diligence is 100%.
- The completion rate of sustainable due diligence guidance for high-risk suppliers is 100%.

Risk Management Process



The composition of the supply chain is formed by Winbond's purchasing behavior, which brings together different types of suppliers and companies located at various production bases, supplying their products or services to Winbond. In light of this, Winbond's supply chain Risk Management is conducted with a systematic approach based on ISO 31000 Risk Management for monitoring and impact assessment.

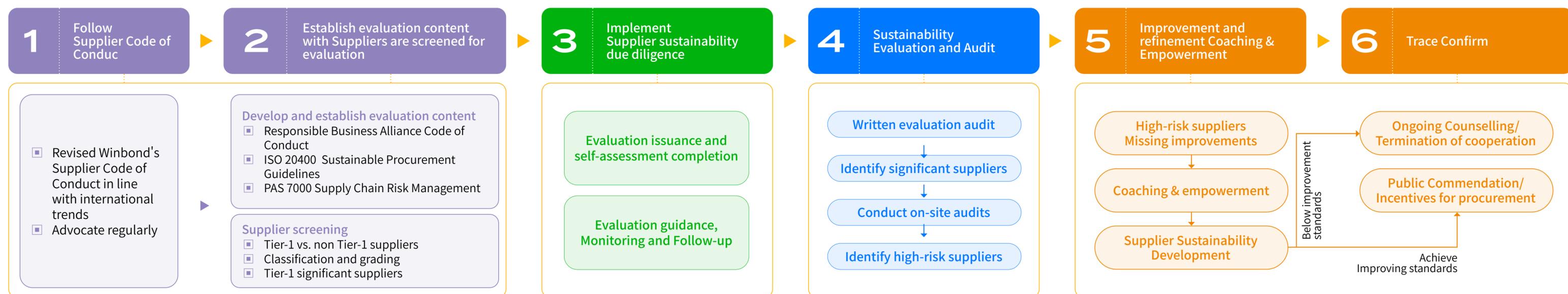
Firstly, risks are identified and categorized into internal risks, intra-partnership risks, and external risks. Secondly, corresponding management methods are established according to the differences in risk sources and types. Thirdly, each management event is reviewed, and improvements are made based on the deficiencies identified in the events to reduce the impact of future risks on supply chain management.

Supply Chain Risk Management Mechanism

To address the varying impact levels and stages of different risks, Winbond has designed different management systems to ensure the overall stability of the supply chain operations. Specifically, for intra-partnership risks, Winbond regularly updates the Winbond Electronics Supplier Code of Conduct. In 2024, aligning with international trends, new guidelines were added, including anti-slavery and anti-human trafficking, diverse and inclusive workplace culture, and ecological resource protection. Additionally, every six months, Winbond conducts ethical integrity policy advocacy for all suppliers to enhance their familiarity with the Supplier Code of Conduct.

Categories	Material Risk	Intrapartnership Risk	External Risk
Definition	Risk that is directly related to the production and manufacturing	Integrity risks that arise	External risks are divided into three categories: climate change, natural disaster, and non-natural risks (political, economic and social risks, etc.).
Management System/ Measure	<ul style="list-style-type: none"> Winbond regards the Responsible Business Alliance (RBA) requirements for conflict-free minerals as a core management principle. Annually, Winbond conducts due diligence investigations on critical suppliers using the Conflict Minerals Reporting Template (CMRT) provided by the Responsible Minerals Initiative (RMI) and publishes an annual Conflict Minerals Due Diligence Report. To uphold product quality, Winbond has established the Process/Product Change Notice (PCN) management principle for suppliers. This management mechanism is activated whenever there is any change in raw materials or in OSAT suppliers' raw material, process, or packaging materials. 	<ul style="list-style-type: none"> Require newly qualified suppliers to sign Winbond's Supplier Code of Conduct Commitment Letter. Conduct biannual ethics and integrity policy advocacy for all suppliers. Include Winbond's information security management policy in the order, require suppliers of qualified transactions to strictly abide by it, and outline the response and compensation responsibilities of both parties when information security risks occur.  <p>Winbond Suppliers' Code of Conduct</p>	<ul style="list-style-type: none"> In the event of natural disasters such as earthquakes, Winbond utilizes its Emergency Response System to promptly reflect seismic intensity worldwide, allowing procurement staff to assess the impact on suppliers. In controlling the impact of climate change, Winbond has analyzed the disaster potential of more than 1,400 domestic suppliers at their operating sites according to various warming scenarios. Regarding political-economic risks (e.g., Russia-Ukraine and Israel wars) and social risks (e.g., supplier factory safety accidents, strikes) that may cause supply disruptions, Winbond promptly establishes an emergency response team to manage situation reporting, compilation, notification, analysis, and assessment. Winbond strictly adheres to the regulations of the Customs Administration, Ministry of Finance, regarding "Authorized Economic Operator" (AEO) status, and requires suppliers to comply with and improve trade security management.

Supply Chain Sustainability Due Diligence



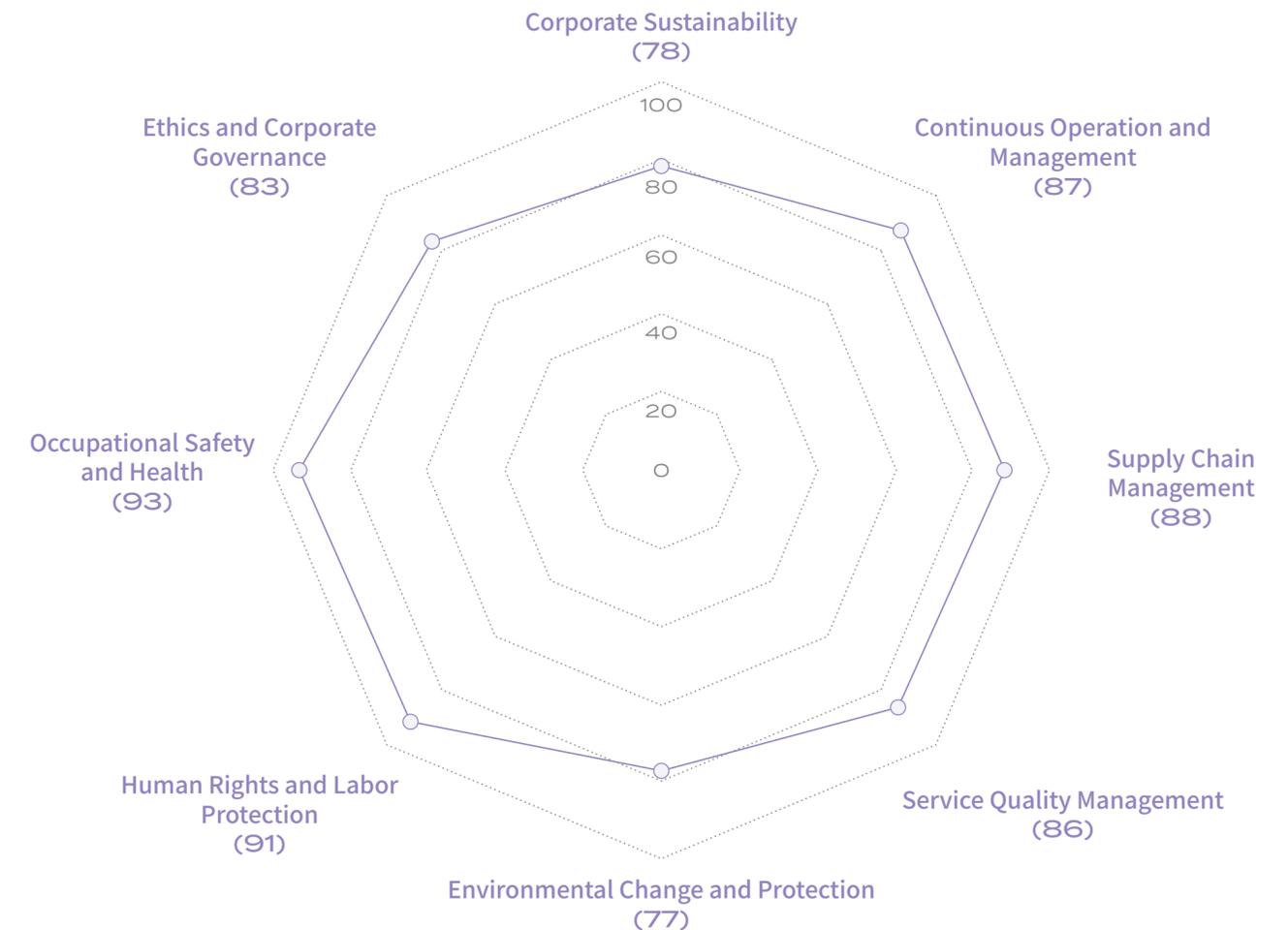
In 2024, Winbond conducted surveys for Tier-1 significant suppliers, including raw materials, OSAT, and critical spare parts (such as quartz, photomasks, PAD) with significant procurement amounts and directly related to production and manufacturing. For the first time, due diligence was conducted for first-tier non-significant suppliers whose procurement amounts ranked in the top 90% of 2024, totaling 120 suppliers, with a recovery rate of 100%. Among the surveyed suppliers, the overall average ESG score was 86.3 points, with high scores clustered among raw materials and packaging testing suppliers. Additionally, observing the implementation items of Tier-1 significant suppliers in various sub-evaluation items, suppliers generally performed well in occupational safety and health and human rights labor and protection, with average scores rising to over 90 points compared to 2023. However, to enhance the overall resilience of the supply chain, Winbond suppliers still need to strengthen management practices in response to environmental changes and protection, emerging issues such as sustainable materials, and human rights due diligence management. In the future, to effectively continue to control the overall risk impact and sustainability level of the supply chain, Winbond will take four major measures. First, based on the results of desk audits, sustainability audits will be conducted for suppliers with significant negative impacts, including second-party industry standard on-site audits and introducing third-party verification units to accompany high-risk suppliers for on-site audits. Second, continue to hold sustainable supply chain upgrade forums, regularly providing suppliers with correct management thinking, thereby enhancing suppliers' improvement capabilities in environmental and social aspects. Third, introduce resources from government, industry, academia, and research in our country, providing suppliers with the necessary improvement resources, thereby reducing financial burdens. Fourth, use the Winbond Supplier ESG Interaction Network platform to proactively provide various corporate sustainability and training information.

Average ESG Score of Tier-1 Significant Suppliers

Winbond developed a Supplier Sustainability Due Diligence Self-Assessment Questionnaire (SAQ) aligned with the RBA 7.0 Code and the ISO 20400:2017 Sustainable Procurement Standard. In 2024, with the EU's adoption of the Corporate Sustainability Due Diligence Directive (CSDDD) and Taiwan's first publication of the "Guidelines for Corporate and Supply Chain Respect for Human Rights," Winbond upgraded its supply chain risk assessment to a comprehensive sustainability due diligence. It included four new aspects: climate change and mitigation, sustainable materials, human rights risk identification and adaptation, and information security. This not only effectively aligns Winbond suppliers with international trends but also helps mitigate the risk of supply chain disruptions for small and medium-sized enterprises with fewer resources.



Work Flow	Supplier Evaluation and Development	2023 Results	2024 Results
Investigate with Evaluation phase	Number of suppliers who have accepted sustainability (ESG) due-diligence SAQ	69	120
	Number of suppliers who have accepted sustainability (ESG) due diligence audits	69	120
Audit stage	Completion of desk audit	69	120
	Completion of second-party on-site audit (including industry standard RBA VAP)	5	11
	Proportion of Tier-1 significant suppliers audited (%)	100%	100%
	The number of suppliers in the Tier-1 that are significant and have a real negative impact	0	13
Improvement phase	The number of suppliers with significant and actual negative impact in the Tier-1 who have completed on-site audits (proportion).	0	4 (100%)
	Number of suppliers supported in corrective action plan implementation (proportion).	0	13 (100%)
	Number of suppliers with substantial actual or potential negative impacts that were terminated	0	0



Note: Sustainable Supply Chain team developed an in-house supply chain risk assessment system. In 2022, the focus was on establishing evaluation content, items, and management systems. The first implementation of this assessment was in 2023. Based on the 2023 assessment results, in 2024, Winbond conducted on-site sustainability audits for significant and high-risk suppliers in Taiwan. Therefore, the number of audits conducted was planned based on the previous year's assessment results.

Content of Supplier Sustainability Due-Diligence Self-Assessment Questionnaire

Management	Environment	Society	Governance
Definitions	Starting with product life cycle traceability and supply, Winbond has committed to requiring our partnered suppliers to operate in an environmentally-friendly and economic manner	Suppliers are required to sign the Winbond Supplier Code of Conduct Commitment Letter, ensuring that our suppliers provide a safe and healthy workplace compliant with international labor rights standards.	Suppliers are required to conduct business operations ethically and with integrity, ensuring that this standard is applied to all internal business operations.
Assessment Items	<ul style="list-style-type: none"> Environmental management systems Air pollution prevention Water management Waste management Sustainable materials Greenhouse gas management Biodiversity management Hazardous and shared substance management 	<ul style="list-style-type: none"> Human Rights Protection Work and Labor Rights Protection Human Rights Risk Identification and Adaptation Occupational Safety and Health Health Management System Chemical Safety Fire Safety Equipment Safety 	<ul style="list-style-type: none"> Formalization of corporate sustainability Degree of sustainability response and disclosure Climate change and adaptation business continuity and management Supply chain management Service quality management Business ethics and philanthropy Corporate governance Information security
Criteria for Identifying High-Risk Suppliers	<ul style="list-style-type: none"> Suppliers with recorded penalties or deferred sanctions within the past three years. Suppliers with greenhouse gas emissions exceeding 25,000 tons without relevant management measures. Suppliers with a carbon management score below 3. 	<ul style="list-style-type: none"> Suppliers with penalty records and deferred penalties within the past three years. Suppliers without clear management regulations prohibiting child labor and protecting the work rights of pregnant women. Suppliers without proper management of living conditions for foreign workers. 	<ul style="list-style-type: none"> Suppliers with penalty records and deferred penalties within the past three years. Suppliers with known cybersecurity incidents or IP litigation within the past three years. Suppliers without a business continuity and supply chain management plan.

Note 1 Winbond's Tier-1 significant Suppliers: Suppliers directly related to production and manufacturing, single source of supply, critical and affecting production of spare parts (photomasks, PAD, quartz, packaging for shipment), with annual order transaction amounts exceeding NT\$10 million.

Note 2 Definition of Local Supplier: Suppliers that directly transact with the operational site in the respective country (e.g., Winbond headquarter transact in Taiwan, Winbond Japan transacts in Japan, etc.).

Supplier Sustainability Due-Diligence Self-Assessment

Key Actions

Sustainability Audits

on-site assistance and require improvement

Introducing Resource

Integrating resources from government, industry, and academia

Introducing Resource

Integrating resources from government, industry, and academia

Environment

- To enhance suppliers' greenhouse gas reduction efforts in line with international initiatives and disclosure standards, and to establish climate change adaptation measures
- Winbond requires suppliers to adopt a circular economy mindset to strengthen the supply of products, technologies, and services.
- Suppliers, especially those with high emission intensity, are required to conduct organizational greenhouse gas and product carbon footprint assessments.

Social

- Assist suppliers in establishing human rights risk adaptation and management capabilities to maintain the human rights quality of supply chain employees.
- Strengthen the intensity of occupational safety and health discussions during on-site supplier audits to enhance the prevention of work-related accidents.
- Require suppliers to enhance employee health care during peak periods of specific disease outbreaks.

Governance

- Require suppliers to introduce advanced education in governance and management to strengthen the competencies of their management teams.
- Encourage suppliers to learn about sustainability governance information and knowledge from the perspective of international disclosure standards.
- Encourage suppliers to regularly implement or assign employees to participate in information security-related courses.

Winbond Supply Chain Human Rights Risk Adaptation and Management

Early Action

In 2024, Winbond collaborated with its long-term advocate for human rights management and diversity, equity, and inclusion (DEI), the benchmark supplier Merck Taiwan, to organize "The S Power in ESG," fostering human-centered sustainable innovation. This initiative introduced human-centered thinking to strengthen the sustainable governance of the supply chain.

Guidelines Announcement

Suppliers should commit to respecting workers' human rights and ensuring the dignity of their employees. This includes prohibiting forced labor, protecting young workers, regulating working hours, ensuring fair wages and benefits, preventing discrimination and harassment, promoting humane treatment, upholding freedom of association and collective bargaining, combating slavery and human trafficking, and fostering a diverse and inclusive workplace culture.

Survey Distribution

In the supplier sustainability due diligence SAQ, human rights risk identification and adaptation surveys were added. Based on Taiwan's 2024 "Guidelines for Corporate and Supply Chain Respect for Human Rights," the survey investigates suppliers' implementation of corporate human rights policies, human rights due diligence, and remediation measures.

Survey Results and Response Plans

To enhance the importance of human rights management, Winbond will strengthen advocacy on the Winbond Electronics Supplier ESG Interaction Network. Additionally, at the annual supply chain forum, professional lecturers will be invited to teach about establishing corporate human rights risk management and adaptation measures.



Sustainable Training in Supply Chain Management Center

To effectively advance supply chain management towards sustainability, Winbond integrates innovative thinking and management models with a foundation of technology and quality in its existing supplier collaboration efforts. Beyond regular environmental, safety, and health training for suppliers and contractors, as well as OSAT suppliers conferences, Winbond has established the ESG Academy within the Supply Chain Management Center to provide supplier training on ESG programs and requirements. This academy conducts regular internal sustainability education and training to ensure that frontline employees interacting with suppliers possess the latest skills, knowledge, and capabilities.

In 2024, Winbond's total training hours for supplier/contractor workplace equality and environmental, safety, and health training reached 3,362 person-hours. Training hours for employees at the Supply Chain Management Center totaled 4,831 person-hours, with an average of 33 hours of sustainability training per employee. The training content includes routine supplier management courses, quality courses, and supplier manufacturing management courses. This year, procurement employees' personal work reports also included topics on supply risk and resilience, enhancing their ability to manage supply layouts.

Additionally, on corporate green and low-carbon topics (including understanding carbon costs, ISO 14064, ISO 14067, ISO 14083), employees were sent to participate in the Ministry of Economic Affairs' Industrial Development Bureau's recharging program. Over 60% of participants passed the iPAS Net Zero Manager certification, exceeding the national average of 35.8%. This demonstrates Winbond's frontline supply chain management employees' dedication to learning about sustainability issues and highlights Winbond's commitment to nurturing talent for a sustainable supply chain.

To effectively maintain workplace equality and safety at Winbond, and to enhance the awareness of suppliers regarding related work, Winbond conducts relevant training for supplier employees who work on-site or provide on-site services every year. Due to the unique nature of the semiconductor work environment, Winbond provides comprehensive hazard notification and special operation education and training for contractor employees entering the fab each year. In 2024, the trainings were implemented at various locations, including the Zhubei Office, CTSP Fab, and Kaohsiung Fab. For detailed implementation methods and content, please refer to Section 5.4 Occupational Health and Safety of this report.



Suppliers / Contractors' Regular Environmental, Safety, and Health Training

Topic	Content	Number of people	Total training hours (people * hours)	Factory
Equality in workplace	Training and advocacy on workplace bullying, abuse, harassment, etc.	9	42	Zhubei building
		28		CTSP fab
		36		Kaohsiung fab
Occupational safety and health	Hazard notification and special operation education training	283	3,320	Zhubei building
		1,490		CTSP fab
		1,547		Kaohsiung fab

ESG Workshops in Supply Chain Management Center



Suppliers site visit



Monthly ESG training



Personal job report



Course	Number	Person*hours
Suppliers on-site training	3	35
Supply chain management center personal work report	6	221
Industry sustainability trends	8	261
Corporate green and low-carbon issues	22	4,059
iPAS Net-Zero Carbon Emission Planning Administrator Training	3	96
International carbon net zero external training	1	160

Supplier Sustainability Training

In-depth Communication and Collaborative Learning with Sustainable Benchmark Suppliers Supplier ESG Workshop

Since launching the Sustainable Supply Chain initiative, Winbond has expanded collaborative learning workshops to cover environmental resource reduction, climate change measures, greenhouse gas and carbon management, human rights and labor protection, and corporate governance and ethics. By 2024, 33 companies participated, with 2,078 participants and 4,169 person-hours of learning.

This year, for the first time, the workshops included entities that are both suppliers and customers, fostering diverse dialogues. Winbond's innovative sustainable learning mechanism keeps up with ESG trends in the semiconductor industry and benefits from the sharing of best practices by benchmark suppliers. This allows Winbond to learn diversified ESG practices and acquire new ESG knowledge.

Internally, these workshops provide the latest industry information to colleagues, aiding in the planning and execution of Winbond's supply chain sustainability efforts. Externally, the workshops are becoming a platform for supply chain members to disclose their sustainability beliefs and practices.

Looking ahead, Winbond aims to use this collaborative learning model to stimulate research and development in low-carbon processes and green products among suppliers, enhancing the international competitiveness of Taiwan's semiconductor supply chain.



Note: The starting and ending time for the calculation of the cumulative hours of sustainability training and training of suppliers is 2022~2024

To Be the Best Partner for Suppliers, Providing Continuous Sustainable Empowerment Sustainable Supply Chain Upgrade + Forums

The purpose of the "Sustainable Supply Chain Upgrade+" forum is to enhance suppliers' acquisition of sustainable professional knowledge and execution motivation through professional courses and open discussions. The forum also encourages suppliers to share this knowledge with colleagues in different departments within their companies, leveraging the learning effect and spreading information, making sustainability a daily operational consideration for suppliers.

In 2024, Winbond held five forums and one low-carbon cooperation ceremony, totaling 7,222 person-hours. Topics included popular carbon issues, water resource management, supply chain resilience, and human rights due diligence. The invited suppliers ranged from raw materials, OSAT suppliers and testing subcontractors, machinery and equipment, plant engineering, maintenance and spare parts, to waste management.

To effectively enhance suppliers' ESG management concepts and operational capabilities in the carbon pricing era, Winbond invited a well-performing ESG supplier, King Yuan Electronics, to share their organizational management after incorporating ESG concepts in the first half of the year. In the second half, Winbond invited the Chung-Hua Institution for Economic Research and the Market Intelligence & Consulting Institute, Institute for Information Industry to discuss carbon costs, response strategies, necessary guidance, and subsidies. Winbond also officially announced the introduction of a carbon accounting management mechanism within the supply chain to collect Scope 3 carbon information. Winbond aims to actively assist suppliers in establishing comprehensive carbon and cost management thinking, thereby enhancing the competitiveness of the semiconductor industry from the supply side.



Sharing of Sustainable Benchmark Suppliers: King Yuan Electronics Co., Ltd.



2024 H2 Sustainable Supply Chain Upgrade Forum: Opportunities for Supply Chain Transformation in the Era of Carbon Pricing.



Supplier Sustainability Training

Advanced Packaging Technology Forum

Innovation is also a key success factor for supply chain sustainability. Enhancing the R&D capabilities of OSAT suppliers is equivalent to enhancing the competitiveness of Winbond's products. The purpose of the "Advanced Packaging Technology" forum is to facilitate direct communication between various departments within Winbond and backend packaging and testing, inspiring product research and development that better meets future needs.

In 2024, the "Advanced Packaging Technology Forum" held a total of four sessions. These sessions included inviting top-performing subcontractors in advanced packaging technology, such as ASE, Powertech Technology Inc., and Advantest, to share topics including advanced packaging process introduction, Flash programming applications, and appearance inspection solutions. Participants included engineers from Winbond and packaging and testing fabs, with a total of over 2,123 person-hours of participant.



OSAT supplier: ASE Group



OSAT suppliers- PTI Technology, Advantest



2024 OSAT Supplier Conference Theme: Co-Creating Sustainable Value: Emerging ESG Trends and Practice Enhancement

The competitiveness of Winbond's memory products relies not only on the quality control by all Winbond employees but also on the advanced and stable quality technologies provided by OSAT suppliers. In 2024, OSAT suppliers include Powertech Technology Inc., Winstek Semiconductor Co., Ltd., King Yuan Electronics Co., Ltd., ChipMOS Technologies Inc., Walton Advanced Engineering, Inc., Formosa Advanced Technologies Co., Ltd., Lingsen Precision Industries, Ltd., Greatek Electronics Inc., and Probe Test System Corp. all assigned senior executives and achieved 100% attendance at the OSAT Supplier conference.

During the conference, Winbond's president first analyzed the semiconductor industry market conditions, aligning subcontractors' focus on renewable energy product manufacturing and cooperation. Subsequently, Winbond's fab managers shared recent sustainability execution experiences with the OSAT suppliers. In 2024, Winbond comprehensively evaluated subcontractors on quality, delivery, cost, service, and sustainability performance, and awarded the Outstanding Sustainable Subcontractor Award.

2024 OSAT Suppliers

- Best Packaging OSAT Supplier - ChipMOS Technologies
- Best Test OSAT Supplier - PTI Technology
- Best Quality - Winstek Semiconductor Co., Ltd.
- Best ESG Contribution - Walton Advanced Engineering, Inc.



2024 OSAT Supplier Conference



4.3 Supply Chain Engagement and Impact

4.3.1 Green and Low-carbon Supply Chain

In order to effectively move towards the 2050 net-zero goal, in 2024, in addition to continuing to organize supplier ESG negotiation activities related to energy conservation and carbon reduction, Winbond expanded the scope of supply chain carbon reduction, and lead by example, starting from Scope 3 reduction, including upstream transportation, back-end packaging and measurement services, waste treatment, etc. The spirit of target setting and substantial carbon reduction drives the design of carbon reduction work of all units, hoping to achieve the target of 30% reduction by 2030. In view of this, in 2024, Winbond focuses on the promotion of green and low-carbon supply chains, namely "Leading the Way - 2024 Internal Scope 3 Carbon Reduction " and "Diffusion and Impact - Low-carbon Supply Chain Governance".

Leading the Way - 2024 Internal Scope 3 Carbon Reduction Initiative

2024 Achievement Highlights

- The proportion of Tier-1 significant suppliers (note) disclosing energy resource usage in sustainable supply chain surveys is > 95%.
- Assisting all OSAT suppliers in establishing renewable energy product production planning and manufacturing capabilities 100%.
- Achieved a Scope 3 carbon reduction of 228 tons of CO₂e.

Low-Carbon Supply Chain Management Process



Winbond Scope 3 (Supply side)

Upstream transportation

- A total of 14 key materials have been traced to multiple sources, and local procurement for five of these materials reduced carbon emissions by 7.2 tons of CO₂e.
- Introduce a shared logistics mechanism, negotiate with 2 suppliers to join the shared transportation mode, and reduce carbon emissions by 0.1 tons of CO₂e per year
- Simplified packaging and paperless import and export operations can reduce CO₂e by 0.32 tons per year

Back-end packaging and testing services

- Low-carbon material development and process optimization: Discuss the opportunities for manufacturing process optimization with 2 OSAT suppliers to jointly verify low-carbon materials, and 6 OSAT suppliers to identify carbon reduction hotspots as the core
- Conduct regular product carbon emission inventory: In 2024, a total of 8 companies will conduct a second product carbon footprint inventory, which confirmed the changes in product carbon emissions and continue to target carbon reduction targets for hot spots
- Set up a packaging material carbon reduction project: Promote work items including replacing cartons with electrostatic boxes, reducing reel materials, recycling and reusing Carrier tape, recycling and reusing tube materials, and eliminating duplicate labels, reducing CO₂e by a total of 175 tons
- Energy-saving test production planning was introduced for packaging and testing, reducing CO₂e by a total of 42 tons

Low carbon materials, carbon emission reduction benefit 14% (WBGA96 7.5x13mm)

1. Recycled gold wire
2. Recycled solder balls
3. Low carbon plastic pellets

Waste disposal

- Recycling of waste PVC gloves: In 2024, Winbond initially clean, cut and crush waste plastic gloves, resell them to pelletizing fabs, and then remold them into different recycled plastic products according to different market needs. It is estimated that it can reduce about 2.8 tons of CO₂e per year, and in terms of economic terms, it is estimated that it can create economic benefits of more than NT\$260,000 per year

2024 Supply Chain Low-Carbon Governance Performance

Low-carbon Management Promote Measures	2024 Measures and Actions
Carbon Reduction and Resource Efficiency Commitments	<p>By 2030, the supply chain must achieve a 10% carbon reduction</p> <ul style="list-style-type: none"> Annual electricity consumption saving target of 1% 5% annual water saving target Annual waste reduction target of 1%
Supply chain energy resource usage disclosure	<p>Winbond surveyed a total of 358 suppliers directly related to Winbond's Scope 3 emissions to review the achievement of annual electricity savings, water consumption, waste production, and progress in greenhouse-gas reduction.</p>
Conduct Training and Open Discussions	<p>Winbond held a total of 8 supplier ESG workshops and 2 sustainable supply chain upgrade + forums. From the perspective of thematic learning and benefiting suppliers, the scope of learning includes plant energy conservation, low-carbon footprint of raw materials, hydrogen energy application, data center carbon reduction, and supply chain SBTi reduction target setting and promotion.</p>
Introduce Industry-Government-Academia Collaboration to Advance Carbon Reduction	<ul style="list-style-type: none"> In 2024, Winbond, in collaboration with its suppliers, increased the carbon reduction amount of the "Large Leads Small" project from 5,866 tons CO₂e to 9,500 tons CO₂e, expanding the impact of the industry demonstration project. Winbond hold Winbond Electronics Supply Chain Transformation Diagnosis Subsidy Briefing, and specially invite suppliers with small procurement amounts and insufficient transformation resources to participate. A total of 80 companies participated, with 92 participants contributing 184 person-hours of work. Strengthen the promotion of iPAS Net-Zero Carbon Emission Planning Administrator resources jointly organized by the Ministry of Economic Affairs and the Ministry of Education to help small and medium-sized suppliers alleviate the problem of sustainable talent shortage

Note 1 The baseline year for energy resource conservation and carbon reduction in Winbond's supply chain is 2021, and only those who provide relevant supporting documents, statutory declaration materials, and those who have disclosed them for three consecutive years will be deemed to be valid

Note 2 Percentage of households achieving the savings target = Number of households achieving the savings target / Number of surveyed homes in the current year

Note 3 Tier-1 significant Suppliers are those directly related to Winbond's Scope 3 Emission Category 4 (ISO 14064:2018)



Winbond has performed well in Large Leads Small Decarbonization Project, and was interviewed by Unique Business News /TechOrange

4.3.2 Sustainable Raw Material Management

Sustainable Raw Material Policy

Winbond is a professional memory integrated circuit company, providing global customers with a full range of memory solution services from product design, technology research and development, wafer manufacturing to private label marketing worldwide. In terms of corporate sustainability, we will continue to pay attention to world trends, social issues and the resilience of self-governance, implement responsible material procurement, expand the positive impact on the environment and society in a sustainable way, and strive to become a hidden champion that enriches human life with green semiconductor technology.



Winbond Electronics Sustainability Raw Materials Policy

Winbond's Supply Chain Biodiversity Conservation

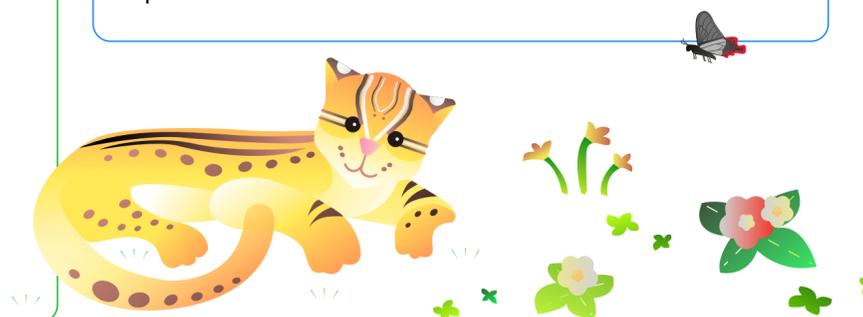
Supplier Management Guidelines Announcement

The environmental section of Winbond's Supplier Code of Conduct adds a new clause on the protection of ecological resources and explicitly requires suppliers to:

- 1 Pay attention to the impact on the surrounding ecological conditions, and take necessary remedial and maintenance measures at any time.
- 2 Comply with laws and regulations related to biodiversity conservation, avoid operations affecting biologically important habitats, and participate in actions to conserve natural ecosystems.
- 3 Commit not to operate in or near important biodiversity sites in the future.
- 4 Suppliers shall undertake to propose impact mitigation measures, including avoidance, mitigation, recovery, and compensation.
- 5 Commit to compensatory measures for forest land restoration and to terminate any form of future development.

Environmental impact analysis and supplier assistance

In 2024, Winbond first conducted environmental impact analysis on a total of 506 sites and coastal reserves, important wildlife habitats, nature reserves, important wetlands, national parks, wildlife sanctuaries, nature reserves, conservation axes, and key biodiversity areas of its suppliers in Taiwan. In the future, Winbond will expand the scope of the supplier survey to further assess whether the addresses of international suppliers are located in the Global Database of Protected Areas (WDPA) provided by the International Union for Conservation of Nature (IUCN), and provide necessary assistance to suppliers located in hot spots.



Raw Material Program

In 2024, Winbond conducted a comprehensive review of existing raw materials and carried out traceability and root source tracing work to minimize the environmental impact of its procurement activities, as part of a raw materials sustainability program that includes prioritization based on environmental and social criteria. The raw materials purchased by Winbond, including wafers, process chemicals, gases, targets, etc., are evaluated according to the criteria of quality, technology, commerciality, environmental friendliness, and humanity, respectively, to determine the priority for using sustainable raw materials. First of all, regenerated and recycled wafers are prioritized as the main sustainable raw material procurement objects. Looking ahead, Winbond will actively seek out third-party verified raw materials. We have set targets to increase their procurement ratio annually without compromising process quality. And with appropriate education and training on sustainable raw materials, we ensure that front-line supply chain managers can apply relevant knowledge to their work.

Education and training on sustainable raw materials

In order to effectively help frontline procurement personnel understand sustainable raw materials and expand the scope of upstream traceability, Winbond provided 1,293 person-hours of internal training related to sustainable raw materials in 2024, including:

- ▣ 2024 Environmental Education - Climate Change
- ▣ 2024 DEI Series Activities|Enhance DEI in the workplace
- ▣ The Power of Behaviour Change – Green Living & Green Procurement
- ▣ ISO 14064 Organizational Greenhouse Gas Inventory and Verification
- ▣ ISO 14067 Product Carbon Footprint Inventory and Verification
- ▣ ISO 14083 Global Logistics Carbon Accounting Standard
- ▣ Carbon neutrality implementation standards

2024 Short-term Sustainable Raw Material Plan

The raw material category	Purchased items	Sustainable raw materials			
		Percentage of use		Percentage of recycling	
		Target (%)	Actual (%)	Target (%)	Actual (%)
Silicon wafers	Control/Slide Regenerated silicon crystals	68%	68%	100%	100%

2027 Medium-term Sustainable Raw Materials Plan

The raw material category	Purchased items	Sustainable raw materials	
		Target usage percentage (%)	Proportion of target recycling (%)
Silicon wafers	Control/Slide Regenerated silicon crystals	71%	100%
Targets	Copper target	10%	100%

2030 Long-term Sustainable Raw Material Plan

The raw material category	Purchased items	Sustainable raw materials	
		Target usage percentage (%)	Proportion of target recycling (%)
Silicon wafers	Control/stop recycled silicon wafers	72%	100%
Targets	Copper target	20%	100%
	Copper and manganese targets Titanium target	We will evaluate the management plan based on the criteria of quality, technology, commerciality, environmental responsibility, and humanity, and disclose the management plan year by year	100%
Chemicals	isopropanol		

In 2024, Winbond's usage of metal raw materials and the proportion of recycled materials used are listed in the table below. Winbond Electronics actively sought to incorporate metal raw materials into the recycling process to achieve environmental friendliness. On the supply side, in 2025, Winbond will continue to initiate the traceability of recycled metal raw materials and strengthen the requirements for raw material suppliers and packaging and testing companies to execute product development requirements such as recycling and remanufacturing of related metals, minimizing source extraction and maximizing environmental friendliness.

Metals/Minerals	Total Use	
	Usage (Metric Ton)	Percentage of recycled material used
Gold	0.23	2%
Aluminium	0.79	0%
Cobalt	0.52	0%
Copper	62.63	5%
Iron/steel	6	0%
Nickel	15.1	0%
Lithium	0	0%
Titanium	0.02	0%
Total use	85.06	4%

Case Study 1 - OSAT suppliers Green Product Capability Building Project

With its corporate vision of "Being the hidden champion of sustainable semiconductors enriching human life", Winbond is prioritizing green products as the challenges of climate change and the urgent need for carbon reduction. In view of this, we have made full use of the advantages of supply chain collaboration and cooperation. Since 2022, we have actively negotiated with OSAT suppliers for back-end packaging and testing to jointly complete the manufacturing capacity of renewable energy products, and finally at the end of 2024, Winbond became the first memory manufacturer with the capability to produce products using renewable energy.



2021-2022
ESG Requirements for OSATs Agreed Upon



2023-2024
OSAT suppliers join the ranks of carbon data electronic data exchange empirical activities



2023-2024
Share experience in supply chain carbon data management across industries (including ASUS, Taichung Precision Machinery, Institute for Information Technology, BCSD)



2024
The first batch of renewable energy products are ready to go

Case Study 2 - Supply Chain Sustainable Logistics and Low-Carbon Transportation

Logistics and transportation encompass both the "first mile" of inbound shipments from our suppliers to Winbond and the "last mile" of outbound deliveries to our customers. Winbond actively identifies all potential carbon reduction opportunities within our Scope 3 emissions, using supplier collaboration as a foundation to drive the planning and design of reduction initiatives. In 2024, Winbond officially launched a shared logistics system for inbound transportation from our suppliers.

Looking ahead, we will leverage the strategic locations of our warehouses to plan efficient, low-carbon transportation for outbound shipments to customers.

Winbond's material supply side

resource recycling, sustainable logistics

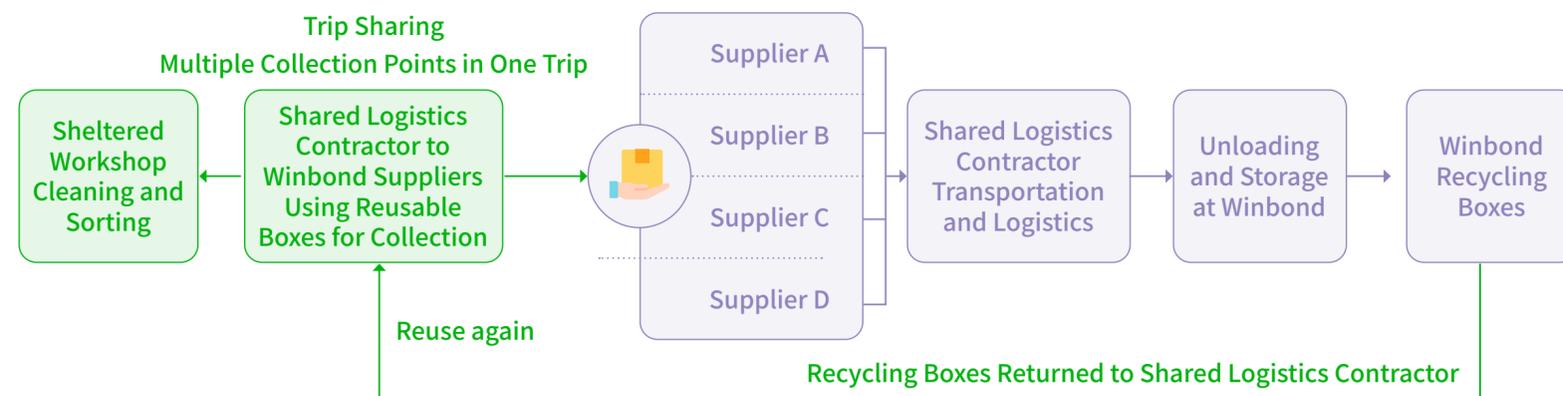
In 2024, Winbond took the materials used in the factory (such as cleanroom gloves and masks) as the primary assessment, and negotiate with relevant suppliers to abandon carton packaging and use reusable recycling boxes to supply to Winbond's operating sites based on Winbond's annual consumption. In the shared logistics management model, the scale economy and low-carbon nature of transportation will be met by using trip sharing, and a total of 0.1 tons of CO₂e will be reduced by 2024. It is worth mentioning that the reusable recycling boxes will be handed over to the sheltered factories for cleaning and sorting after recycling, creating income and disadvantaged employment opportunities for sheltered factories, which is a logistics operation mode that can create comprehensive sustainable benefits. In the future, Winbond will actively negotiate with more suppliers to join the ranks of this shared logistics and apply the scale of the supply chain to improve its sustainable and comprehensive efficiency.

Winbond's product shipment

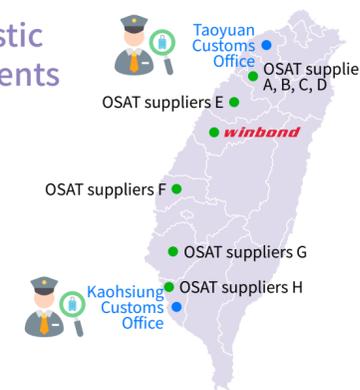
minus per trip, carbon emission reduction plus

Winbond adopts 12-inch wafer self-production and packaging and testing outsourcing in manufacturing, and adopts the direct delivery mode, and the semi-finished products and finished products are stored at the packaging and testing company, and the OSAT suppliers will carry out domestic and international shipments after the customer orders. In 2024, Winbond will explore opportunities for carbon reduction from digital management and entrepot operation. We have integrated the transportation route records, the addresses of each temporary storage point, the distance, the order weight, and the emissions per tonne-kilometer delayed for the whole year, optimized the transportation routes and shifts, reduced unnecessary trips, and ensured that the transportation vehicles can fully carry the cargo. In the future, we will continue to seek the sustainable development of low-carbon transportation in this model, in order to significantly reduce fuel consumption and carbon emissions.

Shared logistics operation mode



Domestic shipments



International shipments



2024 Suppliers Empowerment Initiatives

Since the establishment of the Sustainable Supply Chain team in 2022, Winbond has been actively seeking opportunities for suppliers to join the sustainability ranks. In 2024, we carried out a total of four sustainability training projects for supplier sustainability management, including "Winbond Supplier Energy Conservation and Carbon Reduction Diagnostic Counseling", "Carbon Data Electronic Data Interchange - PACT Advanced Demonstration", "Supply Chain Sustainable Logistics and Low-carbon Transportation", "Reinventing the New Project - Recycling of Waste PVC Gloves", etc., and as of 2024, a total of 62 suppliers had accepted Winbond's sustainability agreement and training. In the future, Winbond will continue to uphold the principle of shared prosperity within the supply chain by partnering with suppliers who share our commitment to sustainability, expecting these projects to serve as powerful industry demonstrations that influence more suppliers to join us in a virtuous cycle.

Supplier Capacity Building Program		Number of suppliers involved
2022	Co-Sustainability project – ESG perspective exchange and co-learning	32
2023	Winbond Electronics' low-carbon transformation cooperation project for sustainable supply chain	13
2024	Supplier energy conservation and carbon reduction diagnostic counseling	2
	Electronic data exchange of carbon data - PACT preliminary evidence	9
	Supply chain sustainable logistics and low-carbon transportation	2
	Reinventing the new life project - scrap PVC gloves for recycling	4
Total number of suppliers in capacity building programs		62
% of unique significant suppliers in capacity building programs		37%

Note: Proportion of significant suppliers with implementation of the PEP program = number of significant suppliers with implementation of the PEP program / number of Tier-1 significant suppliers with negative impact in 2024

Social Mutual Benefit and Practice-Actively respond to the government's sustainable industrial policy 2024 Sustainable Supply Chain Forum

Data Exchange Standard X Carbon Management Change

In addition to actively engaging suppliers to join the ranks of sustainability from different aspects, Winbond is also actively responding to the government's sustainability policy and is a committed corporate sustainability citizen, with a total of 4,692 person-hours of corporate and government-related activities as of 2024. In 2024, the convener was invited to the Sustainable Supply Chain Summit Forum hosted by the Industrial Development Administration (IDA), Ministry of Economic Affairs to share Winbond's measures in low-carbon supply chain management with the theme of "Driving the Sustainable Economic Benefits of the Semiconductor Supply Chain - Multiple Transformations of Low Carbon, Digital and Carbon Costs". Since 2022, data governance has been the core of carbon management for suppliers. Emission data was collected on a regular basis to grasp the carbon reduction progress of suppliers. The OSAT suppliers have completed their product carbon footprint inventory. In terms of Scope 3 information collection, we introduced the industry's first carbon accounting management mechanism. Furthermore, demonstrating our commitment to innovation, we collaborated with the Institute for Information Industry's (III) Digital Transformation Research Institute and our OSAT suppliers, to establish a supply chain carbon information electronic data exchange mechanism based on PACT specifications. This content not only aroused heated discussions among more than 400 audiences from industry, government, academia and research, but also made Winbond understand that as a member of the earth, it is not only necessary to continue to innovate in terms of sustainability, but also to share and drive positive influence in society, which is also a driver of corporate sustainability.



Group photo of representatives of the 2024 electronics industry demonstration



Shu-Cheng Chang, Assistant Vice President of supply chain management center, share the progress of Winbond's supply chain carbon management



Ecosystem member feedback



Co-prosperity of the environment

Electronic Exchange of Carbon Data for OSAT suppliers - PACT Preliminary Evidence

Winstek Semiconductor Corp.

Thanks to Winbond's invitation to participate in the Carbon Data Electronic Information Exchange Standard Verification Program, by establishing a safe and correct exchange standard and sharing transparent industrial carbon data information, in addition to reducing the labor cost of repeatedly filling in carbon footprint information, it also accelerates the solution of the challenge of supply chain data collection in carbon inventory, so as to achieve the long-term goal of net zero emissions.



Governance Excellence

Sustainable Procurement On-site Training

Shih Her Technology

Winbond is a key player in the semiconductor customers who actively drive the decarbonization of suppliers. At present, in addition to the Hsinchu Guangfu No. 2 Plant, which has been expanded in the first two years, and has been put into production capacity one after another, another new plant is currently being planned, and in the future, it will continue to provide high-quality, clean and low-carbon services with the increase in the proportion of new production capacity and advanced process operation for customers.

Kertz Technology

Thanks to Winbond for not only conducting on-site procurement training, but also inviting us to participate in the "Sustainable Supply Chain Upgrade+" forum on sustainability issues, so that we can understand the needs of customers in ESG sustainability, and have a sense of mission to protect the earth, so that we can work together to promote ESG and net zero carbon emissions.



Advancing Shared Social Value

Advocacy and response to external corporate sustainability activities

BCSD Taiwan

Council for Sustainable Development Taiwan

Winbond was invited to participate in the presentation and workshop of "Guidelines for Accounting and Exchange of Carbon Emissions in the Product Life Cycle" organized by BCSD Taiwan to share the capabilities of carbon data accounting and exchange, so that the participating representatives benefited from how to set strategies and goals, how to negotiate with the supply chain, and how to implement it into the risk management framework.



Supplier Social Impact Campaign - The S Power in ESG

Merck Ltd., Taiwan

Thank you for being invited to Winbond Zhongke in 2024 to share sustainability issues, so that Winbond's partners can have an in-depth understanding of how Merck implements the concept of sustainable development in corporate operations. We talked about our practical experience in digital transformation, carbon reduction, DEI policies and environmentally friendly product development, and looked forward to continuing to work with Winbond to create greater social and environmental value

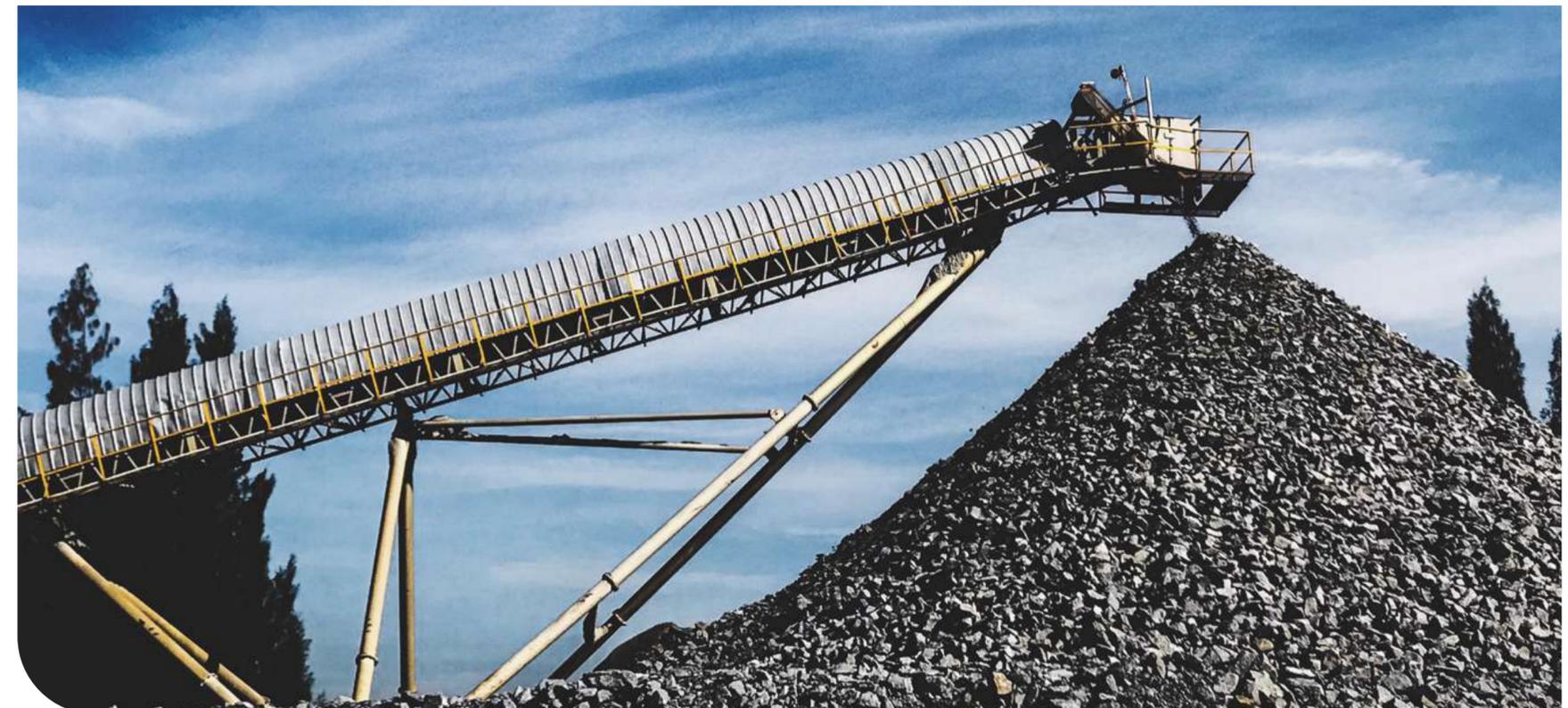


4.4 Responsible Sourcing of Minerals

Winbond actively promotes the requirements of Responsible Business Alliances in the supply chain and considers them to be an essential element of supply chain management. In accordance with the management recommendations of the Organization for Economic Co-operation and Development (OECD) due diligence, Winbond first issued a statement on the non-use of conflict minerals. Secondly, the material analysis is carried out according to the composition of the company's products, and the suppliers that need to be investigated are identified to facilitate the implementation of due diligence. Suppliers are strictly required to select qualified smelters and update the information according to the validity period, and finally, based on the survey results, prepare an annual due diligence report on conflict minerals for public disclosure. In 2024, a total of 15 suppliers involved in 3TG metal, cobalt, mica and other minerals directly related to the company's products, of which 1 has completed a comprehensive written investigation and on-site audit, and the qualified rate is 100% except for all of them.

4.4.1 Conflict-free Minerals Statement

Winbond follows the RMI (Responsible Minerals Initiative) to conduct due diligence on the source and regulation of tantalum, tin, tungsten, gold, cobalt, and mica in the products it manufactures to ensure that its sourcing practices are in line with the OECD Guidelines for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas or an equivalent and recognized due diligence framework. At the same time, Winbond also requires all suppliers to comply with and sign the Code of Conduct and Ethics related to sustainable development, the Employee Code of Ethics, the International Declaration of Human Rights and the International Labor Organization's Tripartite Declaration of Principles, the adoption of green products, environmental protection and no hazardous substances (HSF) policies, or comply with the requirements set by the Responsible Business Alliance (RBA). In 2024, all qualified suppliers signed the Winbond Code of Ethics and Integrity, the Winbond Supplier Code of Conduct Commitment (including the terms of the RBA and Conflict Minerals Statement) to ensure that there are no "responsible minerals from substandard smelters" and products from Congo or countries and regions adjacent to conflict zones, and comply with applicable regional and international laws on responsible minerals.



2024 Achievement Highlights

- 100% coverage rate of suppliers receiving the conflict-free mineral policy advocacy
- 100% of new suppliers signed Winbond CoC (including conflict-free minerals)
- 100% qualification rate for suppliers surveyed and audited

Responsible Sourcing Management Process

Conflict-free minerals statement

Material Analysis and Mineral Sourcing Summarize

Disclose Results Publicly

Conduct Due Diligence

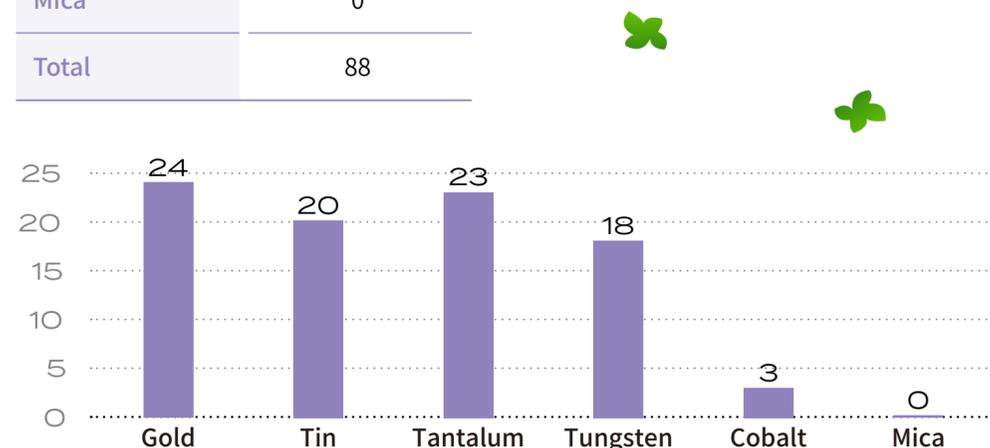
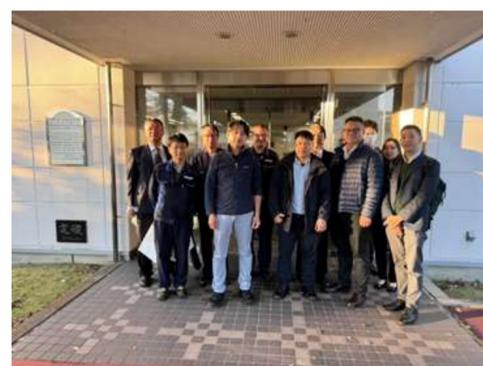
4.4.2 Identification and results of 3TG metal sources

Winbond first determines the composition of the supplied products based on the Safety Data Sheet provided by the supplier and identifies whether it contains specific metals, and then adopts the Conflict Minerals Reporting Template (CMRT) and the Extended Minerals Reporting Template (EMRT) Investigate suppliers whose product composition involves gold (Au), tantalum (Ta), tin (Sn), tungsten (W), cobalt (Co), mica, and other responsible mineral sources as reported in the Responsible Minerals Initiative (RMI). In 2024, a total of 15 suppliers will be surveyed, and the smelters from which various metals come from 26 countries include North America, South America, Europe, Asia and Central Asia, and a total of 88 qualified smelters will provide metal smelting. In addition, Winbond has also formally implemented on-site audits of suppliers on conflict production, which not only strengthens Winbond's determination not to use conflict production, but also ensures suppliers' commitment to conflict production management through on-site audits. In 2024, a total of 2 Japanese raw material suppliers and a total of 15 written audits were conducted on the spot, all of which will comply with the requirements and have not been prohibited from selling related products to Winbond.

Mineral	Year 2024
Gold	24
Tin	20
Tantalum	23
Tungsten	18
Cobalt	3
Mica	0
Total	88



On-site audit of supplier conflict production



4.4.3 Supplier management and labeling of Conflict Minerals

As global political relations are volatile, and in recent years, cross-border government conflicts or wars have occurred only overnight, in order to ensure that Winbond abides by its commitment not to use conflict minerals, Winbond has taken three measures to prevent and control the risks in the use of 3TG metals. First, we continued to issue regular due diligence and annual due diligence reports on conflict minerals, and simultaneously expanded to suppliers who use 3TG metals, conducting on-site audits to ensure their practices are consistent with their stated policies. Second, we continued to trace the source of suppliers who have lawfully mined 3TG ore sources at home and abroad and have also implemented conflict minerals management policies, implementing diversified supply risk control and conflict prevention of mine sources. Third, Winbond did its best to assist suppliers in the traceability of other compliant minerals for suppliers with potential use or procurement risks of conflict minerals, and if no improvement is made, Winbond will cease business with the supplier. It is worth mentioning that Winbond's supply chain team was also actively paying attention to the stakeholders' requirements for conflict minerals management, dynamically adjusting internal management measures based on a principle of proactive prevention, hoping to ensure the humane spirit of mineral mining with the strictest standards.

Winbond's products are 100% conflict-free minerals



Conflict-Free Mineral Label

In 2024, in accordance with the regulations of the RBA and the U.S. Securities and Exchange Commission, Winbond also actively responded to the Dodd-Frank Act (DFA) and strengthened the implementation of corporate social responsibility. All product outer packaging bore a "Conflict-Free" label, explicitly declaring that the company's products contained no conflict minerals.

Mechanism adopted by suppliers to prevent the use of conflict minerals

- Regular inspections and on-site audits
- Trace compliance resources and suppliers
- Provide assistance to suppliers with risks; if no improvement is made, transactions will be stopped