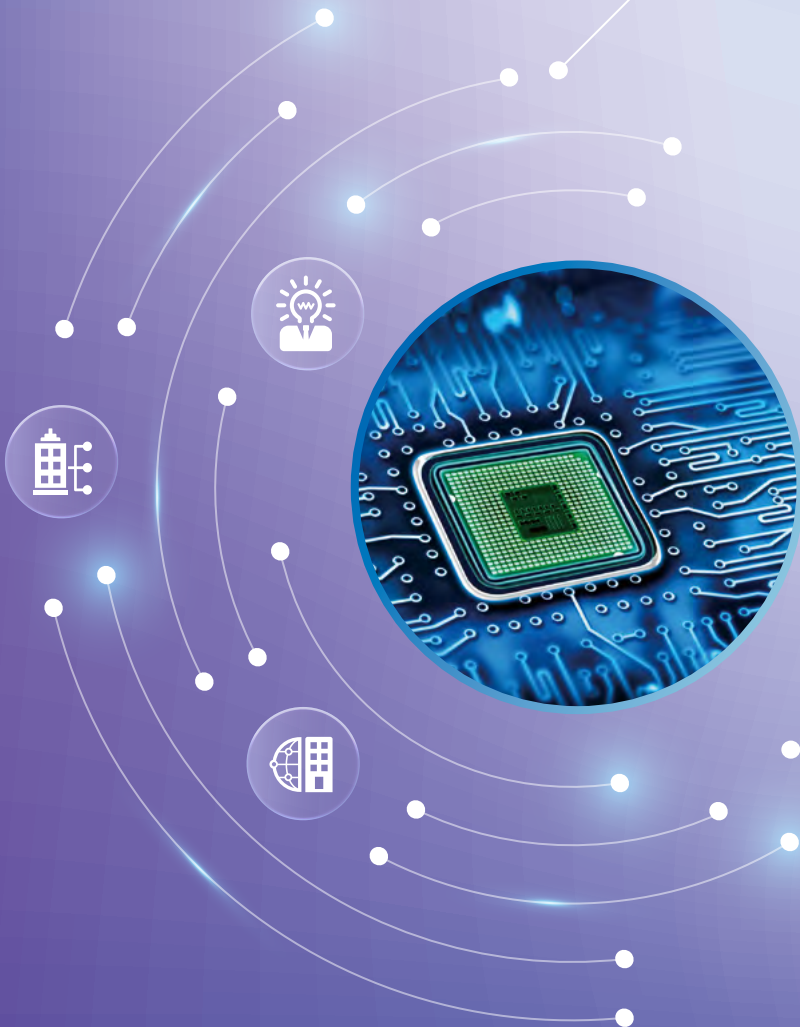




INNOVATION SERVICE

Innovation is the key to sustainable human development. Through innovation, ASEH improves product value, makes human lives easier in a smart era and elevates social well-being. We take into careful consideration regarding Smart Manufacturing – integrating environmental protection and social innovation at a product's design stage. As a result, ASEH has produced more efficient products and helped customers lower their power consumption when using our products, contributing to a reduction in greenhouse gas emissions. The effects of product usage on human health were also considered and efforts have been made to manufacture products with non-hazardous materials, and Improve recyclability, with Enhance product durability.

ASEH is committed to improving and protecting the environment by enhancing raw material usage efficiency, recycling resources, reducing wastewater discharge and greenhouse gas emissions, and reducing waste generation and chemical use. We strive to develop and promote comprehensive, environmentally friendly services and manufacturing processes that consider the environmental impact at various stages of the product lifecycle including raw material procurement, design & development, manufacturing, product use, and product disposal. This has enabled ASEH to provide the environmentally friendly, green manufacturing services.





4.1 R&D and Innovation

Technology and innovation are the lifeline of our company. We have continued to invest heavily in advanced semiconductor packaging technology research and development and developing a strong engineering team, to produce high performance and cost-effective products that meet customers' needs. We have systematically mapped out a 10-year strategic blueprint that identifies key areas of technology focus by projecting industry and technology trends for the future. This will enable us to optimize our R&D resources and technology capabilities to seize important business opportunities and strengthen patent portfolios that further enhance our sustainability efforts. Our R&D expense reached NT\$32.9 billion in 2025, accounting for 5.1% of our operating revenue, an increase of 14.2% compared with NT\$28.8 billion in 2024. As of December 31, 2025, our research and development team comprise 14,258 employees, an increase of 12.1% compared with 12,715 in 2024.

The global semiconductor industry has gradually entered a phase of structural growth driven by artificial intelligence (AI), high-performance computing (HPC), cloud data centers, and advanced computing applications. Advanced packaging, heterogeneous integration, and advanced testing will be key processes affecting chip performance, power consumption, bandwidth, and system reliability. Market demand is gradually shifting from single-chip solutions to system-level integration, further driving the demand for high-value-added packaging and testing services.

As market demand evolves and industry entry barriers continue to rise, leading companies with deep technical expertise, mass-production capabilities, and global operational scale are expected to maintain favorable competitive positions. The Company will continue to strengthen its core competencies, prudently address industry uncertainties, and remain committed to creating sustainable long-term value for customers, shareholders, and the broader semiconductor ecosystem. Our R&D teams work closely with our supply chain partners including material and equipment suppliers, as well as with key customers on new product and process innovations, to maximize scale and efficiency in technology development. In addition, we collaborate with academic and industry organizations such as the National Sun Yat-Sen University, National Cheng Kung University, National Taiwan University, Tsing Hua University, and ITRI on advanced packaging and testing technology development.

2025 Product and Technology Development:

- (1) Flip Chip Packaging (FCP): CoCoS (Chip on Chip on SBT) 2nd bonding tech. development
- (2) Wire-Bond Packaging: AOI integrated with high efficiency anomaly detection AI technology for complex wirebonding inspection
- (3) SiP Packaging: Development of HDI AiP device via DSM (Double Side Molding) with 3D DRA (Dielectric Resonator Antenna), 3D SiP thermal dissipation technology with high density copper pin packaging, 3D SiP - Double-side molding packaging with PMU SiP thermal dissipation technology, Fan Out fine-pitch vertical wire I/O interconnect miniaturized packaging technology

Technology Platforms

Research and development drives innovation, but is often characterized by high costs and technological uncertainty as well as lengthy development cycles. To ensure proper resource allocation and R&D efficiency, we have put in place a comprehensive technology management framework that allows us to formulate short-, medium-, and long-term technology roadmaps. Our roadmap development leverages on the expertise of our corporate R&D and market analysis teams, together with the market intelligence and data gathered from research organizations, material and equipment suppliers, and customers, helping us gain deeper insights of market demands and technology development trends.

An Advanced Technology Forum is organized on a regular basis to share corporate information on technology development, product applications and emerging trends, and to promote alignment with all our manufacturing facilities. For technologies with development potential, a Technology Board will be created to direct cross-functional teams and conduct technology evaluation and development. In parallel, the Technology Transfer Platform facilitates the technical exchange, prototype verification and production planning between sites for those technologies identified for development.

Our knowledge management (KM) platform is a centralized repository for storing and sharing technical documents and knowledge that serve to preserve the integrity of our innovation. The platform enables efficient technology sharing and collaboration amongst global teams through the integration of digital knowledge management and technology collaboration mechanisms. As we continue to expand our technological capabilities, promoting innovative technology exchange and knowledge accumulation are critical in advancing the company's growth and competitiveness.

Smart and Green Factory

The shift to smart and green factories is strategic to sharpening our manufacturing competitiveness and accelerating sustainability development. We have incorporated low-carbon building principles progressively by following international and local green factory standards to upgrade existing facilities, and construct new manufacturing and office buildings. To reduce environmental impact, we conduct extensive whole building life cycle assessments to integrate sustainable design choices from the very initial stage of our building projects. In addition, we have strived to meet the criteria mandated by Taiwan's Green Factory Labeling System, which includes the passing of the Clean Production Assessment. As of 2025, we have 14 green factories¹ and have received 27 green building and other related certifications (LEED/EEWH/low-carbon building)² as well as 25 clean production certifications³.

The demand for higher productivity, quality and precision in manufacturing is accelerating the digital transformation across all our factories. The integration of AI and automation in our production processes allow us to stay ahead of the competition and provide leading edge technologies and services to our customers. We are actively investing in the construction of smart factories¹ at ASEKH, ASECL, SPIL, and USI, achieving a coverage of 45% in Taiwan by the end of 2025. To establish professional talent in automation and smart manufacturing, we have developed 16 industry-academia technology and research projects in 2025. In parallel, our talent development program will train an estimated 6,662 automation and smart manufacturing engineers.

Key Smart Factory Initiatives

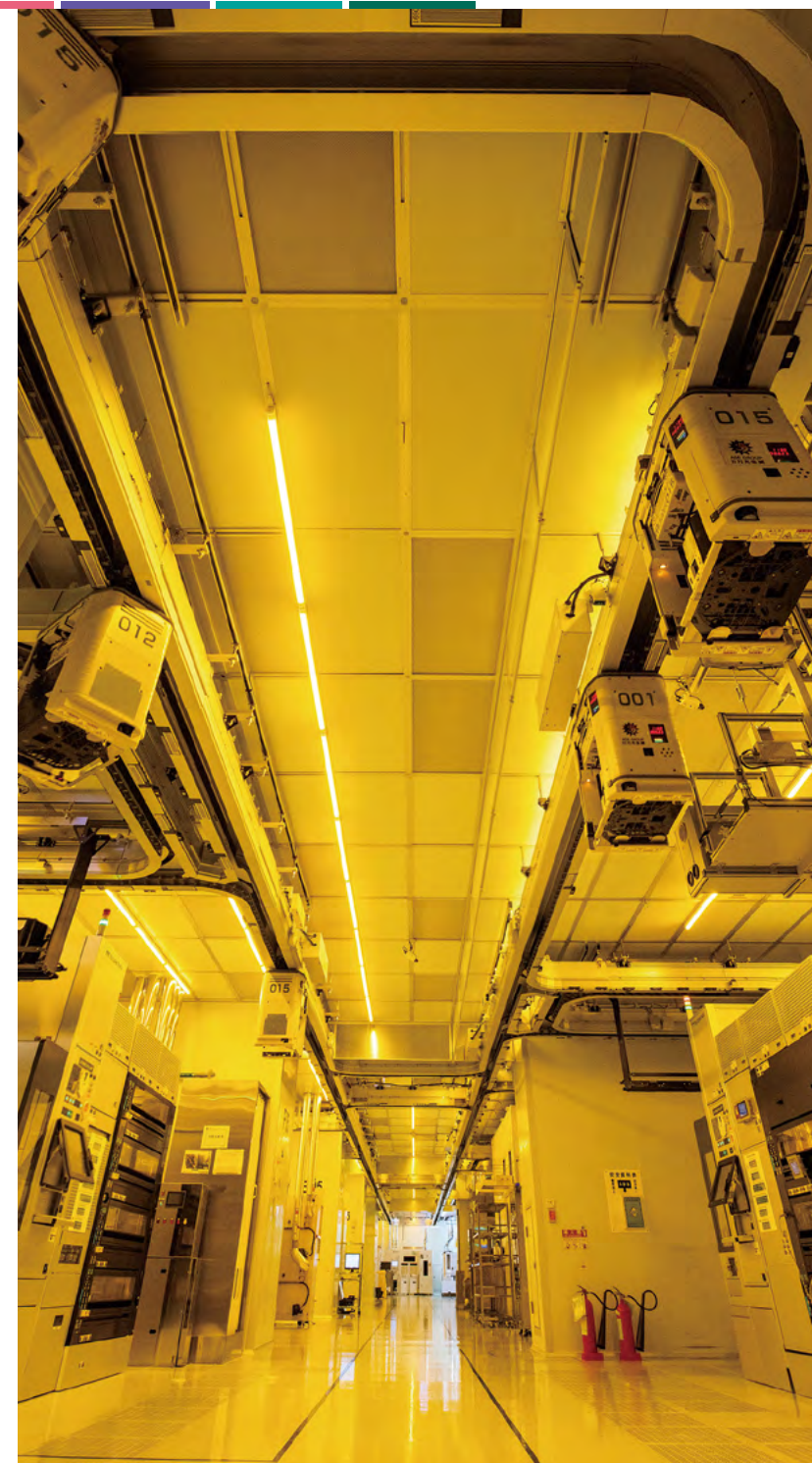
- Introduced the recipe management system (RMS)
- In house-developed Semiconductor Equipment Communications Standard (SECS) equipment automation program (EAP)
- Implemented the fault detection and classification (FDC) system
- Introduced robotic arms and automated guided vehicles (AGVs)
- Incorporated the predictive maintenance system (PdM)
- Build an IAI platform to promote the universal application of AI
- Applying 4IR technologies to improve energy efficiency and safety of plant utility systems

¹ Green Factory: K3/K5/K7/K11/K12/K15/K21/K22/CL-A/ CL-B/ CL-K&L/CL-M/SPIL-ZK/USI-NK

² Green Building Certificate: LEED(K12/K21/K22/K23/K26/CL-K&L), EEWH(K3/K4/K5/K7/K11/K12/K14B/K15/K21/K22/K24/K25/K26/K-dom/CL-A/CL-B/CL-K&L/CL-M/SPIL-ZK/USI-NK), Low-Carbon Building (K24)

³ Clean Production facilities: K1&K2/K3/K5/K7/K8/K9/K11/K12/K15/K21/K22/ CL-A/CL-B/CL-K&L/CL-M/SH(M)/SPIL-SZ/SPIL-DF/SPIL-HS/SPIL-CH/SPIL-ZK/SPIL-CS/USI-NK/USI-HZ/USI-ZJ

⁴ Smart factory: More than 80% of sites or production lines utilize technologies such as the Internet of Things (IoT), artificial intelligence (AI), big data analytics, automation, cloud computing, and sensing systems to enable real-time integration among equipment, machinery, and systems. This integration achieves automation of production processes (machine or process automation), digitalization (automatic data collection and system visualization), and intelligence (using AI/algorithms for decision-making or analysis)





Intellectual Property Management

Intellectual property (IP) rights are important achievements in research and development, and a key aspect of innovation management. Effective IP management helps to maintain ASEH's leading position in corporate innovation.

ASEH has established an IP policy that serves to protect the company's technological innovations and its global leading position. In addition to continuously striving towards R&D innovation and developing IP management strategies that conform with the company's development trends, ASEH's IP management also contributes to the company's commercial advantages.

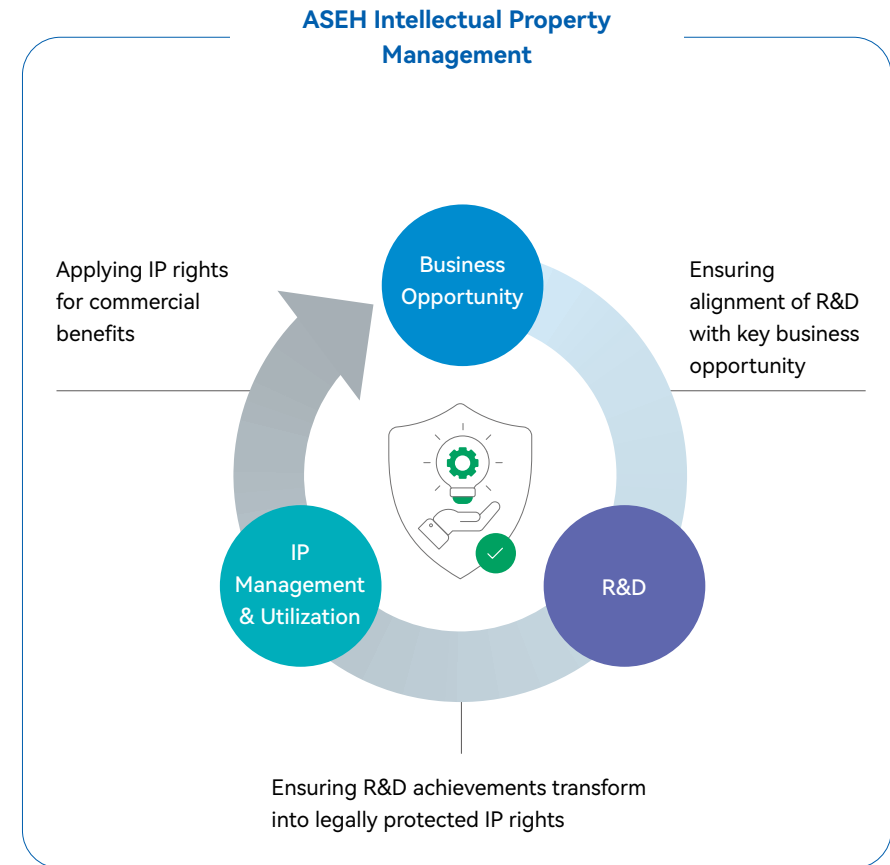
The Company closely integrates IP management with business operations, taking steps from market insight, R&D investment to IP management and utilization, forming a value cycle that spans the entire group and continues to innovate.

Driving R&D: In response to the forward-looking market demands, the Company coordinates on the plan of group-wide R&D activities, continuously investing in talent and resources to maintain technology leadership to deploy future business opportunities.

Protecting R&D Results: Through a well-structured internal application filing and review procedure, each department's R&D results can be efficiently transformed into patents, trade secrets and other forms of intellectual property that are incorporated into the group's unified IP database to consolidate core assets.

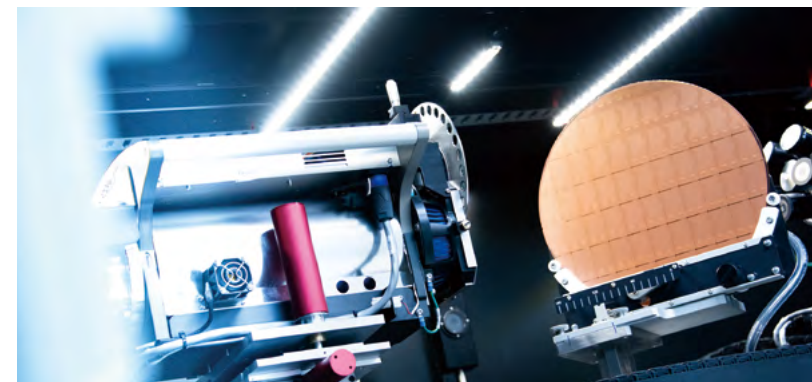
Creating Value: Utilization of a high-value IP portfolio that supports our subsidiaries in securing customer orders, expanding new business opportunities and building group-wise overall defensive barriers to prevent technology from misappropriation and respond to external challenges, securing freedom of operation to ultimately form sustainable positive cycle.

In terms of trade secrets management, the Company is devoted to establishing trade secret registration management system in which inventor will timely register invention outcome to secure complete records and retention of company's critical intellectual property, collocating with the comprehensive management procedure and secrecy policy on trade secret valuation classification, regular renewal and maintenance and external disclosure control, protecting company's core competitive advantage in all aspects. As of December 31, 2025, there are over 50,000 trade secrets registered in the Company's trade secret registration management system. The Company encourages employee innovation through an annual Trade Secret Innovation Award program to maintain its leading competitive advantage. The Company carries out annual on-line training for all employees, continues to direct them to secure confidential information and foster subject-specific course and propaganda of non-infringement of IP, enhancing protection of the Company's trade secret and preventing the risk of infringement.



The Company implements an interview mechanism in the employee resignation process for Legal department to interview with employee who will resign and alert such employee to continue to fulfill confidentiality obligations after the resignation to reduce the risks of information leakage. ASEH and its subsidiaries collaborate to develop group corporate strategy for protecting critical technologies that effect industry leadership and adopt unified management guidance to enhance the confidentiality control of high value trade secret involved in the process of cooperating with customers and suppliers, continuing to maintain the Company's competitiveness and protect the best interests of shareholder. In accordance with the management rule for core key technologies and trade secrets approved by the Company's Board of Directors, we plan to establish a communication platform involving all subsidiaries to address the disclosure control processes and coordination mechanisms outlined in this rule. By integrating the relevant systems and practices of each subsidiary, we aim to continuously enhance our competitiveness and protect the best interests of our shareholders and stakeholders.

With respect to patent management, the Company adheres to management vision that patent quantity, quality and value are equally weighted and three major strategic directions that "overall portfolio planning, separation of inferiority from premium and appreciation & activation" are proactively adopted to strengthen the competitiveness and market influence of our assets. To enhance employees' awareness of patent and execution of patent protection, the Company has implemented comprehensive foundational training on



patent and specifically for core R&D teams, the trainings on the critical success factors of high-value patents are further introduced to ensure patent proposals that focus on technological development strategies with future commercial potentials. In addition to offering patent incentives, the Company organizes an annual recognition ceremony for outstanding inventors and through an the such incentive mechanism that advances with the times, it shall continuously inspire innovation momentum and energy for patent proposal. To enhance patent portfolio that is forward-looking and comprehensive, the Company takes advantage of publicly available patent information to regularly conduct patent analyses and update reports for key technology fields that are reported to and supporting decision-making level to acquire technology trends and competition dynamics. To effectively maintain and protect patent rights, the Company conducts periodic patent value assessments and takes appropriate corresponding actions based on assessment results to achieve the goal to optimize resources. The Company also continuously monitors market developments and actively formulates patent utilization strategies to promote technology appreciation and commercial activation, further strengthening our competitive advantage in aspects of business operations. ASEH's patent portfolios comprise a variety of technologies related to semiconductor packaging and testing, and electronics manufacturing. As of January 31, 2026, we hold a total of 6,358 patents including 1,938 Taiwan patents, 2,026 U.S. patents, 2,248 P.R.C., patents, 96 Europe patents and 50 patents in other countries. In addition, as of January 31, 2026, we also have a total of 2,249 pending patent applications, of which 263 in Taiwan, 739 in the U.S., 1,220 in P.R.C., 22 in Europe and 5 in other countries.

Trade secret

- Create a registration management system to protect trade secrets.
- We continuously enhance best practices through information security protocols, awareness promotion, comprehensive training, and systematic management.
- Where appropriate, we apply applicable laws to deter unauthorized access to company information and assets, protecting our investments and safeguarding our interests.

Patent

- Place equal emphasis on patent quantity, quality, and value. Focus on three major approaches on patent management: comprehensive planning, curating patents of value, and value enhancements.
 - Develop a comprehensive patent plan for critical technologies at an early stage.
 - Regularly evaluate patents, identifying those of value, and dropping those of low or no value from renewal.
- Revitalize patents to enhance their value and scope of application.
- Foster strategic partnerships with key customers, and academic research institutions, to collaborate on R&D, develop plans for patent applications, and acquire critical patents.

Intellectual Property Management and Utilization



The contribution of Intellectual Property Rights to the Sustainable Development of ASEH

In terms of environmental sustainability, to reflect ASEH's sustainability strategy of "low-carbon mission and circular economy," the company encourages employees to register trade secrets related to sustainability management, such as carbon management, green factories, and the circular economy, and actively researches and obtains numerous green patents. In the seven major themes of the IPC Green Inventory established by the World Intellectual Property Organization (WIPO)—alternative energy production, transportation, energy conservation, waste management, agriculture/forestry, administrative, regulatory or design aspects, and nuclear power generation—the company has obtained at least 61 green patents that meet the WIPO definition. Among these, "energy conservation" accounts for 96% (59 patents); "waste management" accounts for 2% (1 patent); and the remaining categories account for 2% (1 patent).

Regarding energy conservation, to ensure product quality and reliability, ASEH actively develops various electrical testing methods for semiconductor packaging products. By introducing novel concepts, we improve the efficiency and accuracy of measurements, while optimizing process steps, reducing energy consumption, and promoting environmental sustainability. For example, Taiwan Patent No. TWI865918B discloses a testing device and a method for testing a device. By using an optical transceiver module and a pressure sensing element, the device's orientation, distance, angle, and pressure distribution are effectively detected. This information is applied to the calibration of moving parts in testing equipment. Qualitative and quantitative measurement data improve the stability and accuracy of moving parts, allowing for more scientific and microscopic calibration, significantly saving testing time and energy.

Waste management is also a key area for ASEH. Since organic waste liquids or gases are generated during semiconductor processes such as etching, ASEH has developed related solutions. For example, Taiwan Patent No. TWI790586B discloses an organic waste gas treatment module and method that can monitor the treated organic waste gas. When the treatment system malfunctions or the organic matter concentration exceeds the standard, it can automatically initiate a reprocessing procedure to improve emission stability and reduce environmental impact, meeting increasingly stringent environmental regulations. In addition to patents, the company also possesses over twenty trade secrets related to waste management, covering systems and methods for treating organic wastewater using biological carriers, as well as intelligent management technologies that incorporate AI models to optimize wastewater treatment parameters and provide real-time monitoring. These technologies enhance process environmental efficiency and risk management capabilities, continuously moving towards a highly efficient, intelligent, and low-emission operating model.

In terms of social sustainability, ASEH regularly conducts intellectual property management awareness campaigns for key suppliers, promotes the concept of intellectual property rights protection, and explicitly requires suppliers to respect and protect our intellectual property rights and adhere to the principle of not infringing on the intellectual property rights of others. At the same time, we encourage and guide suppliers to establish and improve their own intellectual property management systems. Through the dual mechanisms

Statistics of Green Patents

Administrative, Regulatory or design aspects

1.2%

Waste management

1.2%

Energy conservation-
low energy lighting

19.31%

Energy conservation-
measurement of electricity
consumption

40, 65%





ASEH shared its trade secret management system and experience at the 2025 Trade Secret Intelligent Management Expo.

of signing confidentiality agreements and regular intellectual property awareness campaigns, we strengthen supply chain management and effectively reduce intellectual property risks in the transaction process. To enhance public awareness of trade secret protection, our company actively participated in the "2025 Trade Secret Intelligent Management Expo" held at the Hsinchu Science Park. We shared our systems and experiences in trade secret management, including the registration system, innovation award system, green trade secrets, and the process of promoting a culture of sustainable innovation. We introduced how ASEH's trade secret registration covers a variety of aspects, including forward-looking R&D, engineering technology, advanced processes, operational optimization, administration, energy conservation and carbon reduction. Through systems such as tiered management and regular maintenance, we ensure that the trade secret registration database meets the goal of both quality and efficiency. Furthermore, through the annual trade secret innovation award, we encourage employees to engage in innovation and promote a culture of innovation within the company. Furthermore, to promote innovation in patent protection methodologies, ASEH, in collaboration with three patent firm partners, hosted three patent application practice workshops in 2025. These workshops delved into high-value patent cases in the semiconductor packaging field and share techniques for preparing patent applications and responding to office actions. By focusing on the perspective of enterprises utilizing patent rights, these workshops assisted Taiwanese patent firms in improving their semiconductor patent application preparation capabilities and enhance patent attorneys' understanding of semiconductor packaging design, processes, and their technological benefits, further strengthening the overall competitiveness of the patent service industry. To promote sustainable social development, ASEH actively invests in research and development, successfully developing an industry-leading biosensor packaging design and applying for patents. For example, Taiwan Patent Publication No. TW202425910A discloses a new invention in an optical module. This patent utilizes an interposer substrate with light-shielding function, combined with traditional semiconductor substrate components, and integrates the optical sensing surface and the electrical signal transmission surface on the same side. This unique packaging architecture not only improves the accuracy of physiological signal measurement but also helps users manage their health independently, demonstrating a "human-centered" R&D philosophy.

In terms of governance, ASEH and its subsidiaries have established and continuously optimize an intellectual property management system based on the operational roadmap and the latest laws and regulations. The core principle of this system is to break down subsidiary barriers, promote technology exchange and resource sharing among subsidiaries, and avoid redundant investment. Through sound management, ASEH ensures that R&D achievements are efficiently transformed into legally protected intellectual property rights, and continuously enhances market competitiveness and resilience by integrating and utilizing high-value intellectual property. Building on years of experience in intellectual property management, ASEH has further strengthened its intellectual property management framework, enhanced internal awareness of intellectual property value, improved the protection of R&D results, and increased shareholder and customer trust by implementing the Taiwan Intellectual Property Management System (TIPS) and obtaining its certification. Advanced Semiconductor Engineering Inc. (ASE), a subsidiary of ASEH, obtained certification of the TIPS Level-AA on December 4, 2024, with the certificate valid until December 31, 2026. Two other subsidiaries, Siliconware Precision Industries Co., Ltd. (SPII) and Universal Scientific Industrial Co., Ltd. (USI), also obtained the TIPS Level-A recertification in 2025, with the certificates valid until December 31, 2027.

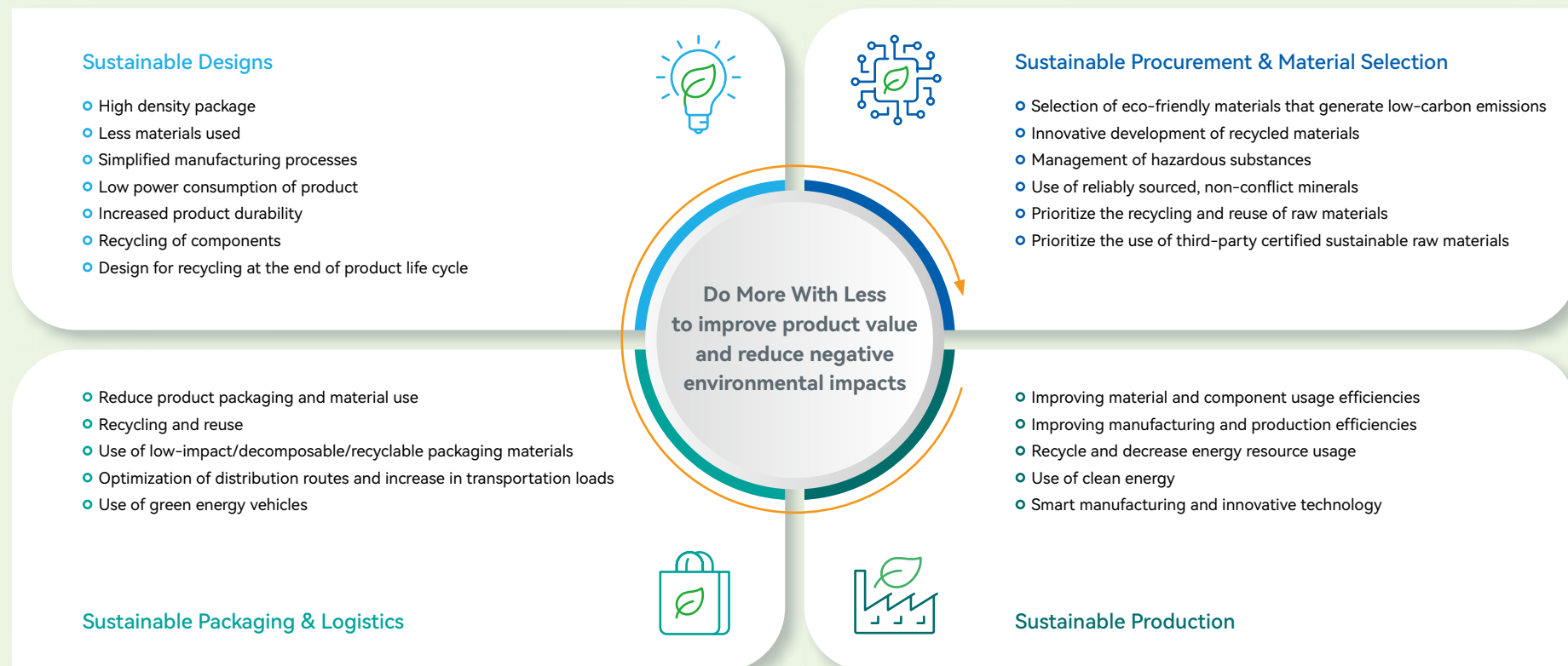
4.2 Sustainable Manufacturing

Sustainable Manufacturing Concepts and Principles

As a manufacturing service provider, ASEH embraces the concept of “doing more with less”. The company is firmly committed to four key manufacturing principles; sustainable designs, sustainable procurement and material selection, sustainable production and sustainable packaging and logistics. In the initial product/process design stage, sustainable manufacturing practices (as shown in the diagram below) are incorporated into the entire product life cycle; from raw materials, manufacturing, distribution, usage, to disposal, as well as at subsequent stages of product manufacturing and distribution. Our approach allows us to provide customers with sustainable products of higher value while minimizing the impact to the environment and improving eco-efficiency.

We are committed to:

- complying with all applicable laws and regulations
- managing hazardous substances in components and raw materials used in manufacturing
- creating solutions for the design of lightweight, thin, small and energy-efficient products
- reducing the environmental impact from manufacturing, packaging, and transportation



Sustainable Raw Materials

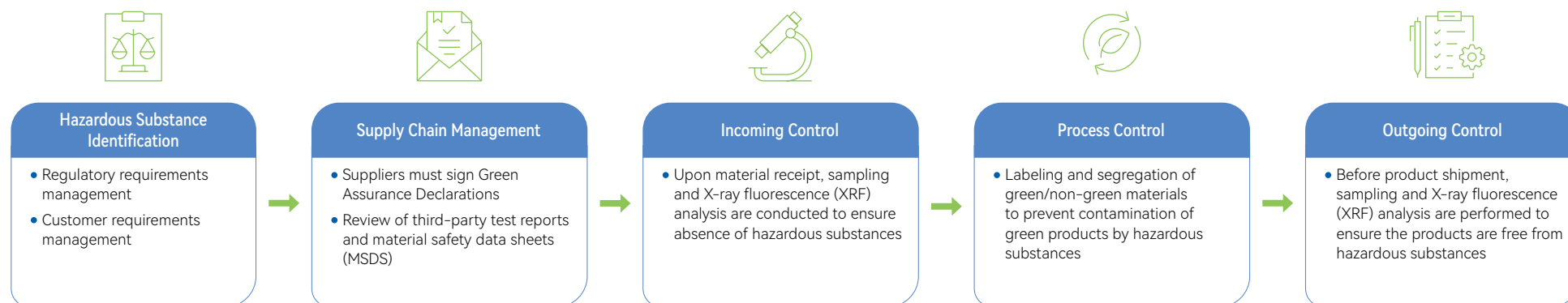
ASEH recognizes that the semiconductor and electronics manufacturing industry consumes a substantial amount of raw materials. The ASEH Board of Directors have approved the following Sustainable Raw Materials Policy based on the company's sustainable manufacturing principles.

Category	Raw Materials	Raw Material Suppliers																								
Tracing and Collecting Data	• Material Tracking and Origin Tracing: Regularly tracking the volume of raw materials consumed from ASE’s conflict mineral, cobalt, mica and other key raw material suppliers. In 2023, we conducted extensive source tracing of 18 additional metals, including copper, iron, nickel, aluminum, silicon, and silver.	• Proactive investigation: We conduct preliminary assessments on our suppliers based on key factors like level of business relationship and procurement value. At the same time, we review the risks of potential negative impacts on the environmental, social, and governance dimensions with respect to the supplier’s category type (including raw material suppliers etc.).																								
Risk Assessment	• Non-toxicity: Enhancing product compliance with regulations and customers’ sustainability requirements by establishing a hazardous substance process management system to ensure that the raw materials used for production do not contain substances harmful to humans or the environment. • Recyclability: Our environmental laboratory conducts green material assessments, develops nontoxic (or low-toxicity) raw materials, as well as analyzes material and waste recycling, reduction, and reuse technologies. • Eco-friendliness: Using Life Cycle Assessment (LCA) techniques to analyze the environmental impact of products and raw materials, and identifying improvement opportunities through hotspot analyses to enhance the eco-friendly content of products and raw materials. • Conflict Materials: Aligning with the due diligence process established by the Organization for Economic Cooperation and Development (OECD) to regularly examine the country of origin of raw materials (including conflict minerals) to avoid using materials from conflict zones.	• Sustainability risk: A Sustainability Risk Assessment Questionnaire (SAQ) was developed based on the RBA Code of Conduct and international standards such as the UN Universal Declaration of Human Rights. Sustainability risk assessments for all first-tier raw material suppliers are conducted regularly. • Climate Risk: Utilize the World Resources Institute (WRI) database to assess supplier water stress, and integrate data on extreme rainfall conditions to identify suppliers at risk of experiencing flooding and landslides. • Biodiversity: Determine if raw material suppliers’ production locations are biodiversity-sensitive by using data from the International Union for Conservation of Nature’s (IUCN) World Database on Protected Areas (WDPA).																								
Coordinated Action	• Eco-Design Guidelines: Eco-design guidelines have to be incorporated throughout all advanced technology development and new product development stages, especially in the selection of sustainable raw materials (choosing materials with lower negative sustainability impacts, avoiding materials from key biodiversity areas, and prioritizing the use of recycled metals, minerals and materials with third-party certifications).	• Supplier Guidance: Conducted programs to guide raw material suppliers in managing carbon inventory, renewable energy development, carbon reduction and water conservation. Supported a total of 131 suppliers in 2025.																								
Targeted Action	• USI has set a target of 14.71% and 26.93% by 2030, for the use of recycled plastic and recycled aluminum in its products. • ASE and SPIL have set a target to increase the proportion of recycled copper used in substrates to 57% by 2030¹. <table><thead><tr><th>Year</th><th>2023</th><th>2024</th><th>2025</th></tr></thead><tbody><tr><td>the proportion of recycled plastic used in products</td><td>16.72%</td><td>8.02%</td><td>9.83%</td></tr><tr><td>the proportion of recycled aluminum used in products</td><td>-</td><td>-</td><td>19.52%</td></tr><tr><td>the proportion of recycled copper used in substrate¹</td><td>-</td><td>-</td><td>55.92%</td></tr></tbody></table> ¹ The target covers 50% of the substrate procurement volume at our facilities in Taiwan.	Year	2023	2024	2025	the proportion of recycled plastic used in products	16.72%	8.02%	9.83%	the proportion of recycled aluminum used in products	-	-	19.52%	the proportion of recycled copper used in substrate ¹	-	-	55.92%	• Number of on-site sustainability audits for Tier-1 suppliers: 200 (by 2035) <table><thead><tr><th>Year</th><th>2023</th><th>2024</th><th>2025</th></tr></thead><tbody><tr><td>Number of on-site sustainability audits for Tier-1 suppliers</td><td>201</td><td>229</td><td>221</td></tr></tbody></table>	Year	2023	2024	2025	Number of on-site sustainability audits for Tier-1 suppliers	201	229	221
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We conduct training for employees involved in managing the sustainability aspect of raw materials, educating them on green products, hazardous substance control, product carbon footprint, and conflict minerals. In 2025, 50,941 people participated in these training courses, totaling 52,215 training hours, resulting in the increase of environmental awareness, and understanding the significance of utilizing appropriate raw materials for sustainability.

Management of Hazardous Substances and Chemicals

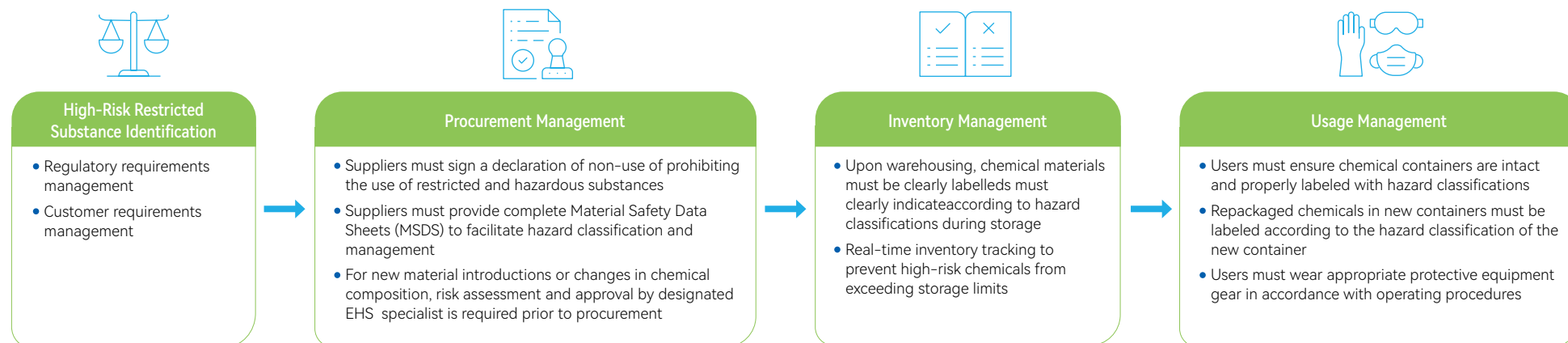
To achieve sustainable manufacturing, effective management of hazardous substances is crucial. We implement control measures using the QC080000 Hazardous Substance Process Management System. As an example, at ASE Kaohsiung, the team diligently identifies and manages hazardous substances that are subject to controls in accordance with regulatory and customer requirements. Next, in supply chain management, we classify raw materials into green and non-green categories based on their compliance with hazardous substance requirements. Using the Substance Control System (SCS) and Green Product System(e-GP), a raw materials database is established to comply with the EU RoHS Directive, REACH Regulation, US Toxic Substances Control Act (TSCA), as well as other national laws and customer standards. This proactive approach allows us to set robust requirements for hazardous substance management and standards that exceed regulatory and emerging trends.



We have expanded the scope of our control over chemicals that cause health hazards and increase environmental risks, including bioaccumulation, persistent pollutants, carcinogens, mutagens, and reproductive toxicants. Apart from the control of chemicals in products, we have also banned the use of, and progressively introduced alternatives for chemicals that are prohibited or restricted by customers or on the EU REACH list. For example, ASE Kaohsiung has established a high-risk restricted substance list as the basis for its chemical management measures, referencing relevant Taiwanese laws and regulations, EU REACH regulations and customer requirements. An integrated chemical management system has also been established for chemical lifecycle management; implementing control measures for various stages including the introduction of new materials, procurement, storage, use and disposal.

For newly introduced materials or those with changes to chemical composition, the environmental health and safety unit shall conduct careful evaluations to ensure that the materials do not contain high-risk, restricted substances. Procurement or use of the materials can only proceed after a hazard identification and risk assessment is conducted, and the risk level is determined as acceptable. The risk assessment ensures comprehensive risk management and covers chemical toxicity, degree of health hazard to personnel, frequency and duration of use, exposure scenarios, effectiveness of existing control measures and various factors.

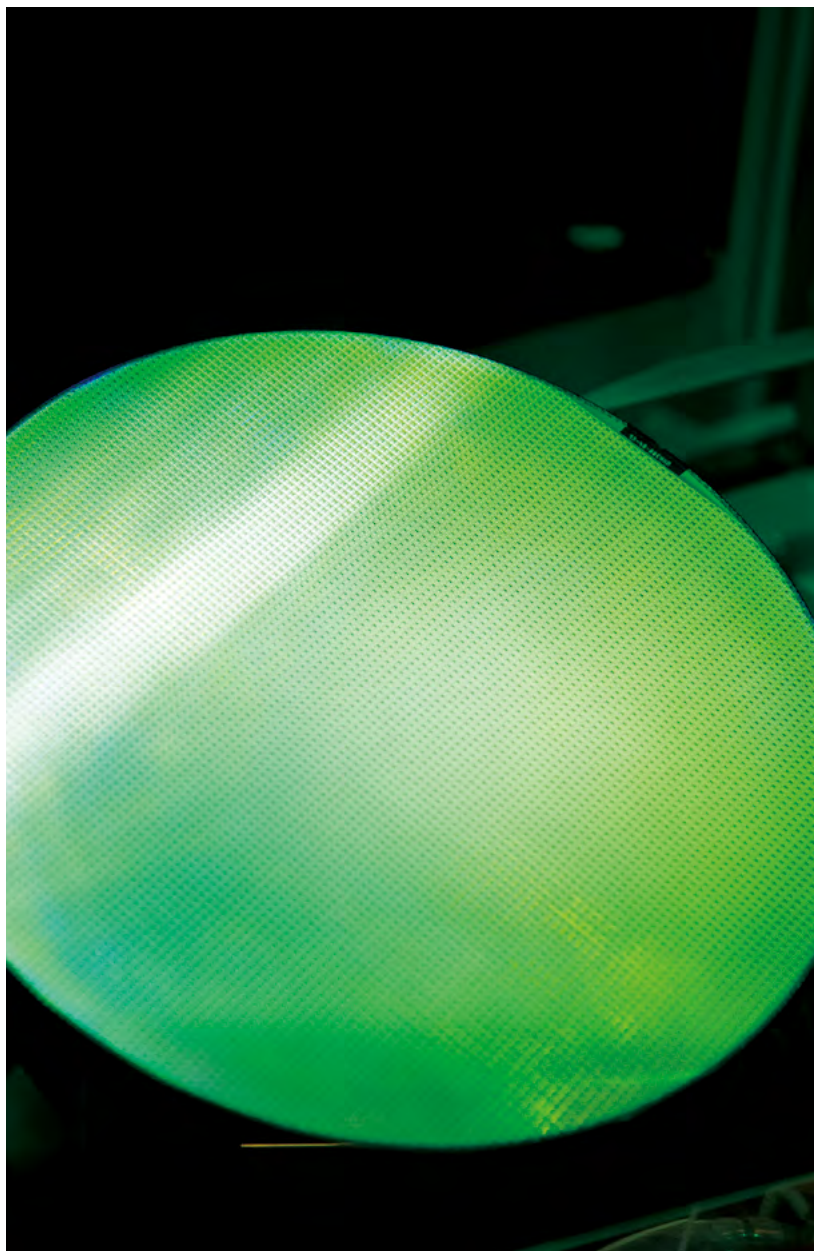
Hazard labeling and information disclosure for the storage and use of chemicals are mandatory procedures. Protective measures and SOPs corresponding to the hazard levels must also be established to ensure that operators take appropriate measures to protect themselves while performing their jobs. Employee health and safety is of the utmost priority to the company. As such, we continuously drive the reduction and substitution of high-risk substances, and we are committed to providing safe, healthy, and environmentally friendly manufacturing services.



ASEKH, ASECL, SPIL and USI have identified NMP and PFAS as hazardous substances subject to control and have established targets to progressively phase out these substances or substitute them with alternatives.

NMP	Target	2025 Status
ASEKH	Achieve 100% replacement of NMP-containing indirect materials by 2026.	No expansion of NMP-containing indirect material usage.
ASECL	Eliminate the use of existing NMP-containing materials (excluding direct materials) by December 31, 2030.	Certain operating materials contain NMP. A dedicated project has been established to implement substitution plans, with progress tracked every quarter.
SPIL	Achieve an 80% reduction by 2030.	NMP usage was reduced by 25.59% in 2025.

PFAS	Target	2025 Status
ASEKH	Starting in 2028, the relevant status will be reported, and the gradual phase-out of these substances will be initiated in accordance with the restriction requirements and timelines set forth by applicable regulations.	In 2025, alternative material assessments were conducted for seven affected material categories. At present, the development of alternative materials for Lead Frame is still in progress with suppliers, while Ferrite and certain material models have potential alternative materials available, but require customer approval or direction before internal evaluations can be conducted. Assessments for all other materials have been completed.
ASECL	The following target have been established based on the 12-year exemption period granted by the European Union for the semiconductor industry, plus an additional 10 years: *PFAS can analysis item is less than 25ppb *Total PFAS can analysis item are less than 250ppb *Total Fluorine <50ppm	Lead Frame and certain materials contain PFAS concentrations exceeding 100 ppm. Therefore, we are collaborating with suppliers to develop new materials and identify suitable alternatives.
SPIL	If PFAS is detected, we will comply with the applicable regulatory timelines and reporting requirements.	1. Suppliers have completed PFAS survey. Part of materials contains PFAS (including substrate-ABF, epoxy, underfill, polyimide, polybenzoxazole etc). 2. PFAS-free materials are continuously researched and evaluated.
USI	Complete prohibition will take effect from March 30, 2039.	All PFAS substances are included under control and managed in accordance with the most stringent customer requirements.



Sustainable Products

To gain a comprehensive understanding of the sustainability performance of our product portfolio, we apply the Taiwan Sustainable Economic Activities Reference Guidelines¹ as the basis for systematically assessing our products against the criteria for sustainable economic activities. We systematically assess whether each product meets the criteria for sustainable economic activities to gain a comprehensive understanding of the sustainability performance of our product portfolio. Through this approach, we aim to progressively increase the proportion of products that meet these criteria, strengthen our competitiveness in sustainability, and support the transition to a low-carbon and sustainable economy.

We have established sustainable product targets, aiming to increase revenue from sustainable product by 1% annually starting in 2025. To achieve this target, we continue to invest significant resources in sustainable product development. In 2025, we allocated approximately US\$ 28 million in combined capital expenditures (CAPEX) and operating expenditures (OPEX), and invested approximately US\$ 560,000 in research and development (R&D) to advance sustainable technologies and product innovation. We also strengthened our employees' expertise in sustainable products and related regulations through regular training programs, delivering a total 40,174 training hours in 2025. In addition, we have established incentive mechanisms to promote the development and sales of sustainable products. For example, at USI, we offer sales incentives and annual bonuses to encourage green product sales. Our sales personnel are required to establish annual green product strategy targets in accordance with our plans and requirements, regularly report their progress to supervisors, and undergo periodic performance reviews. We award incentives and annual bonuses based on the achievement of these targets and overall performance evaluation results. By integrating sustainability principles throughout our product lifecycle management, we continue to enhance the environmental and social value of our products.

	2022	2023	2024	2025
Sustainable Products Revenue (%)	75%	72%	74%	69%



¹ Based on the Taiwan Sustainable Economic Activities Reference Guidelines as our evaluation framework for sustainable products, we apply the technical screening criteria to determine whether our products make a substantial contribution to an environmental objective. For ASE and SPIL, we evaluate our sustainable products against the technical screening criteria for the semiconductor industry under general economic activities, specifically the threshold for product electricity consumption. We consider products sustainable only if their electricity consumption meets the prescribed threshold. For USI, we evaluate our sustainable products against the technical screening criteria for the computer and peripheral equipment industry under general economic activities, which require products to have industry-recognized environmental certifications. USI considers products to have met the sustainable product criteria when relevant certifications from customers are obtained, and when USI's self-assessment is acknowledged by respective customers



Product Lifecycle Assessments

We have incorporated the ISO 14067 product carbon footprint and ISO 14045 eco-efficiency assessments into our operations and have completed the inventory and evaluation of our five major packaging product series (i.e., BGA, Lead Frame, CSP, Flip Chip, Bumping). In addition, we have established databases and incorporated simulation algorithms for product research and development to increase product value while elevating ecological efficiency. We provide our customers a complete suite of manufacturing services as well as the development of energy-saving products.

In response to the growing challenges of climate change and carbon emissions, we are committed to providing low-carbon products and services. We have established product carbon footprint management capabilities across our manufacturing sites. By 2030, we aim to fully implement product carbon footprint management systems at all key facilities. Through accurate data analysis and continuous optimization, we enhance carbon efficiency throughout the product life cycle and support the transition toward low-carbon and sustainable operations.

Leveraging our collaboration with external experts in product life cycle assessment (LCA), we use SimaPro together with the ReCiPe 2016 Midpoint (H) methodology to evaluate environmental impacts across 18 impact categories.¹ This robust assessment approach ensures the scientific rigor, consistency, and comprehensiveness of our product carbon footprint management.

¹ Environmental impact categories: Global warming, Stratospheric ozone depletion, Ionizing radiation, Ozone formation(Human health), Fine particulate matter formation, Ozone formation(Terrestrial ecosystems), Terrestrial acidic cation, Freshwater eutrophication, Marine eutrophication, Terrestrial ecotoxicity, Freshwater ecotoxicity, Marine ecotoxicity, Human carcinogenic toxicity, Human non-carcinogenic toxicity, Land use, Mineral resource scarcity, Fossil resource scarcity, Water consumption

● Done ▲ Ongoing ★ New ◆ Update

Category	Product Series	Carbon Footprint	Eco-efficiency Assessment/ Environmental Footprint	Improvement Strategies and Actions
Assembly	BGA	●	●	Design - Consider factors such as product lifecycle, circulation and eco-efficiency during the design stage - Develop a new generation of energy efficient products - Upgrade technology, strengthen product functions, and reduce material inputs Example: Develop high density QFP to replace traditional QFP led to a decrease in material usage by 60%
	Lead Frame	●	●	
	CSP	●	●	
	Flip Chip	●	●	
	Bumping	◆	◆	
	SiP Technology	●	●	
Substrate		●	●	Procurement and materials - Select environmentally compatible materials that generate low-carbon emissions - Examples: Copper wires are used to replace gold wires, lowering product carbon emissions - Utilize environmentally friendly alternative materials - Examples: Use of boron-free developers, non-reproductive toxic photoresist stripping solutions, halogen-free materials - Research and develop recycled materials or extend product service life
Test		●	●	
Electronic Manufacturing Services,EMS	4G dual frequency communication module	●	●	
	XnBay smart storage server	●	●	
	Printer head	●	●	
	LCD Drive Board Series	●	●	
	Industrial tablet	●	●	
	Clickshare button	●	●	
	Wiper controller	●	●	
	PCBA	●	●	
	Charger for hearing aids	●	●	
	Motherboard for Automated Teller Machine	●	●	
	Mobile computer	★	★	
	Harman Daphne	★	★	
	K2C-AB	★	★	
	Wireless Transmitter	▲	▲	
	Automotive Power Module	▲	▲	

Production

- Introduce smart system controls to improve efficiency in energy utilization
- Enhance manufacturing process equipment or components to increase product lifecycles
- Value chain cooperation and material recycling
- Examples: Organic compound cyclopentanone, acetone recycling, plastic carbonization application
- Adopt innovative technologies to reduce the impact on ecology
- Examples: O₂ gas replaces CF₄ gas to reduce carbon emissions in the process

Packaging and logistics

- Material recycling
- Examples: Recycling of buffer materials, pallets and logistics boxes
- Avoid the use of foams with a substantially negative impact on the environment
- Promote low-carbon transportation
- Examples: Switch from air freight to sea freight, use green energy vehicles

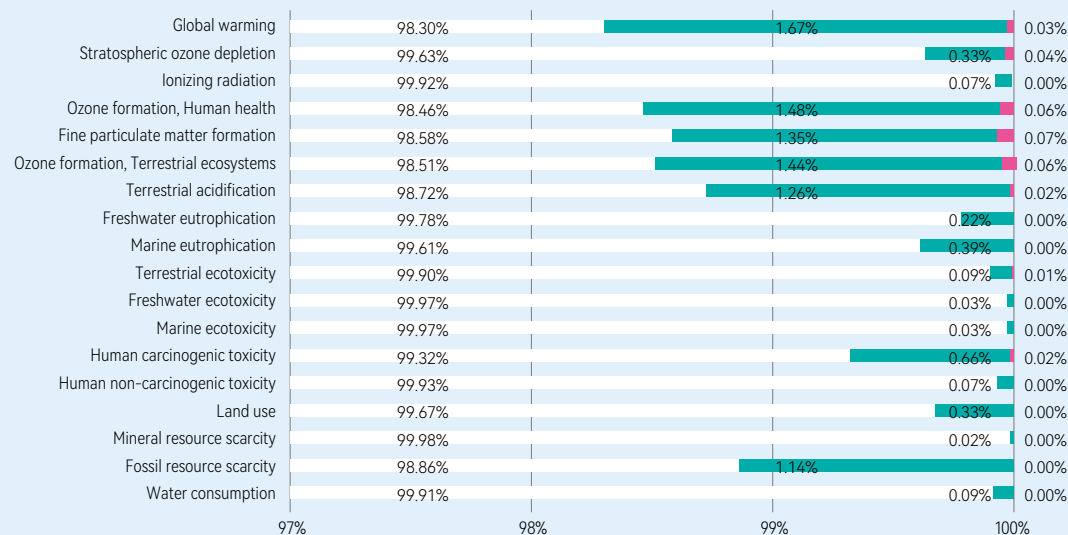


Life Cycle Assessment Results

According to the analysis results, Human non-carcinogenic toxicity, particulate matter formation, and climate change impacts on human health are the main environmental impact categories along the life cycle of mobile computer and harman daphne.

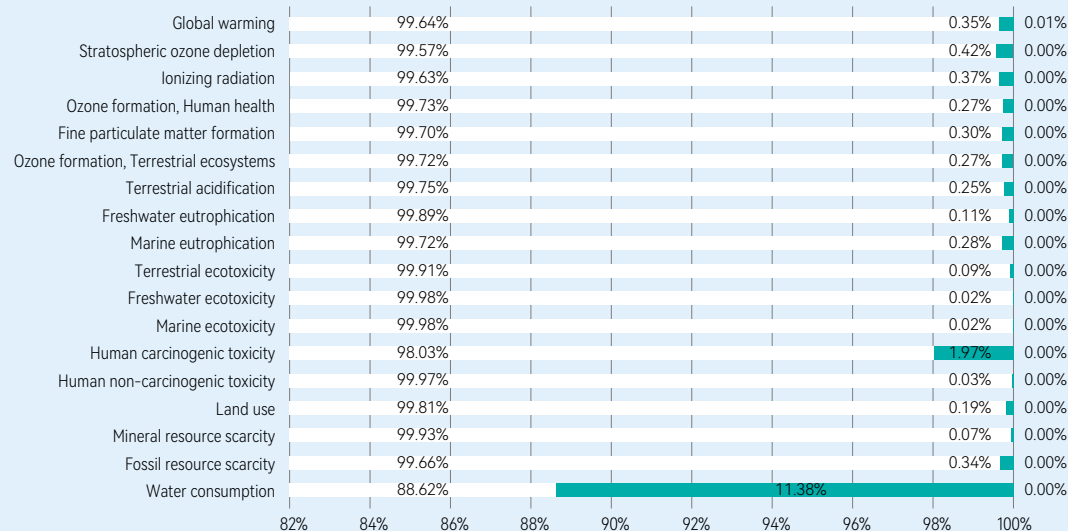
Environmental impact of PCBA

- Raw materials (including transportation) stage
- Manufacturing stage
- Waste (including transportation) stage



Environmental impact of Wiper controller

- Raw materials (including transportation) stage
- Manufacturing stage
- Waste (including transportation) stage



4.3 Products and Service

ASEH is a leading provider of semiconductor manufacturing services in assembly and testing. Our services include semiconductor packaging, production of interconnect materials, front-end engineering testing, wafer probing, and final testing services, as well as integrated solutions for EMS (electronic manufacturing services) in relation to computing, peripherals, communications, industrial, automotive, and server applications.

Our ability to provide packaging and testing services at scale, and our expertise in developing cost-effective packaging, interconnect materials, testing technologies and solutions, and innovative design manufacturing services have allowed us to meet customers' requirements effectively across a wide range of applications.

Customer Relations Management

Our key customers operate primarily in the semiconductor and electronics industries, and our five largest customers accounted for 46.5% of our consolidated operating revenue in 2025. We believe that our leadership in advanced manufacturing technologies, and our capacity to provide customers with a suite of high quality and fully integrated services are foundational to enhancing our reputation and building long-term partnerships.

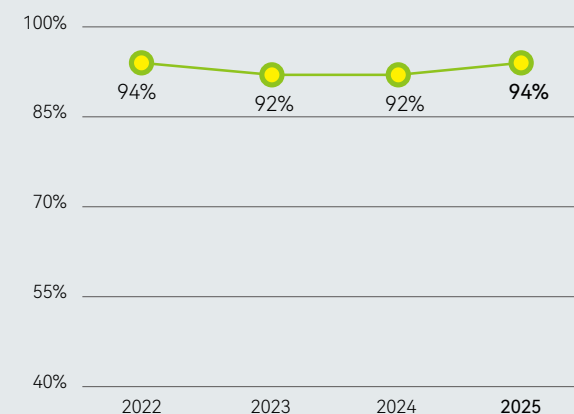
Customer relationship management teams are established at all ASEH subsidiaries to ensure that customer feedback and their needs are managed promptly. The teams are also responsible for coordinating between departments on customer related issues. Multiple communication channels including email, technical forums, customer visits and regular/ad hoc meetings allow us to share major company updates, technology developments and business performance with customers. Our continuous technical exchange and knowledge sharing activities have also helped us to strengthen our relationships with customers and build long term partnerships.

To improve customer satisfaction and service quality, we collect customer feedback through monthly, quarterly, and annual customer evaluations, customer satisfaction surveys, regular business and technical meetings, supplier award program and various channels. Customer feedback is analyzed and measured across five dimensions – Quality, Cost, Delivery, Technology, and Service & Sustainability, and forms the basis to improve our product quality, process optimization, technical capabilities and service standards. Our annual goal is achieve a satisfaction rate of at least 90% among our top 100 customers.

Top 5 Customers Together Operating Revenues Accounted (%)



Key Customers¹ Satisfaction Trend



¹ Key customer: ASEH's top 100 customers, which contributed about 89% of the company's operating revenues in 2025

Category	Implementation Approach
Establishing Diverse Communication and Support Channels	ASEH is committed to fostering enduring, trusted customer relationships. To that end, we have established diverse customer communication and support channels for product information, technical support, and feedback and suggestions. Customers can contact us through online forms, email, dedicated hotlines, and through in-person meetings. Dedicated teams at each of our subsidiaries and the respective facilities focus on responding and handling customer inquiries in a timely and effective manner.
Integrating Customer Feedback into Product and Service Improvement Processes	We collect customers' opinions and suggestions on product quality, technical support, and service experience through regular customer engagements, satisfaction surveys and daily interactions. Critical feedback and pertinent information are analyzed and evaluated by the relevant teams to identify areas of improvement, and incorporate them into product development, process optimization and customer service improvement framework. Managing customer feedback is critical to enhancing our overall competitiveness, product and service quality, and customer satisfaction.
Customer Feedback and Complaint Management	We have standardized case management processes across all our facilities to manage customer feedback and complaints. Time to resolution is usually determined by the complexity of individual cases, and progress updates are provided regularly to enhance process transparency, enabling customers to track the status and expected completion timeline of their cases. Upon receiving a customer complaint, an initial assessment is established within 24 hours, and an acknowledgement will be sent to the customer. Internally, a cross-functional team implements necessary containment measures to reduce the impact of the issue. Depending on the nature and severity of the case, root cause analysis and corrective actions are completed within two to four days. A comprehensive 8D corrective action report is provided to the customer within five business days, providing them visibility on the actions taken and status. We take active steps to develop and implement corrective action plans to prevent similar issues from recurring.
Independent Third-Party Verification and Enhancing Customer Trust	To ensure that our product quality, service processes and management practices meet customer expectations, all ASEH facilities have established quality management systems in accordance with international quality management standard and obtained independent third-party certification, including ISO 9001. Through objective third-party assessments, we continuously verify the effectiveness of our quality management systems, strengthen product reliability and service quality, and enhance customer trust and long-term partnerships.

Product Quality Management

As the world's leading provider of semiconductor manufacturing services, we take pride in maintaining a high service standard and delivering first-rate quality services that exceed customer expectations. To that end, we are guided by the plan-do-check-act (PDCA) management approach that drives continuous improvement in product quality and manufacturing capabilities, advancing our goal of achieving total customer satisfaction.

At ASEH, we are committed to developing a comprehensive quality management system (QMS) and continuously enhancing the quality of our products and services to ensure compliance with customer requirements and relevant international standards. As such, we ensure that all our facilities establish clear quality management objectives that include the maintaining of ISO 9001 certification on an annual basis and zero customer recalls arising from health or safety-related product recalls.

In 2025, various quality management standards have been adopted across our global operations based on the unique location and business needs of each facility including ISO 9001 QMS, IATF 16949 (automotive) and QC 080000 (hazardous substance management). Our robust QMS framework ensures that our products not only meet customer requirements but also comply with applicable regulations through stringent process monitoring and statistical analysis, supplier quality management, data review and management, quality risk control and corrective action planning. Consequently, we have not recorded any health or safety-related product recalls in 2025. At the same time, we work closely with our supply partners to mitigate quality risks across the supply chain by conducting regular evaluation of their quality management practices and compliance, and performing routine audits and supplier performance assessments.

Going forward, we will continue our focus on quality excellence to demonstrate Total Quality Commitment and to secure strong customer relationships for the long-term.

Category		Implementation Approach
Plan 	Quality Standards	We established quality policies and standard procedures in accordance with ISO 9001, IATF 16949, QC 080000, and various international standards as the foundation for implementing and continually improving our quality management system.
	Quality Education and Training	To enhance employees' quality management competencies and strengthen our quality culture, we continuously provide educational and professional training programs including new employee orientation, on-the-job training, and external courses. Our systematic training process strengthens employees' knowledge of quality management, sharpening the skills required for their roles, and reinforces the importance of product quality and customer needs across the organization. In 2025, employees at our major manufacturing sites spent a total of more than 178,000 hours in quality-related training, and the cumulative number of people that have undergone training exceeded 131,000. These achievements demonstrated our continued focus on talent development and promoting a total quality management culture. • Onboarding training: Courses on quality culture to build awareness among new employees. • In-service training: Tailored quality training based on job roles and operational needs, such as 8D problem solving, Out-of-Control Action Plans (OCAP), and Six Sigma.
Check 	Internal Review and Audit	We have established a comprehensive internal audit mechanism that covers the entire quality management ecosystem including QMS audits, manufacturing process audits and product audits, ensuring that all operational processes comply with QMS and customer requirements. Annual audits as well as regular evaluations are conducted by a cross-departmental audit team to examine QMS implementation and effectiveness, and to drive continuous improvement. The internal audit process comprises the following stages: 1. Planning: Observe the audit plan and arrange audit items as planned, select qualified auditors, and prepare the audit scope, standards, and checklist. 2. Execution: Conduct on-site audits in accordance with QMS requirements and relevant standards to verify that operational processes comply with regulations and customer requirements. 3. Improvement: Propose corrective and improvement measures based on the audit findings, and track and verify the effectiveness of the improvement actions. 4. Management review: Results of the audits, and the progress of corrective action improvements and control measures are regularly reviewed by the management team to enhance QMS effectiveness.
	Product Recall and Prevention	To ensure that our products comply with customer specifications and applicable regulations, we have established extensive quality controls at our manufacturing facilities in accordance with the products' characteristics and their respective process requirements. The scope of control covers the methodology, operating procedures and management processes for maintaining stable and reliable quality from production and inspection, to the final delivery of the product. To prevent non-conforming products from reaching customers, our facilities conduct thorough incoming material inspections, process quality monitoring, and pre-shipment inspections. A product acceptance process is carried out as a final checkpoint to ensure compliance with applicable inspection standards and regulations before handing over to the customer. At any point where non-conforming or potentially defective materials or products are identified, they are immediately isolated and placed on hold to prevent further nonconformities. In parallel, our engineering team will initiate abnormality tracing and analysis, tracking potentially affected product batches and suspending equipment operations where necessary to investigate the root cause. We have also put in place structured containment and improvement measures to ensure that our products meet the required specifications and quality control standards.
Action 	Customer Complaint Mechanism	Systematic customer complaint mechanisms have been established at all our global operations, providing various channels for customers to submit feedback and suggestions through phone, email, written reports, or ad hoc meetings. Upon receiving reports of product quality issues or customer complaints, we will immediately mobilize teams from different departments to take action. Dedicated personnel from the relevant departments will be assigned to identify the issue, analyze the cause, develop improvement measures, and provide customers with timely updates on the progress and results. Review meetings are then held regularly to monitor the effectiveness of improvement measures. Effective implementation of corrective and preventative measures are critical steps to help us mitigate risks, enhance customer satisfaction, and maintain stable and long-term customer relationships.

At ASEH, we embrace emerging technologies like AI, machine learning, big data analytics, digital and cloud computing applications and Internet of Things (IoT) to improve our product quality, manufacturing efficiency, and overall competitiveness. These technologies are integrated into our research and development, and production processes from new product introduction (NPI), yield prediction, to smart inspections and process monitoring. By integrating data from product design, manufacturing processes, facility and quality, we are able to establish a system that enables smart analysis, real-time monitoring and data-driven decision-making for process optimization and early anomaly detection. We are also able to improve quality, yield and manufacturing efficiency, while reducing resource wastage from prototypes, rework and scrapping. Developing a smart and sustainable operation allow us to supply customers with high-quality and highly reliable semiconductor products.

AI in R&D: New Product Introduction and Design Quality

To accelerate NPIs without compromising quality, we have established an Engineering Knowledge Platform that integrates historical product data, material specifications, process parameters, equipment conditions and quality results. Augmented by AI, machine learning, and big data analytics, new product yields can be accurately projected while optimizing process parameters. The application of AI technologies to improve first-pass yield has resulted in significant improvements to new product yield and quality as well as shortening yield ramp-up time and expediting the process towards volume production. The adoption of AI and emerging technologies have greatly enhanced our time-to-market, and ability to reduce costs and wastage in materials, energy, equipment, and manpower.

AI in Manufacturing: Quality Management and Manufacturing Resilience

AI technologies adopted in smart inspection, anomaly analysis and process monitoring mechanisms have enabled us to achieve consistent quality and process stability. Internally, we have developed a proprietary smart wire-bonding AI-assisted inspection system equipped with AI-AOI (automated optical inspection) and AVI (automated visual inspection) technologies, combining with our smart image recognition and automated inspection process to improve inspection efficiency and accuracy.

To manage process quality, we have adopted an Out-of-Band (OOB) management platform, utilizing AI and big data analytics to establish cross-process quality analysis capabilities, allowing us to quickly identify key factors that affect yield and locate the source of anomalies. This methodology has significantly reduced the proportion of low-yield lots and speeds up quality anomaly analysis from days to hours, reducing costs and wastage from rework, scrapping and repeated inspections.

Our Advanced Particle Expert (APX) AIoT management platform employs AI Agents to continuously monitor particulate in the environment. This methodology helps to identify high-risk equipment and process conditions in advance, enabling predictive maintenance and process improvements, reducing yield losses due to particulate pollution and subsequently dropping the rate of reworks due to particulate pollution. At the same time, we were able to reduce the use of electricity, water, chemicals and consumables, while improving both product quality and manufacturing resilience.

Driving AI-Powered Smart Manufacturing toward Quality and Sustainability

AI has transformed the way we managed our operations, shifting from a reactive stance to a proactive approach that anticipates needs, prevents downtime, and plans strategic actions in advance. Its integration into manufacturing at ASEH has deeply enhanced quality, yield and process efficiency, reducing resource consumption and environmental impact. Going forward, we will further embed AI across our smart manufacturing blueprint, accelerating digital transformation and shaping a highly resilient, low-carbon and more sustainable semiconductor future.

