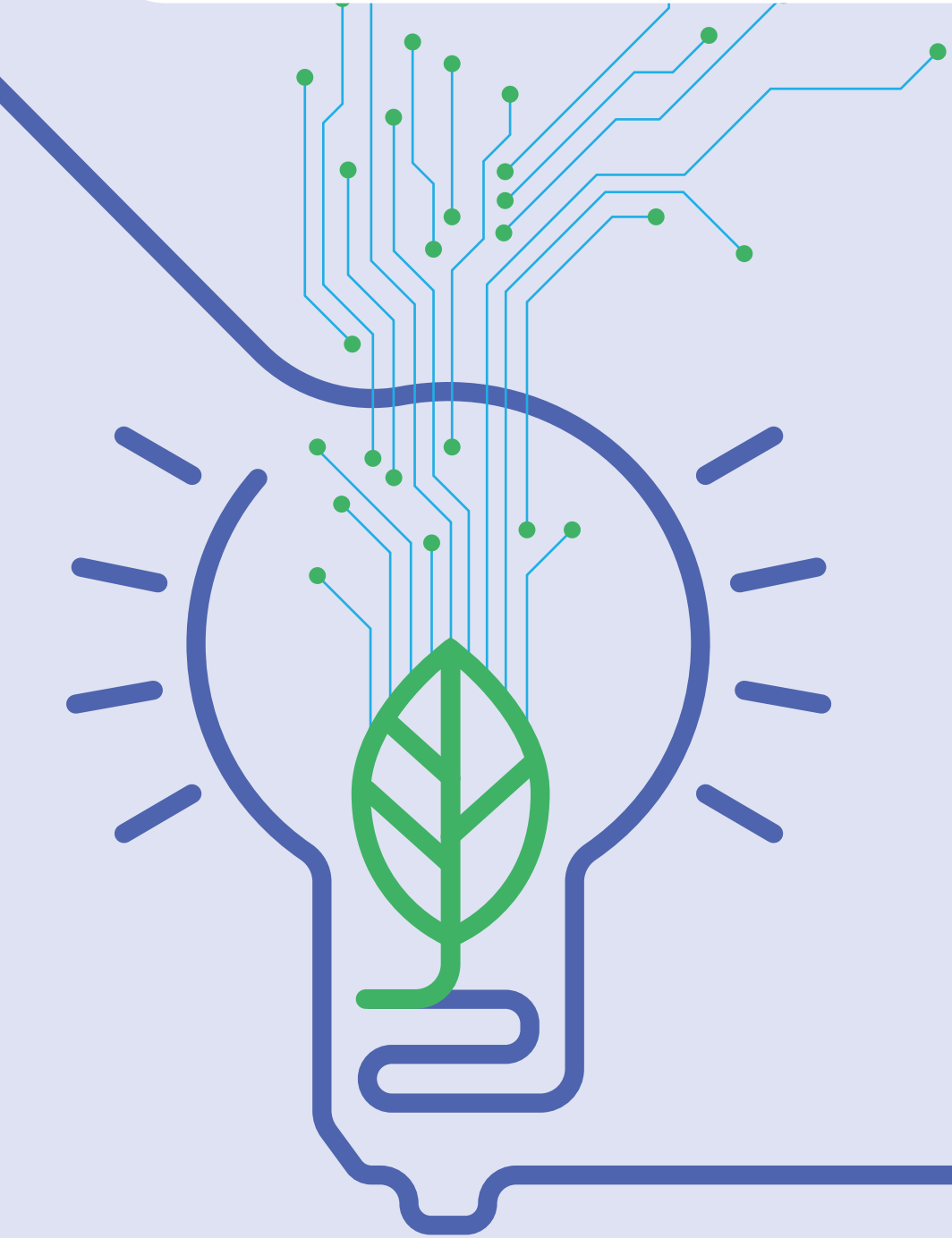
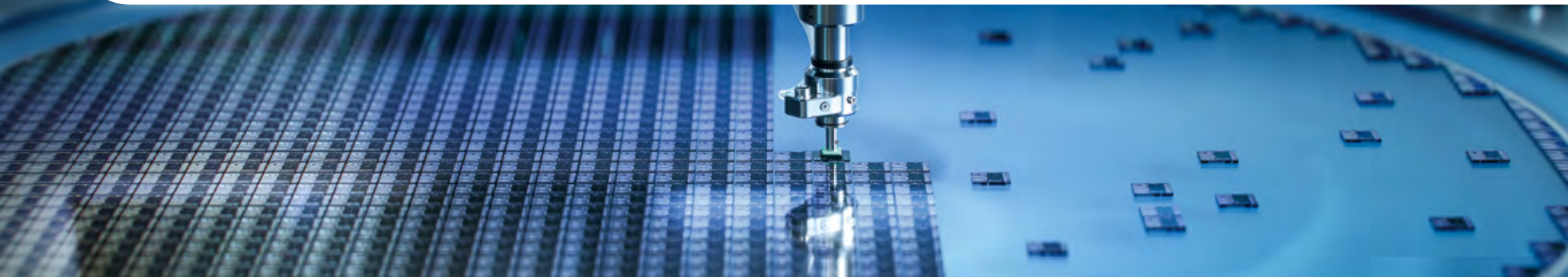


INNOVATION SERVICE

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 most 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 increased 12.9% to NT$28,830.3 million in 2024, compared to NT$25,499.4 million in 2023, accounting for 4.4% and 4.8% of operating revenues in 2023 and 2024. As of December 31, 2024, our research and development team comprise 12,715 employees, an increase of 4.9% compared with 12,125 in 2023.

Driven by strong demand for applications such as high-performance computing, AI, IoT, autonomous driving, and smart manufacturing, breakthroughs in advanced processes and advanced packaging technologies are the main forces driving the continuous development of the semiconductor market. The rapid evolution of key technologies such as 2.5D/3D IC, CoWoS, FOPLP, and CPO not only accelerates chip integration and performance improvement but also meets the diverse market demands for thin, lightweight, multifunctional, and low-power end products.

In 2024, the Company successfully developed key products and technologies categorized as follows: (1) Flip Chip Packaging (FCP): Memory stacking technology for HBM3 (the third generation of high-bandwidth memory) (2) Wire-Bond Packaging: Intelligent wire-bonding defect inspection powered by deep learning and computer vision (3) Wafer Level Packaging: Development of WLP with optical waveguide (4) Advanced Packaging and Modularization: Advanced packaging technology for 3D voltage regulation modules (5) Panel Level Packaging: Development of FOSoP (Fan-Out System on Package) (6) SiP Packaging: SiP with 3D irregular selective staged molding integration wire bonding (7) OEP (Optoelectronic packaging): Development of ultra-large scale silicon photonics packaging system with fan-out optical waveguide, and optical assembly for optical components.

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.

Technology Platforms

R&D is costly and time-consuming, and selecting the right products/technologies in the early stages reduces the risk level. To address this, ASEH has established a market analysis taskforce consisting of an internal team of R&D staff, research institutions, suppliers, equipment manufacturers and customers. Through the taskforce, the Company is able to regularly exchange views on the latest market developments with players in the industry, focus on new product/technology development to meet emerging market demand, set short, medium and long-term R&D targets, and concentrate its resources on priority projects.

ASEH has formed a Technology Board consisting of experts from a wide range of professional disciplines to achieve horizontal integration and effective technology development through the integration of technology and knowledge sharing, and the creation of a platform for in depth analysis and discussions. Furthermore, we have set up a Knowledge Management (KM) platform that can be accessed globally to encourage employees to share innovative engineering technologies regularly. ASEH will continue to improve the KM platform functions and strengthen the development of its core technology to increase the company's competitiveness and growth potential.

Smart Factories

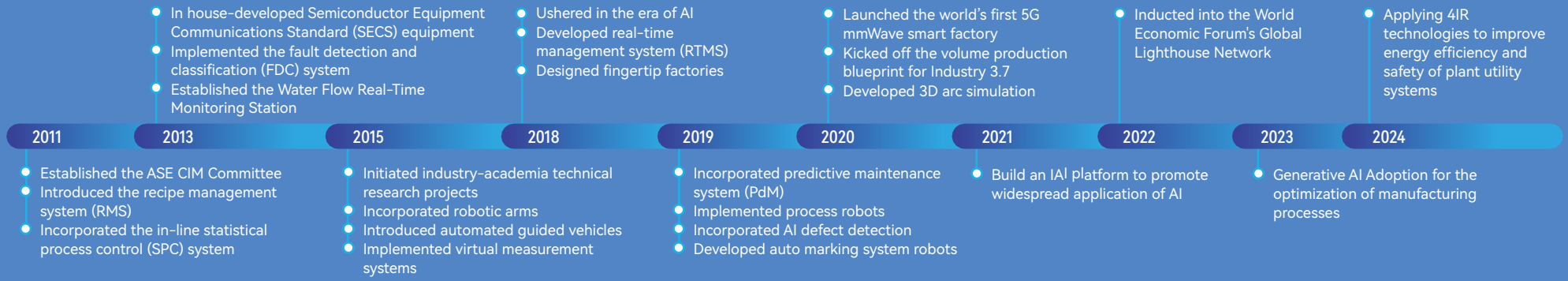
Aiming to drive greater efficiency and improvements in our manufacturing process that will in turn deliver higher customer satisfaction in quality and delivery, ASEH began to invest in automated, lights-out factories in 2015. At ASEH, we are accelerating digital transformation in smart manufacturing through automation, heterogeneous integration in machine and production systems, and heterogeneous integration in systems-in-package (SiP). In 2011, ASE established the ASE CIM Committee, a strategic task force that is comprised of teams from various business units (lead frame packaging, ball-grid array packaging, flip chip packaging, wafer-level packaging, SiP packaging and test services) and the Information Technology Center. By 2024, the company has established 56 lights-out factories, trained more than 700 automation engineers, and developed over 68 industry-academia research projects. ASEH achieved another major milestone when its bumping facility in Kaohsiung was inducted into the World Economic Forum's Global Lighthouse Network, a community of production sites and value chains that are world leaders in the adoption and integration of the cutting-edge technologies of the Fourth Industrial Revolution (4IR).

Smart factories and automation transform our labor needs by allowing us to redeploy workers and train them for higher skilled jobs. The upgrade in our workforce will greatly improve productivity, increase employee engagement and create more sustainable value.

Smart Factory Transformation through Innovative and Breakthrough Approaches

Challenge	Problems encountered	Solution
Inadequate equipment connectivity	• To meet the needs of smart factories, production equipment information must be collected and stored in a central database so that real-time analyses and management can be conducted. • In the early days, due to the dearth of OSAT industry production equipment that met Semiconductor Equipment Communication Standards (SECS), equipment connectivity was the top challenge to be overcome.	• **Step 1:** Collaborate with procurement units to conduct negotiations with equipment suppliers and request that new production equipment meet SECS standards. • **Step 2:** Perform research on existing production equipment to find ways to achieve automatic connection and convert into compatible SECS formats. After years of development, ASEH's production equipment now meets SECS standards.
High complexity of product tracking	• Automotive customers require strict records of the production history of all automotive chips to facilitate tracking when problems occur. • In semiconductor chip manufacturing, product tracking begins at the wafer fabrication stage. The wafers will then proceed to the next process stage. Once the wafer is cut into individual dies for packaging, the dies do not have any markings for identification and tracking.	• Use 2D codes and RFID technology to accurately record the individual wafer and the location on the wafer that each die originated from, the location on the substrate and the locations on the die carrier and substrates. • All the location information is stored in the map system database that can be accessed any time. Customers are able to check production history, while our engineering teams can use the data to perform quality and yield analyses.
Lack of local automated equipment supply chains	• In the early stages, most automated equipment suppliers were large foreign suppliers that commanded high prices, were inflexible and provided long lead times. As a result, we faced delays in project completion and unsatisfactory outcomes.	• Actively look for local suppliers of automated equipment including automated guided vehicles, automatic storage and robotic arms, etc. In recent years, we have established business relationships with approximately 38 automation suppliers, strengthening the local automation industry chain in Taiwan.
Lack of qualified personnel	• When the ASE CIM Committee was initially established, there were only 30 engineers with expertise in automation.	• More than 700 smart factory automation engineers have been trained through the establishment of in-house automation and AI training modules as well as industry-academia research programs. • **AI training modules:** We launched the modules in 2018 to promote AI technology. Integrating the AI platforms into the production, engineering, and administrative departments help to popularize the IAI platform, and also ensure readiness for the upcoming No-code AI age. As of 2024, more than 15,000 individuals have been trained. • **Intelligent Engineering training modules:** Since the launch in 2022, our PE/EEs have received training in statistical analysis and equipment monitoring. The engineers also learnt how to optimize digital tools and ideas for project applications. As of 2024, more than 4,000 individuals have been trained. • **Digital Application training modules:** Starting in 2018, we created courses on digital tools such as RPA, Qlick View, Doc.Bee, and Co-know to train administrative and support staff to utilize digital tools effectively. As of 2024, more than 11,000 individuals have been trained.

1st light-out factory ▶▶ 56th light-out factory



Smart Factory Milestones

2011	Introduced the recipe management system (RMS)	As a control measure before mass production, the EAP transfers data to equipment through SECS/GEM, ensuring data validity and improving overall equipment efficiency (OEE).
2013	In house-developed Semiconductor Equipment Communications Standard (SECS) equipment automation program (EAP)	To overcome challenges in equipment connection program development, we designed a development platform for standardized equipment connection programs, solving process design problems, lowering program development complexity, and increasing human-machine ratios and operation time.
	Implemented the fault detection and classification (FDC) system	By collecting equipment production parameters in real-time, systems are able to report equipment status immediately and check formal functions automatically so that warning signals are issued when malfunctions occur, thereby preventing the repeated manufacturing of defective products and ensuring that reporting mechanisms are in place to detect malfunctions in real time.
2015	Introduced robotic arms and automated guided vehicles (AGVs)	AGVs and robotic arms were integrated to introduce the autonomous mobile robot (AMR) that can support transport operations, thus reducing manpower on the floor and maximizing packaging capacity.
2018	Ushering in the era of AI	Applying AI powered detection technology to identify and intercept any malfunctioning equipment that may compromise information security and prevent any information security incidents. The in house-developed technology helps mitigate information security risks and reduce investment costs.
2019	Incorporated the predictive maintenance system (PdM)	A predictive maintenance system helps determine equipment that is likely to require maintenance and predicts equipment component failures and malfunctions in advance. The system allows early notification of maintenance personnel to service the equipment, thereby lowering equipment failure time.
2020	Launched the world's first 5G mmWave smart factory	The 5G mmWave smart factory was a collaborative effort between ASE, Chunghwa Telecom and Qualcomm, showcasing the future of automation and smart factories. 3 use cases were developed to demonstrate the use of 5G mmWave in smart factories - automated production line inspection using AI+AGV, remote AR maintenance and the AR experience at the ASE green technology center.
2021	Build an IAI platform to promote the universal application of AI	ASEH ushered in the era of AI. In addition to actively cultivating AI technology talent, we began to build the IAI platform to create an AI no code environment and promote widespread application of AI throughout the company.
2022	Inducted into the World Economic Forum's Global Lighthouse Network	ASE's Bumping Factory in Kaohsiung adopts 4IR (Fourth Industrial Revolution) technologies across its manufacturing operations. In particular, the facility applies AI technology in the management of equipment and processes to improve yield and accuracies in production schedules. As a result of the remarkable integration of 4IR, the facility was inducted into the World Economic Forum's Global Lighthouse Network (GLN).
2023	Generative AI Adoption for the optimization of manufacturing processes	ASE Kaohsiung's smart manufacturing is continuously evolving and the team is actively harnassing AI to optimize production processes. Our manufacturing processes for a diverse range of products are complex, and AI adoption is helping to improve worker productivity that minimizes work-in-progress costs and maximizes yield. Applying AI enables better optimization of machine and shipment scheduling to meet delivery deadlines, ensuring the most efficient production schedules in the shortest possible time. The extensive data mining and analysis, combined with the factory's 24/7 operations have resulted in widespread AI applications at ASE Kaohsiung.
2024	Applying 4IR technologies to improve energy efficiency and safety of plant utility systems	Leveraging 4IR technologies to enhance the energy efficiency and safety of plant utility systems. AI-driven universal monitoring ensures compliance and safety in high-risk operations during new plant construction. The chilled water supply is automatically controlled by AI to operate at optimal energy-saving levels, with intelligent variable-frequency regulation.

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.

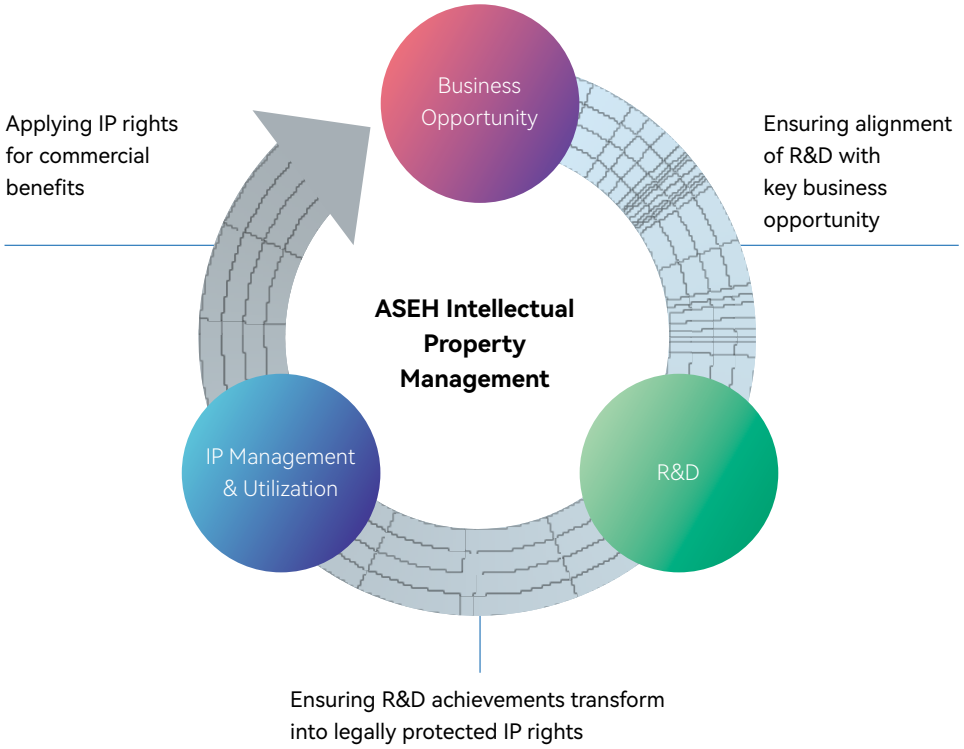
ASEH has established an IP policy that serves to protect the company's technological innovations and its global leading position. In addition to continuously striving towards R&D innovation and developing IP management strategies that conform with the company's development trends, ASEH's IP management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

ASEH's IP management is tightly embedded into the company's business operation blueprint, forming a continuous innovation cycle that encompasses business opportunities and R&D, to IP management and utilization that includes the following three phases:

Step 1: To maintain ASEH's technology leadership and to better respond to future market needs, the company invests aggressively in research and development, aligns R&D with key future business opportunities and invests heavily in talent development and R&D resources.

Step 2: Our robust IP application system and tools ensure that R&D achievements are transformed accurately, thoroughly and effectively into legally protected intellectual property rights. To ensure comprehensive protection for key technologies and strengthen patent quality, ASEH adopts a 3-pronged approach: developing a comprehensive portfolio, re-assessing patents to identify those of value and, revitalization to increase the value. Patents must also provide business value in order to maximize R&D investment returns. ASEH puts in place a system of measures to protect the company's trade secrets and maintain its unique competitive advantage, including information security systems, employee awareness training and education and systematic management and award mechanism. Where appropriate, the company will enforce applicable laws and regulations to prevent improper use, leakage or misappropriation of the company's intangible assets by others to ensure that ASE's investments, rights and interests are duly protected.

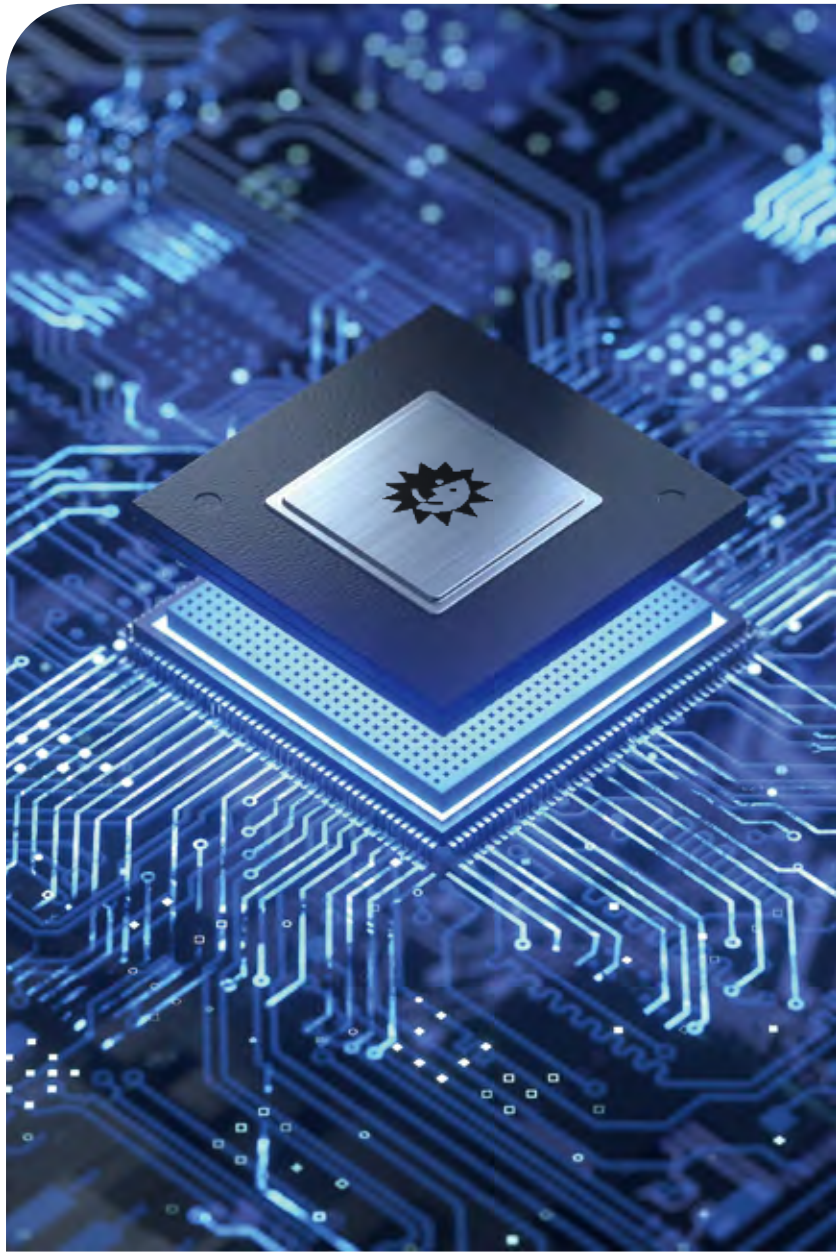
Step 3: High-value IP helps to facilitate business success, obtain customer orders and develop more business opportunities, thereby creating a positive sustainable cycle. Our robust IP management prevents unauthorized use of ASEH's technologies by others and helps to defend against any threats from competitors.



Advanced Semiconductor Engineering, Inc., a subsidiary of the company, filed an application for the renewal of Taiwan Intellectual Property Management System (TIPS) (AA Class) certification in 2024. The renewal of TIPS certification (AA Class) was valid for another 2-year-term until December 31, 2026. Additionally, Siliconware Precision Industries Co., Ltd. and Universal Scientific Industrial Co., Ltd. also obtained the Taiwan Intellectual Property Management System (TIPS) (A level) certification, with their certificates valid until December 31, 2025.

Based upon the foundation of long-term practices on intellectual property management, ASEH further enhanced the scheme of its intellectual property management, strengthened employees' intellectual property value awareness, intensify all aspects of protections of R&D achievements, and promoted the trust of its shareholders and customers in company by introducing TIPS framework and obtaining external certification.
As of January 31, 2025, ASEH owned 6,433 patents, primarily in various assembly and testing technologies as well as electronic manufacturing services technologies, including 2,077 patents in Taiwan, 2,030 patents in the U.S., 2,189 patents in the People's Republic of China, 87 patents in Europe and 50 patents in other countries.
To learn about the benefits of intellectual property rights to ASEH sustainable development, please refer to ASEH website-ESG | Sustainability Governance | Intellectual Property Management.

The link is https://www.aseglobal.com/csr/sustainability-governance/ip-management/



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

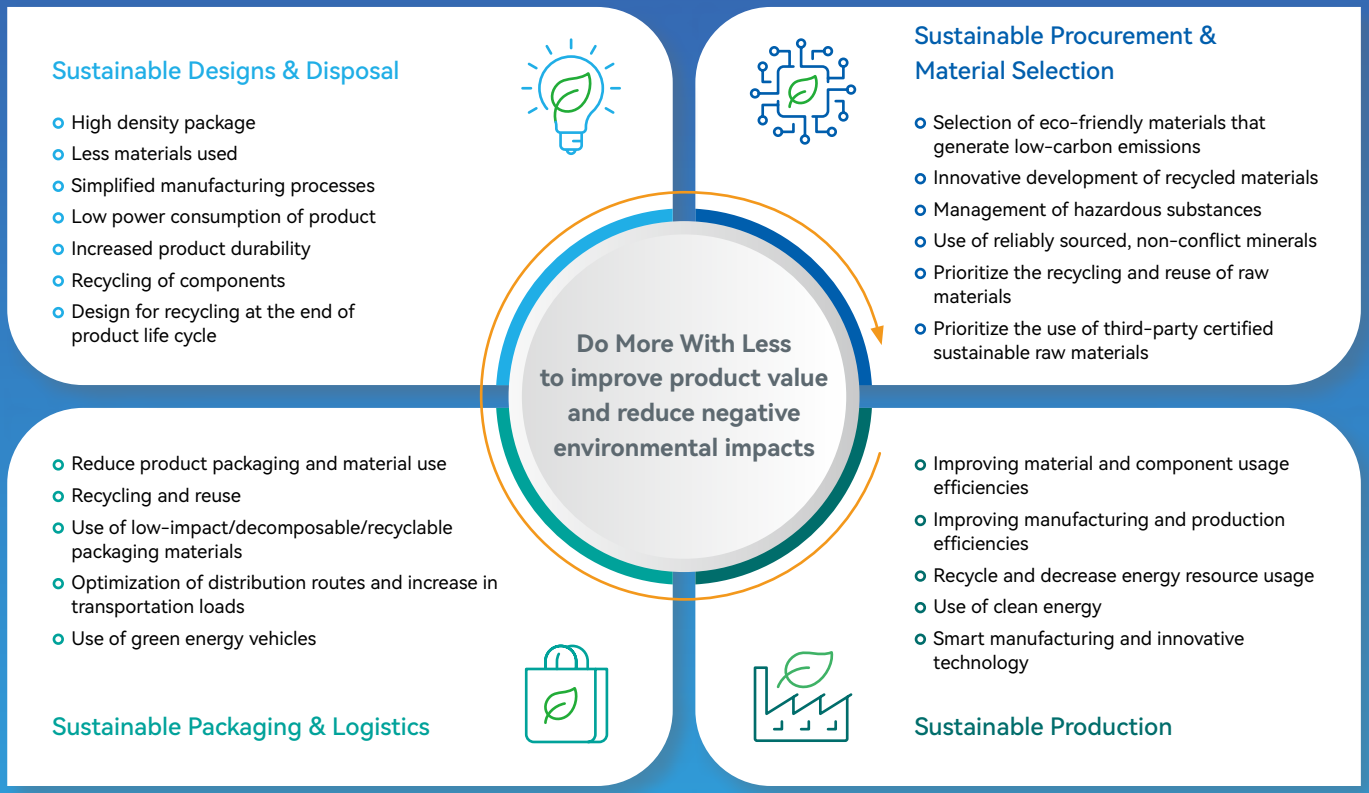
- Place equal emphasis on patent quantity, quality, and value. Focus on three major approaches on patent management: comprehensive planning, curating patents of value, and value enhancements.
  - ➤ Develop a comprehensive patent plan for critical technologies at an early stage.
  - ➤ Regularly evaluate 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

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.

	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 non-toxic (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 158 suppliers in 2024.
Targeted Action	USI has set a target of 13.2% by 2030, for the use of recycled plastic in its products.	Number of on-site sustainability audits for raw material suppliers: 120 (by 2030)

	2022	2023	2024
the proportion of recycled plastic used in products	NA	16.72%	8.02%

	2022	2023	2024
the number of on-site sustainability audits for raw material suppliers	187	201	229

We conduct training for employees involved in managing the sustainability aspect of raw materials, educating them on green products (hazardous substance control), environmental protection, business ethics, supplier sustainability management, and conflict minerals. In 2024, 46,154 people participated in these training courses 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, green and non-green raw materials with or without hazardous substances are classified accordingly. Using the Green Product Management System (GPMS), 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.

Hazardous Substance Identification
- Regulatory requirements management
- Customer requirements management

Supply Chain Management
- Suppliers must sign Green Assurance Declarations
- Review of third-party test reports and material safety data sheets (MSDS)

Incoming Control
- Upon material receipt, sampling and X-ray fluorescence (XRF) analysis are conducted to ensure absence of hazardous substances

Process Control
- Labeling and segregation of green/non-green materials to prevent contamination of green products by hazardous substances

Outgoing Control
- Before product shipment, sampling and X-ray fluorescence (XRF) analysis are performed to ensure the products are free from hazardous substances

We have expanded our control measures for chemicals that cause health hazards and increase environmental risks, including bioaccumulation, persistent pollutants, and toxic substances that are carcinogenic, mutagenic or affects fertility. In addition, any newly introduced chemicals in the manufacturing process that are prohibited by customers or the EU REACH Restricted Substances List, will be replaced with another qualified substance. As an example, ASE Kaohsiung identifies and develops a list of restricted and prohibited substances based on relevant Taiwanese and EU REACH regulations, along with established customer requirements. The site has also developed an integrated chemical management system for material lifecycle management. Prior to material procurement, our EHS specialists carefully review and approve new materials or any new changes in chemical composition to ensure that they do not contain high-risk substances and conduct hazard identification and risk assessment indicating an acceptable level of risk. This risk assessment takes into account factors such as chemical toxicity including incidence of employee injury or illness, frequency and duration of use, and the effectiveness of control measures. Chemical hazard classification must be clearly labelled for materials in storage and throughout the usage. Personnel handling the material must take the necessary protective measures in accordance with the hazard classification. At ASEH, we are fully committed to prioritizing employee health and safety by providing environmentally friendly manufacturing services.

High-Risk Restricted Substance Identification
- Regulatory requirements management
- Customer requirements management

Procurement Management
- Suppliers must sign a declaration of non-use ofprohibiting the use of restricted and hazardous substances
- Suppliers must provide complete Material Safety Data Sheets (MSDS) to facilitate hazard classification and management
- For new material introductions or changes in chemical composition, risk assessment and approval by designated EHS specialist is required prior to procurement

Inventory Management
- Upon warehousing, Cchemical materials must be clearly labelleds must clearly indicateaccording to hazard classifications during storage
- Real-time inventory tracking to prevent excessavoid exceeding the storage limit forof high-risk chemicals

Usage Management
- Users must ensure chemical containers are intact and properly labeled with hazard classifications
- Repackaged chemicals in new containers must be labeled according to the hazard classification of the new container
- Users must wear appropriate protective equipment gear in accordance with operating procedures

ASEKH, ASECL, and SPIL and USI have selected Mineral oil aromatic hydrocarbons (MOAH) consisting of 1 to 7 aromatic rings and Mineral oil saturated hydrocarbons (MOSH) consisting of 16 to 35 carbon atoms as Hazardous Substances and had been controlled by below targets in 2024:

- MOAH consisting of 1 to 7 aromatic rings < 1000ppm by 2025/1/1
- MOAH consisting of 3 to 7 aromatic rings < 1ppm by 2025/1/1
- MOSH consisting of 16 to 35 carbon atoms < 1000ppm by 2025/1/1

ASEKH, ASECL and SPIL have selected PFAS as Hazardous Substances and controlled by below targets by 2027/1/1, 2030/12/31 and 2027/1/1:

- ≦ 25 ppb any PFAS (polymeric PFAS excluded)
- ≦ 250 ppb (sum of PFASs) (polymeric PFAS excluded)
- ≦ 50 ppm (polymeric PFAS included).

Chemical Laboratory

The ASE chemical laboratory conducts R&D and indepth analysis of green materials right from the source. The lab is part of ASE's initiative to strengthen the company's green solutions by actively developing green manufacturing processes and using environmentally friendly packaging materials.

- **Evaluation and development of green materials:** Non-toxic/mildly toxic raw materials and chemical products
- **Development of environmental testing technology:** Establish monitoring technology, mechanisms and standards in compliance with global environmental regulations
- **Developments in green manufacturing:** Evaluate the technologies in recycling, reduction, and reuse of materials and waste
- **Development of environmental-friendly packaging:** Develop bio-composite material packaging

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). We have also extended the analyses of key "substrates" and conducted environmental impact analysis of product life cycles. 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 such as wireless communication modules, POS machines, ATX power supplies that connect to multiple desktop outputs, motherboards, smart handheld devices, NAS systems, SSDs, server systems and mobile computer, power module and line array system speaker.

In response to the growing challenges posed by global climate change and carbon emissions, we are committed to providing low-carbon products and services. We have developed detailed implementation plans to progressively improve carbon emission monitoring and control technologies at each manufacturing site. By 2030, we aim to achieve full integration of product carbon footprint management systems at all key facilities. Through precise data analysis and ongoing optimization, we strive to improve carbon efficiency throughout the product lifecycle, thereby advancing our commitment to low-carbon and sustainable operations.

Building on our collaboration with expert teams in conducting product life cycle assessments, we use assessment tools such as SimaPro and the ReCiPe 2016 Midpoint (H) methodology that measures the impacts from 18 different environmental aspects[1]. This rigorous approach ensures the scientific integrity and thoroughness of our carbon footprint management efforts.

● Done ▲ Ongoing ★ New ◆ Update

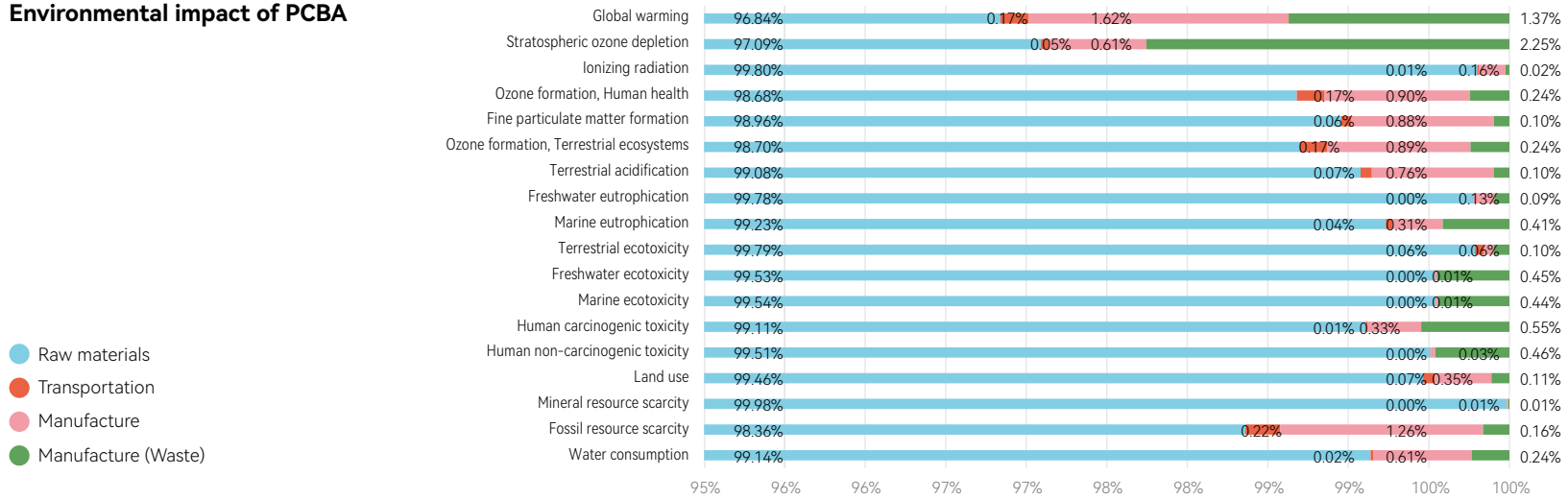
Category	Product Series	Carbon Footprint	Eco-efficiency Assessment/ Environmental Footprint	Improvement Strategies and Actions
Assembly	BGA	●	●	**Design** • Consider factors such as product lifecycle, circulation and eco-efficiency during the design stage • Develop a new generation of energy efficient 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% **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 **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: O_2 gas replaces CF_4 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
	Lead Frame	●	●	
	CSP	●	●	
	Flip Chip	◆	◆	
	Bumping	●	●	
	SiP Technology	●	●	
Substrate		●	●	
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	▲	▲	
	Power Module	▲	▲	
	Line Array System Speaker	▲	▲	

[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

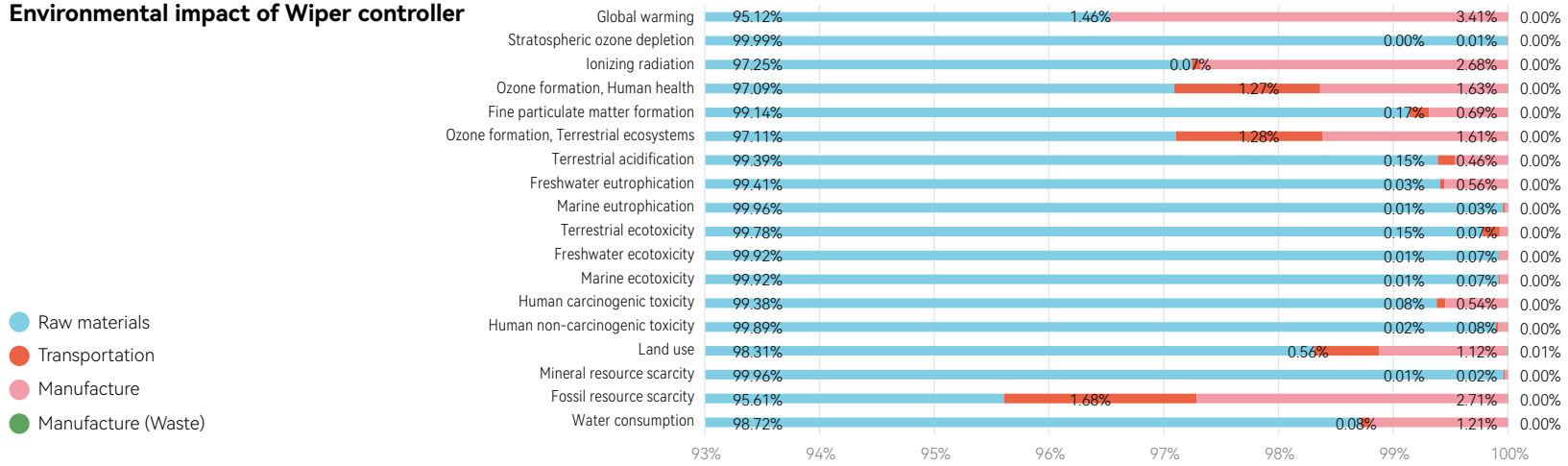
Life Cycle Assessment Results

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 PCBA and Wiper controller.

Environmental impact of PCBA



Environmental impact of Wiper controller



4.3 Products and Service

ASEH provides the design, manufacturing and enabling of many electronic end products, including smartphones, PCs, tablets, game consoles, security chip cards, automotive sensors, entertainment systems and many more. We offer a broad range of advanced and legacy semiconductor packaging and testing services as well as electronic manufacturing services. The semiconductors we package are used in a wide range of end-use applications, including communications, computing, and consumer electronics, industrial, automotive and other applications. Our testing services include front-end engineering testing, wafer probe, final testing and other related semiconductor testing services.

Our electronics manufacturing services are used for various applications, including computers, peripherals, communications, industrial applications, automotive electronics, and storage and server applications.

Customer Relations

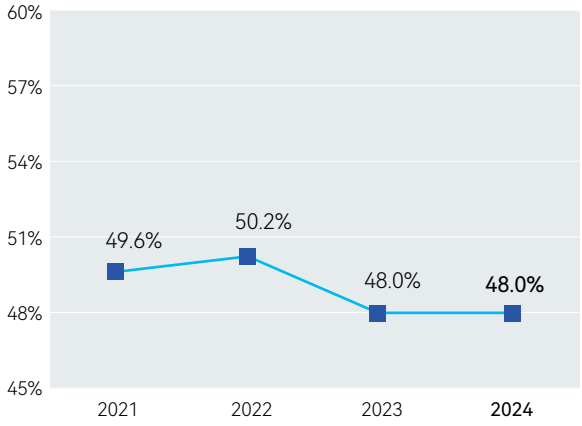
Our key customers typically operate in the semiconductor and electronics industries. In 2024, our five largest customers together accounted for approximately 48% of our operating revenues. To ensure that customer suggestions are properly processed, we have a dedicated team in place for reporting feedback and managing customer communication. We have designed multiple communication channels with customers which include technical forums, and regular email updates on significant events, milestones and business highlights. In addition, we actively participate in various technology forums to promote our advanced manufacturing processes and innovative technologies.

In order to provide the best customer service, we reach out to our customers through various means and at different intervals, including monthly/quarterly customer surveys for evaluating quality, cost, delivery, technology, and service/sustainability, customer surveys, annual/quarterly/monthly meetings and the supplier award program. We have also set our annual customer satisfaction target at 90% (i.e. at least 90 of our top 100 customers remain satisfied.) We continue to focus deeply on improving customer satisfaction to establish trust and value for our customers.

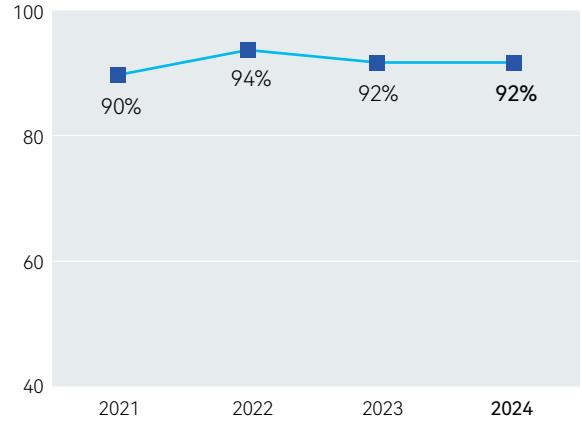
Quality Management

ASEH is deeply committed to becoming a world-class semiconductor service provider. Our quality policy – "Delivering premium quality beyond customer expectations", aims to ensure total customer satisfaction. We uphold rigorous internal standards across our global operations, and drive continuous improvement through an ongoing cycle of planning, execution, review, and enhancement. The company's facilities worldwide are certified to international quality standards, including ISO 9001, IATF 16949, and QC-080000. Our quality management system enforces stringent process controls, including online statistical monitoring, supplier management, data auditing and oversight, quality assurance, and corrective actions. In 2024, ASEH reported zero product recalls resulting from issues that posed risks to human health or safety.

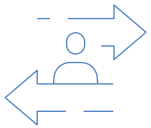
Top 5 Five Largest Customers Together Operating Revenues Accounted (%)



Key Customers[1] Satisfaction Trend



[1] Key customer: ASEH's top 100 customers, which contributed about 89% of the company's operating revenues in 2024

Quality Standards 	Quality policies and standard operating procedures are established in accordance with international standards such as ISO 9001, IATF 16949, and QC-080000.
Quality Education and Training 	To strengthen employees' awareness of quality management, ASEH provides a wide range of quality-related training courses, including onboarding programs, in-service training, and external training. These initiatives aim to foster a quality mindset across the workforce, equip employees with essential job skills, and maintain high quality standards. In 2024, quality-related training at our major sites exceeded a total of 177,000 hours, with more than 1.9 million training participations. • 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.
Product Recall and Prevention 	To ensure that shipped products meet customer requirements, corresponding process control plans are established at all manufacturing sites. These plans outline the methods, procedures, and processes for maintaining quality from production to delivery. We have also instituted a system of rules and procedures to prevent the delivery of non-conforming products to customers. Stringent quality checks based on the control plans are set up at various stages including incoming material inspections, product acceptance verification based on applicable standards, and final inspections before shipment. Non-conforming or suspect materials or products are immediately isolated and put on hold to prevent further processing. Next, our engineering teams will trace all potentially affected batches and halt the operation of any impacted equipment for investigation. Containment measures are also implemented to ensure that products meet the required specifications and control standards.
Customer Complaint Mechanism 	We have established systematic procedures at all sites for handling customer complaints. Customers can submit complaints via phone, email, written reports, or through regular and ad hoc meetings. Upon receiving a complaint related to product defects or failure analysis, a cross-functional team is formed, and designated personnel from relevant departments are assigned to investigate the issue. Corrective actions are developed and communicated back to the customer. Regular review meetings are held to monitor the effectiveness of these actions and ensure continuous improvement.
Internal Review and Audit 	The internal audit process at ASEH covers the entire quality management system, including audits of the quality management system, production processes, and products. Cross-functional teams are convened to conduct regular internal audits—either annually or monthly—to ensure that production processes comply with quality management systems and meet customer requirements. The internal audit process includes the following steps to ensure the effectiveness of the quality management system implementation: • **Planning:** Schedule audits, select auditors, and prepare checklists. • **Execution:** Conduct internal reviews and audits according to quality management system requirements. • **Corrective Actions:** Propose corrective measures and verify improvement actions. • **Management Review:** Evaluate audit findings and the effectiveness of corrective actions.