ASE GROUP

2017

ASE GROUP
CORPORATE SUSTAINABILITY REPORT

Contributing to a Sustainable Future

Low Carbon, Circular, Inclusive and Collaborative

Table of Contents

In this report, we discuss our sustainability activities in 2017.
Key Highlights

Sustainable Value Assessment

As an important step to quantify and demonstrate our intangible corporate assets, we introduced the "Total Impact Measurement and Management (TIMM)" mechanism for assessing our corporate value. The assessment results are used to determine areas of focus to achieve our long-term sustainability goals.

Reduction in Greenhouse Gas Emissions

The total amount of greenhouse gas (GHG) emissions (Scope 1 and 2) from our manufacturing facilities decreased by 8% in 2017, compared with 2016. This was achieved through energy conservation, solar power installation as well as purchasing International Renewable Energy Certificates (I-RECs).

Green Building Certifications

As of December 2017, we have achieved 14 Taiwan EEWH certifications as well as 7 U.S. LEED certifications, including 1 "Diamond-rated", 1 "Silver-rated" & 1 "Copper-rated" EEWH certifications and 1 "Platinum-rated" & 1 "Gold-rated" LEED certifications which were awarded in the year 2017.

Employee Engagement Survey

In 2017, we launched our first employee engagement survey covering 15 survey factors in 6 fields. The survey allows us to systematically collect employees' feedback and develop policies for attracting, retaining, and cultivating talent.

Management of Conflict Minerals

Based on our Reasonable Country of Origin Inquiry (RCOI) analysis and due diligence measures in 2017, we believe that the identified smelters or refiners (SoRs) used for all of our products (from packaging, materials, and electronic manufacturing services) are DRC Conflict-Free.

Social Return on Investment Analysis

Campus LED Project, a long-term environmental protection and public welfare project, was analyzed using SROI (Social Return on Investment). Results showed that the project has the most positive effect on "teaching quality", followed by "energy conservation", "corporate image" and "visual health protection of students".

Awards and Recognitions in 2017

MEMBER OF
Dow Jones Sustainability Indices
In Collaboration with RobecoSAM

Named **Industry Group Leader in the 2016 & 2017 Dow Jones Sustainability Indices**, and listed as a component in the Dow Jones Sustainability World Index and Emerging Markets Index.

ROBECOSAM Sustainability Award Gold Class 2018

Listed on the **RobecoSAM Sustainability Yearbook 2017 & 2018**, and awarded the "**Gold Class**"(within 1% of top performing company's score under the Semiconductors and Semiconductor Industry Group).

CDP DISCLOSURE INSIGHT ACTION

Climate Change Scoring Level: **Leadership**

TCSA

Received 2017 Taiwan Corporate Sustainability Awards (TCSA): **Top 50 Corporate Sustainability Report Award, Climate Leadership Award, Supply Chain Management Award, Growth through Innovation Award.**

ASIAN CORRESPONDENT

Listed on **Asian Correspondent 2017 CSR 50 Index** among the 50 listed on the index, and among the only 5 from Taiwan.

Won **Outstanding Enterprise Award** on the 2016 & 2017 China (Shanghai) Corporate Social Responsibility (CSR) Summit of Listed Companies. Universal Scientific Industrial (Shanghai) Co., Ltd., a member of the ASE Group won the award.

FTSE4Good

Included in the **FTSE4GOOD Emerging Markets Index** for three years in a row (2015-2017).

ASE Chairman and Founder Jason Chang received the **2017 Dale Carnegie Leadership Award** which recognizes the company's focus on developing human resources, innovation and organizational creativity under his leadership.

ABOUT OUR REPORTING

This is our 9th CSR Report, which is prepared in accordance with the GRI Standards: Core option. Our Corporate CSR Center is in charge of data compiling and editing. The GRI content index can be found at the end of the report. This report is available in both Chinese and English. The complete electronic version can be downloaded from our website, http://ase.aseglobal.com/en/CSR/Downloads/report.

If you have any comment or suggestion, please contact us at:

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Tel: +886-7-361-7131
Email: ASE_CSR@aseglobal.com

Report Boundary

The scope of the Report encompasses Advanced Semiconductor Engineering, Inc.[1] and its subsidiaries ("ASE" or "ASE Group"), but does not encompass wholly-owned intermediate holding companies, internal trading companies and those companies without active operations. This report encompasses our Corporate Social Responsibility activities for the year of 2017 in our semiconductor packaging, testing and materials ("ATM") facilities and electronic manufacturing services ("EMS") facilities. Any boundary adjustment of the data will be separately explained in the text of the Report. Financial figures in this report are prepared in accordance with the International Financial Reporting Standards as issued by the International Accounting Standards Board, audited by Deloitte & Touche, and expressed in US dollars unless otherwise specified.

Internal Review and Approval

The disclosed information and data in this report were initially verified by the relevant managers of the data/information providers. The initial draft was compiled by the Corporate CSR Center. After being reviewed by the Corporate Legal and Finance Departments, the final report was approved and authorized for issue by the Chairman of Corporate Sustainability Committee.

External Assurance

ASE Group engaged Deloitte & Touche to perform an independent limited assurance in accordance with ISAE 3000 Revised for this report. The independent assurance statement can be found at the end of this report.

Other CSR Reports in ASE Group

Within the ASE Group, we have also published two separate CSR reports. One provides more detailed sustainability information of our Kaohsiung facilities in Taiwan and the other focuses on the information about our subsidiary Universal Scientific Industrial (Shanghai) Co., Ltd. and its subsidiaries ("USI") which encompass our EMS facilities.

ASE Kaohsiung CSR Report

USI CSR report

[1] Advanced Semiconductor Engineering, Inc. has become a wholly owned subsidiary of ASE Technology Holding Co., Ltd. ("ASE Holding") on 30th April, 2018.

ASE Cultural & Educational Foundation
ASE Charitable Foundation

USI Zhangjiang
USI Kunshan
USI Taiwan

USI Jinqiao
USI Shenzhen
USI Mexico

ASE Kaohsiung
ASE Chungli

ASE Kunshan
ASE Suzhou (ASEN)
ASE Weihai

ASE Shanghai (A&T)
ASE Shanghai (Material)
ASE Wuxi (Wuxi Tongzhi)

ASE Japan
ASE Korea
ASE Singapore
ASE Malaysia

ISE Labs

LETTER FROM THE CHAIRMAN

2017 had been a year filled with challenges from both the political and economic fronts. Nevertheless, the ASE Group managed to report outstanding results and continued to receive recognition from shareholders, investors, employees, customers and suppliers.

The semiconductor industry has experienced dynamic shifts in recent years including a wave of consolidation amongst key players. Similarly, the rise of China's semiconductor industry has heralded an imminent change for the future, an indication that the industry is still in transition. As the leading provider of semiconductor assembly and testing services, and a major consolidator of systems and converging technologies, ASE promotes multi-dimensional integration through strategic partnerships across the value chain to create industry clusters and technological innovation. A collaborative platform that adapts to the market and encourages innovative business models can increase our efficiency and create value to tackle the challenges of global climate change and resource limitations.

At ASE, we place a high value on sustainable governance. In 2017, the ASE Group was recognized for two years in a row, the industry leader for the semiconductor sector and included in the Dow Jones Sustainability Indices' (DJSI) World Index and Emerging Markets Index. We also received the 2017 Dale Carnegie Leadership Award in recognition of the company's efforts on developing human resources, innovation and organizational creativity. ASE's subsidiary Universal Scientific Industrial (USI) was also the only Taiwanese company to receive the China (Shanghai) Corporate Social Responsibility Summit of Listed Companies' Outstanding Enterprise Award for two consecutive years. At the beginning of 2018, ASE was honored as one of the Top 100 Global Technology Leaders by Thomson Reuters. These awards from global accredited organizations represent a major recognition of ASE's efforts and achievements in providing technology, increasing customer and investor satisfaction, and developing corporate sustainability. The ASE Group will endeavor to take on a forward-looking role and adopt a pragmatic approach to deliver positive impact on the industry and society.

In 2017, ASE began studying and analyzing the overall impact of our operations in order to respond appropriately to current and future risks and opportunities in sustainability. We examined the economic, tax, environmental and social impacts on different stakeholders that focused on the interaction among six types of capital—financial, manufacturing, intellectual, human, natural and, social and relationship—that underscores the company's short-, medium- and long-term value. We have incorporated integrated thinking into the company's strategic decision-making process and made it the basis for the creation of long-term value.

Jason C.S. Chang
Chairman and CEO

In response to energy restructuring brought about by climate change, ASE has already begun actively promoting smart grids. We are working with the Chung-Hua Institution for Economic Research and the Taiwan Institute of Economic Research to study ways in which the semiconductor industry can accelerate the implementation of smart grids. We plan on introducing a smart grid in our Kaohsiung facility in 2019 and establishing an immediate demand response system and feedback mechanism that is estimated to reduce demand for electricity during peak hours. Initial estimates indicate that the overall investment will reach NT$100 million. ASE is not only realizing its corporate social responsibility through energy savings and carbon emissions reductions, but is also committed to achieving a stable power supply so that the industry can move seamlessly towards high-value development.

In today's smart world, innovators are designing devices that offer more features, generate higher performance and reduce power consumption. As a leader in system-in-package (SiP) technologies, ASE is committed to building a complete SiP ecosystem. We have collaborated with Cadence Design Systems, a global leader in electronic design innovation, to launch the SiP-id™ (System-in-Package – intelligent design) solution. With SiP-id™, designers can greatly reduce design iterations, improve throughput and reduce the time needed to design and verify ultra-complex SiP packages. Such innovations will bring the company tremendous business opportunities, and allow us to expand the scope of our miniaturization technology from the package level to the module, circuit board, and system levels, thereby greatly increasing product value.

We are continuing to create local employment opportunities, recruit talented personnel and cultivate semiconductor professionals, with the aim of expanding Taiwan's semiconductor assembly and testing industry. We broke ground on our Kaohsiung K25 facility in April 2018 which is expected to be completed by 2020 and where we invested a total of NT$12.5 billion. The new plant is a smart factory boasting eco-friendly features in smart manufacturing that incorporates the Internet of things, data analysis, and smart equipment, with high end assembly and testing as its primary R&D functions. Once the facility is at full production capacity, the annual output value will reach NT$10 billion.

Going forward, industry consolidation is key to ASE's corporate growth in a changing market landscape. We will also continue to strategically develop our global footprint and align our manufacturing and R&D efforts. We will seek out transformative business models including collaborations with strategic partners, for greater opportunities in market development. Taiwan's semiconductor industry remains strong, and at an advantageous position with its complete supply chain and agile operational models that position Taiwan on the pulse of the semiconductor industry. ASE will maintain strong ties and investments in Taiwan while at the same time, continue its growth and expansion globally.

Richard H.P. Chang
Vice Chairman and President

ABOUT OUR COMPANY

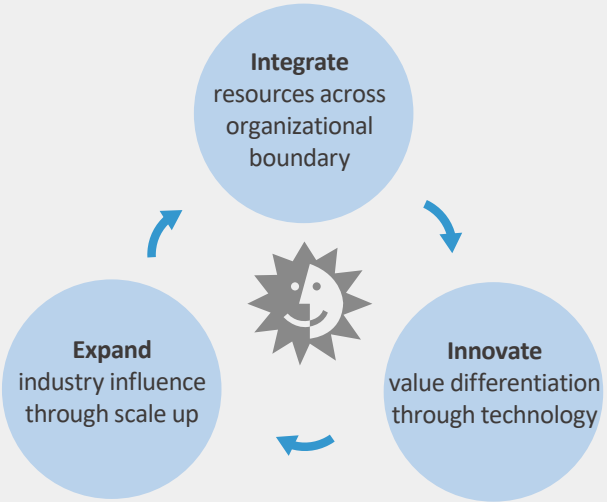
1.1 Mission and Vision

ASE offers the best manufacturing services in semiconductor packaging/testing, substrates, and systems. We will act as an extension of our customers' own operations in achieving maximum commercial success through our extensive manufacturing chain.

ASE maintains a highly experienced and skilled engineering team that continuously develop advanced semiconductor assembly technologies to stay ahead of the semiconductor technology curve.

ASE Value Creation Model
In alignment with our mission and vision, and to maintain industry innovation and leadership, we incorporated future industry trends together with the feedback from our senior management and various departments on their views about corporate sustainability to establish the ASE Value Creation Model.

Our value creation model consists of three strategies — Integrate, Expand, Innovate. The model enables ASE to respond to future challenges and more importantly, it forms the basis of ASE's foundation in integrating sustainability into our business strategy.

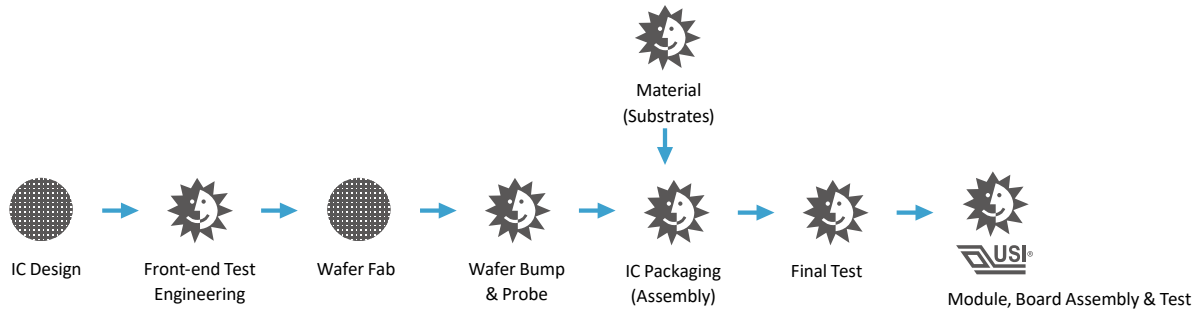


1.2 Company Profile

Headquartered in Kaohsiung, ASE is among the leading independent provider of semiconductor manufacturing services in assembly and test. As a global leader geared towards meeting the industry's ever growing needs for faster, smaller and higher performance chips, the ASE Group develops and offers a wide portfolio of technology and solutions including IC test program design, front-end engineering test, wafer probe, wafer bump, substrate design and supply, wafer level package, flip chip, system-in-package, final test and electronic manufacturing services. Our common shares[1] are listed on the Taiwan Stock Exchange (TWSE) under the symbol "2311", and American Depositary Shares (ADSs) representing our common shares have been listed on the New York Stock Exchange (NYSE) under the symbol "ASX". Our subsidiary, Universal Scientific Industrial (Shanghai) Co., Ltd., is listed on the Shanghai Stock Exchange under the symbol "601231".

ASE Turnkey Services

Increased sophistication, complexity and miniaturization of systems are speeding up developments in advanced packaging technology. It can be more cost-effective for companies to rely on independent specialist assembly and test houses to substantially reduce their backend production costs. Effective utilization of independent semiconductor manufacturing services enables integrated device manufacturers (IDMs) and fabless companies to maximize revenue while minimizing costs. These companies are consequently better able to focus on their core competencies such as IC design and end-product marketing. ASE Group offers stand-alone backend manufacturing services in areas ranging from engineering test and package design to substrate manufacturing, assembly, final test and DMS to complement customers' own manufacturing processes. Given the increasing significance of substrates in the process of IC packaging, ASE is aggressively expanding into substrate manufacturing. Customers can benefit from timely access to material source.



Global Operation

ASE Group has a worldwide headcount of over 68,000 employees (as of December 2017). Our sales and manufacturing facilities are strategically located worldwide in Taiwan, China, South Korea, Japan, Singapore, Malaysia, Mexico, America, and Europe.

Joint Share Exchange between ASE and SPIL

In response to the increasingly competitive global semiconductor industry, ASE and Siliconware Precision Industries Co., Ltd. ("SPIL") have entered into and executed a joint share exchange agreement to establish ASE Technology Holding Co., Ltd. ("ASE Holding") whereby ASE Holding will acquire all issued and outstanding shares of both ASE and SPIL through a share exchange. From 2016 to 2017, we obtained the necessary antitrust and other regulatory approvals from the Korea Fair Trade Commission, German Federal Cartel Office, Taiwan Fair Trade Commission, and the United States Federal Trade Commission. On November 24, 2017, we received approval from the Ministry of Commerce of the People's Republic of China for the share exchange based on several conditions, one of which was that ASE and SPIL maintain independent operations for 24 months. ASE and SPIL completed the incorporation of ASE Holding and share exchange in compliance with the agreement and relevant laws and regulations and became wholly owned subsidiaries of ASE Holding thereof. Our horizontal integration with SPIL is expected to produce a positive effect on the continued growth and development of innovations in the semiconductor packaging and testing industry in Taiwan and around the world. This consolidation effort will create new business opportunities and the facilitation of a new business model for the semiconductor industry as a whole.

[1] The common shares of ASE were delisted from the Taiwan Stock Exchange on April 30, 2018. On the same date, the common shares of ASE Technology Holding Co., Ltd. ("ASE Holding") have begun trading on the Taiwan Stock Exchange under the symbol "3711".

1.3 Products and Services

ASE 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. Packaging and testing are the core service offerings of ASE. The semiconductors we package are used in a wide range of end-use applications, including communications, computing, 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.

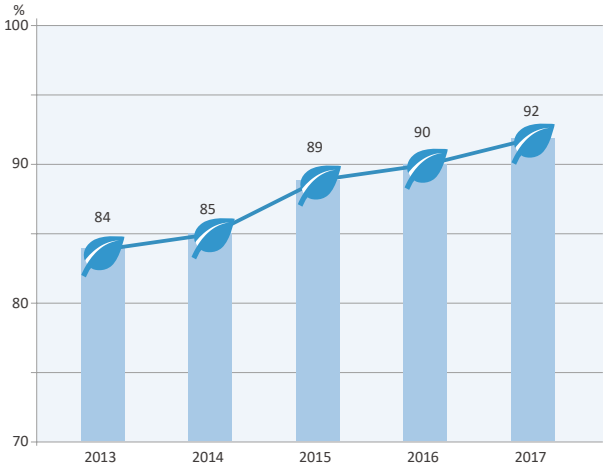
Customer Service

Our key customers typically operate in the semiconductor and electronics industries. Our five largest customers together accounted for approximately 48.2%, 42% and 46.4% of our operating revenues in 2015, 2016 and 2017, respectively. To achieve total customer satisfaction, we uphold world-class quality and reliability for our products and services through thoughtfully defined quality assurance methodologies. Our quality assurance systems impose strict process controls, statistical in-line monitors, supplier control, data review and management, quality controls and corrective action systems.

To ensure that customer suggestions are properly delivered and processed, we have a dedicated team in place for reporting feedback and customer communication. We provide multidimensional communication channels for customers such as on-line service platform, technical forums, and regular email updates to customers on significant company events, milestones and business highlights. We actively participate in various industry events to allow customers to understand our advanced technology through presentations and forums. Our online customer service platform responds to and interacts with our customers in real time. The platform can be integrated into the customers' own network to provide information of a complete supply chain, including order status, shipping date, design integration and engineering details. During the course of 2017, we were honored with 29 customer awards and recognitions.

Our "Customer Satisfaction Survey" includes a section to find out customers'rating on ASE's QCDST (Quality-Cost-Delivery-Service-Technology), as well as their opinions on ASE's corporate sustainability. The survey results are integrated into our TQMM system (Total Quality Micro-Management System) to help management and employees to continuously improve customer satisfaction.

Customer Satisfaction Trend



Customer Proprietary Information Protection

To ensure the confidentiality and integrity of customer proprietary information, we have established the "Information Security Policy"that defines procedures for confidential information. Under this policy, we issued the Information Security Standard that specifies rules for employees to follow in their daily operations.
Our Korea plant (PB1) achieved ISO 15408 Common Criteria[1] EAL5 Site Certification[2]. Our Kaohsiung plants (K4, K7, K8, K10, K11, and K12), Chungli plants (A, B, C, and L), and Singapore plant[3] achieved EAL6 Site Certification. In addition to an overall increase in the security of ASE's and customer assets, the packaging and testing processes of security products manufactured in these certified sites receive a waiver from certification. This helps to significantly reduce customers' time and costs for security product certification.

[1] Common Criteria are security guidelines set out for information security products or systems. They are the latest and most stringent global security evaluation criteria and a collection of global security guidelines for information technology, and they are mutually recognized among the member countries.
[2] There are two categories of Common Criteria Certifications: Product Certification and Site Certification. Product Certification is targeted for individual products; products that are planned to be identified as security products need to be evaluated individually for certification. Site Certification refers to the certification of production sites or areas. Common Criteria lists seven levels (Evaluation Assurance Level (EAL) 1 through EAL 7), with EAL7 being the most stringent and generally caters to military-level security.
[3] ASE Singapore is certified in April, 2017.

1.4 R&D and Innovation

ASE continuously invests in research and development ("R&D") of advanced semiconductor packaging technology and cultivates experienced and skilled engineering teams to meet customers' needs for enhancement of product performance and cost reduction. In 2017, our research and development expenditures were NT$ 11.75 billion (about US$ 396 million), an increase of 3.1% from 2016, and accounting for 4.0% of the operating revenues. As of December 31, 2017, we employ a total of 7,570 employees in research and development, an increase of 1.1% compared with 7,486 R&D employees at the end of 2016.

As we experience the diminishing rate of growth in Moore's Law, and the changing technology landscape created by the effects of ubiquitous computing applications such as the Internet of Things (IoT), the industry faces increasing challenges of integrating more chips onto a smaller form factor. Such a phenomena has given rise to the importance of heterogeneous chip packaging in system integration to enable functional integration, miniaturization and higher performance.

ASE is focused on three major core technologies - advanced IC and module packaging, copper wire bonding/flip chip bumping and moderate to low-pin-count packaging. In 2017, the key products and technologies which were successfully developed are as follows:

(1) Advanced IC and module packaging: Fully integrated module solution for microcontroller system, selective area shielding technology, and double-sided coating technology for electromagnetic shielding.

(2) Wire bond packaging: Second-generation component embedded packaging technology, glass chip packaging solution, ultra-fine pitch copper/gold wire bonding technology for 20/28 nm Technology Certification.

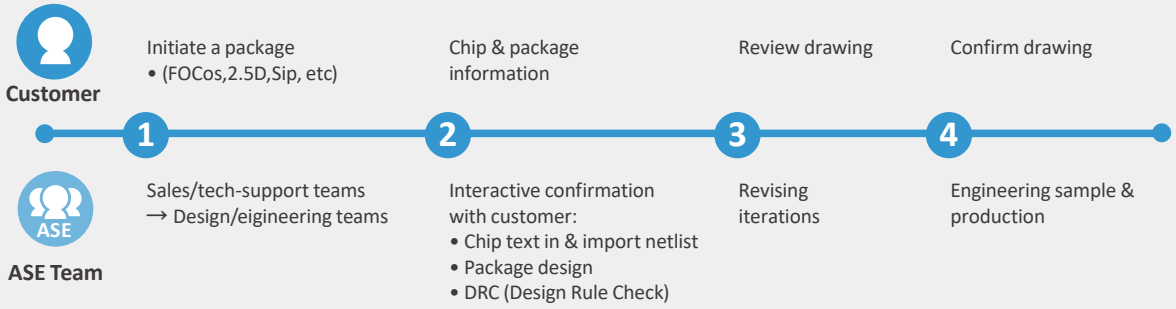
(3) Wafer-level packaging: Silicon photonics packaging technology, through-hole via glass substrate packaging, four-layer polymer copper plated RDL technology, fan-out chip on substrate with lead-free solder bumps; chip on wafer processing technology.

In 2018, our research and development will focus on IC and module packaging technology for end-device applications in artificial intelligence (AI), automotive electronics (ATV), the internet of things (IOT), and high performance computing (HPC).

Our research and development teams work closely with our supply chain partners including material and equipment suppliers to maximize scale and efficiency in technology development. We also work closely with key customers on new product and manufacturing collaborations. In addition, we also 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 Collaboration: System-in-Package Electronic Design Automation (EDA) Solution

ASE has collaborated with Cadence Design Systems, Inc. to introduce a system-in-package (SiP) EDA solution that addresses the challenges of designing and verifying Fan-Out Chip-on-substrate (FOCos) multi-die packages. The solution consists of the SiP-id™ (System-in-Package - intelligent design) design kit, an enhanced reference flow including IC packaging and verification tools from Cadence, and a new methodology that aggregates the requirements of wafer-, package- and system-level design into a unified and automated flow.
Previously, IC packaging engineers leveraged standard EDA design tools coupled with a set of loosely defined rules to lay out their packages. However, this approach has many limitations when designing today's advanced multi-die packages. The SiP-id™ design kit provides a more holistic approach to the design and verification of SiP and advanced fan-out packages, with a streamlined and automated reference flow using enhanced Cadence® IC packaging and verification tools, all tailored for ASE's advanced IC package technologies. In a typical use case with high-pin-count dies, packaging engineers using SiP-id™ and the accompanying reference flow and methodology were able to reduce time needed to design and verify ultra-complex SiP packages from more than six hours to only 17 minutes, compared to existing tools with manual operation.



Technology Platform

ASE has established a Technology Board that aims to connect employees from related professional fields through the integration of technology and knowledge sharing and the creation of a platform for in depth analysis and discussions. Information is shared across the board to enhance organizational performance through knowledge management and help strengthen the company's leading position in the industry.

To promote knowledge sharing of sustainable manufacturing, we launched a group-level environmental technology exchange and advancement platform in 2017, to encourage all facilities to exchange and share their best practices. The platform helps to improve the knowledge and technical capability of all facilities, thereby enhancing our energy efficiency, strengthening our water resource management, and realizing circular thinking to achieve sustainable development.

Smart Factory

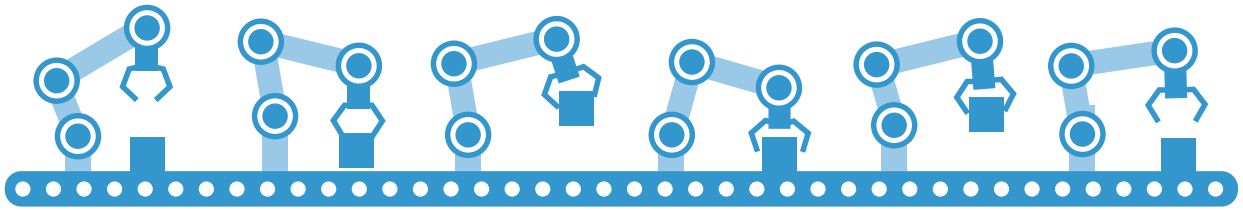
The rapid development of global semiconductor manufacturing technology has made AI-based manufacturing an inevitable future trend. We will continue to strengthen and accelerate our automated and smart manufacturing capabilities to achieve an "unmanned factory" or "lights-out factory".

- **Robotic Process Automation (RPA):**
  RPA is a business automation process that raises worker productivity and provides speed and error-free efficiency. RPA is an emerging factory automation tool that forms the basis of ASE's digital transformation. RPA systems observe the user perform a task by a series of actions such as inputting data through keyboards, holding the cursor position in certain paragraphs, cutting and pasting text or images, moving data from one location to another, making queries and calculations, and clicking the send button; and then perform the task automatically by repeating those actions. RPA allows repetitive tasks to be accomplished through automation and the redeployment of human labor for other strategic and value-added tasks.

- **Machine real-time monitoring and abnormal event notification system:**
  This system has been installed in our wafer bumping machines. The system includes a log visualization module capable of automatically analyzing the machine log file based upon a customizable format such that the data contained in the log file can be visually displayed for identifying abnormal events, showing the machine status, and monitoring the machine health.

- **AI-based manufacturing process (AOI/AVI):**
  We introduce machine learning and big data analysis in image recognition to develop an automated defect-image recognition system that can replace the traditional manual defect detection. Specifically, different models of defect image patterns are collected and analyzed to derive "interpretable" defect models which enable AI learning to automatically identify/detect abnormalities through the image recognition system.

- **Automated electricity meter reading—AI image recognition system:**
  Integrated as smart meters into traditional power systems to create smart grids that enable intelligent power generation, transmission, and distribution to users.



ASE SiP Solutions

The ASE heterogeneous integration team possess many years of industry-leading experience in packaging and SiP technology development. Our SiP technology enables ultra-compact, high capacity, low power module solutions with controller and sensor integration to meet the application needs of AI, IoT and mobile device miniaturization. The company has also developed various business models to actively promote the SiP eco-system. Our innovative SiP and MEMS solutions leverage upon established IC assembly capabilities including copper wiring, flip chip packaging, wafer level packaging, fan-out wafer level packaging, 2.5D/3D IC and embedded chip packaging to address ongoing trends for the mobile device, IoT, high performance computing, and IoV (Internet of Vehicles) markets.

Smart Living

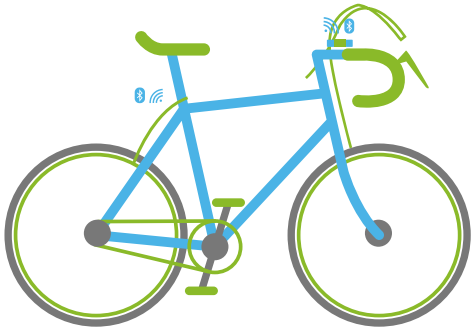
Our SiP solution integrate sensors, Bluetooth Low Energy (BLE) and wireless connectivity to allow home devices to communicate with each other or be remotely controlled via a smartphone app or personal computer. A smart home allows occupants to have full control of the devices and their functions in their homes from anywhere.
Smart sensors using ASE's SiP BLE connected to lights that flash or change color when abnormality such as temperature fluctuations, drop in indoor air quality or unauthorized door/window access are detected. Home security and energy savings are further enhanced through the use of smart home devices. A smart home improves the quality of life by providing more convenience, safety and comfort for its occupants.

• ASE Solutions:
Handset RF Transceiver SiP, BLE+MCU+WiFi, Connectivity SiP, BLE+MCU+AoP SiP, Environment Sensor, Ambient Light Sensor, Motion Sensor, Gas Sensor

Smart Bike

Riding a bike is a healthy mode of transport that is energy saving and reduces carbon emissions. Technology innovations today have helped make bikes smarter and safer. ASE's SiP solutions go into the various sensors built into a smart bike that enable intelligent features such as automatic adjustments of front and rear lights depending on ambient light levels, gesture sensor direction lights, real time tracking of the rider's heartbeat and oxygen levels, UV index detection, automatic locking through ID authentication and security alarm systems. ASE's SiP solutions aim to unlock the opportunities in the application of intelligent technology for a safer and smoother ride.

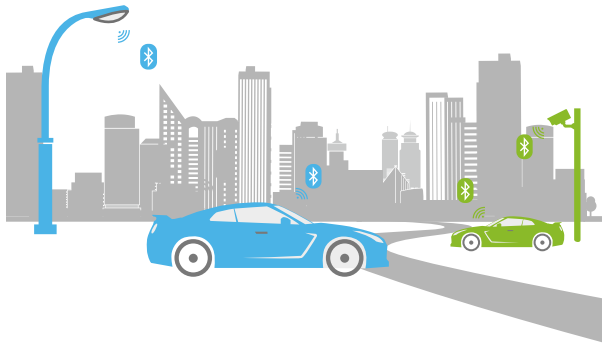
• ASE Solutions:
AoP BLE SiP, Motion Sensor, Ambient Light Sensor, UV Sensor, Optical Sensor, Gesture Sensor



Smart City

A smart city is a city that integrates information and communication technologies to enhance the quality of living for its citizens. Smart cities make use of inter-connected information, data and resource sharing to efficiently manage various infrastructures such as street lighting, energy usage in buildings, and monitor traffic, parking and air quality. The ASE SiP solution platform opens up possibilities for many applications that support smart cities and consequently helps enable a sustainable future.

• ASE Solutions:
BLE+MCU SiP, Lora/SigFox/NB-IOT/LTE+MCU SiP, Pressuse Sensor, Gas Sensor, UV/IR Sensor, Gas/PM2.5 Sensor, 2.5D IC

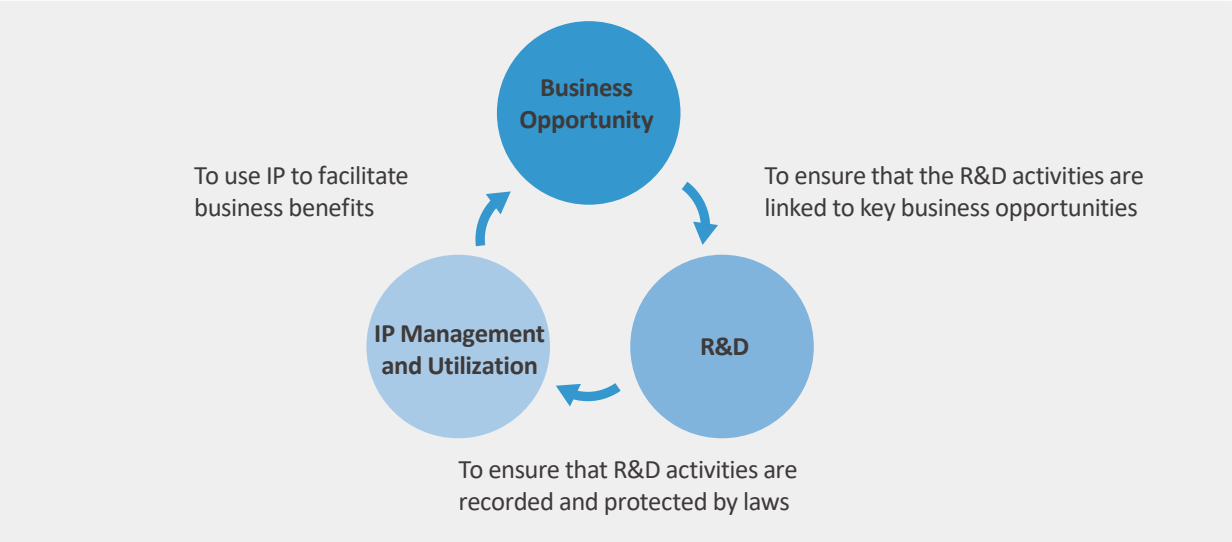


Intellectual Property Management

Intellectual property (IP) is an important aspect of a company's innovation management. Effective IP management helps to maintain ASE's leading position in corporate innovation.

ASE's IP management is closely embedded into its overall business operation planning and implementation to form a continuous innovation cycle consisting of "business opportunity", "R&D" and "IP management and utilization". The innovation cycle includes the following three phases:

1. Research and development activities are conducted in response to market's prospective demands, to ensure that the R&D activities are linked to key business opportunities;
2. Through our effective IP application system and tools, R&D activities are carefully recorded and processed for intellectual property rights protection (e.g. patents, trademarks and trade secrets);
3. High-value IP helps to facilitate business success, obtain orders from customers, develop more new business opportunities, thereby creating a positive sustainable cycle. In addition, by protecting R&D achievements with intellectual property rights, an IP protective wall is established to prevent others from plagiarizing ASE's technologies and to defend against the threat of competitors with their intellectual property.



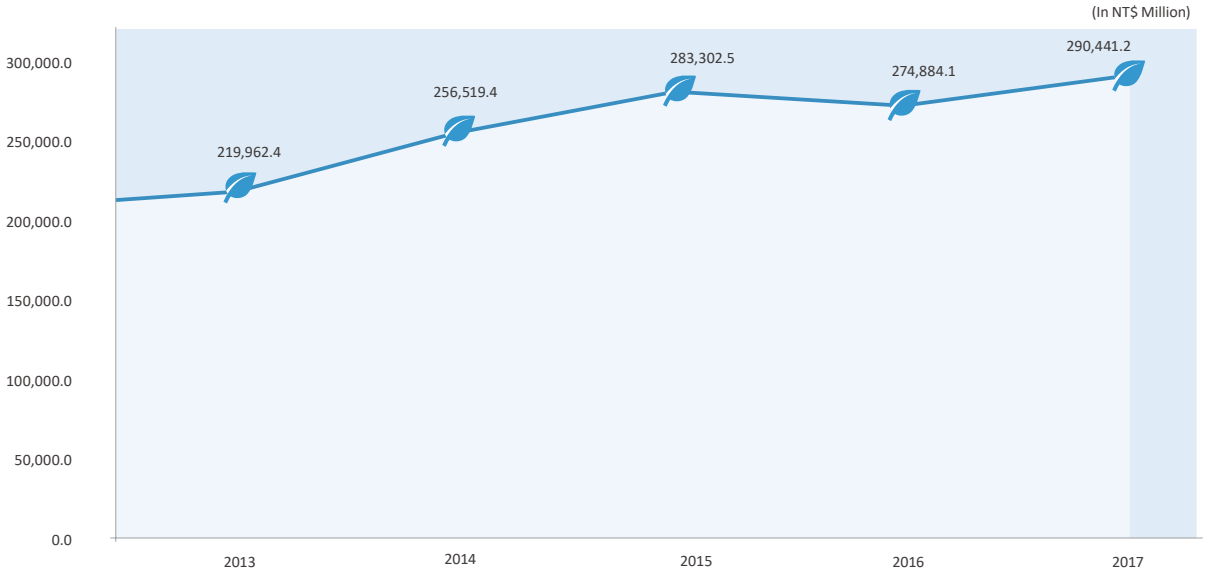
As of January 31, 2018, we own more than 3,693 patents. Our Patent Portfolio includes 1,654 Taiwan patents, 981 U.S. patents, 1,042 PRC patents, and 16 patents from other countries, related to a variety of packaging and testing, and electronic manufacturing service technologies.

ASE's patent quality also received external recognition. For 11 consecutive years (2007-2017), ASE was selected by IEEE as "The world's top 20 semiconductor equipment manufacturing companies in the Patent Power Scorecards", which demonstrated ASE's balance of its patent quantity and quality.

1.5 Financial Performance[1]

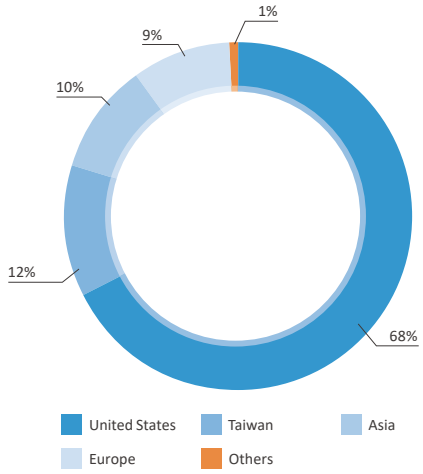
In 2017, ASE set a new record as consolidated revenue reached NT$290.4 billion, an increase of about NT$15.6 billion, or a growth of about 6% from 2016. The company's semiconductor packaging and testing consolidated operating revenue for 2017 was NT$156.1 billion (excluding inter-segment and real estate revenue), a slight increase of about NT$0.5 billion compared with 2016. However, if the calculation is based on US dollars, it is still a brilliant financial performance as consolidated revenue reached a growth of about 6%. The company's electronic manufacturing services', consolidated revenue for 2017 was NT$133.9 billion (excluding inter-segment revenue), an increase of about NT$18.6 billion, or a growth of about 16% compared with 2016. Gross profit margin for electronic manufacturing services grew from 9.8% in 2016 to 10.2% in 2017.

Revenue



2017 Revenue

We categorize our operating revenues geographically based on the country in which the customer is headquartered.



[1] For further details on financial performance please refer to our consolidated financial report: http://aseir.aseglobal.com/html/ir_report.php

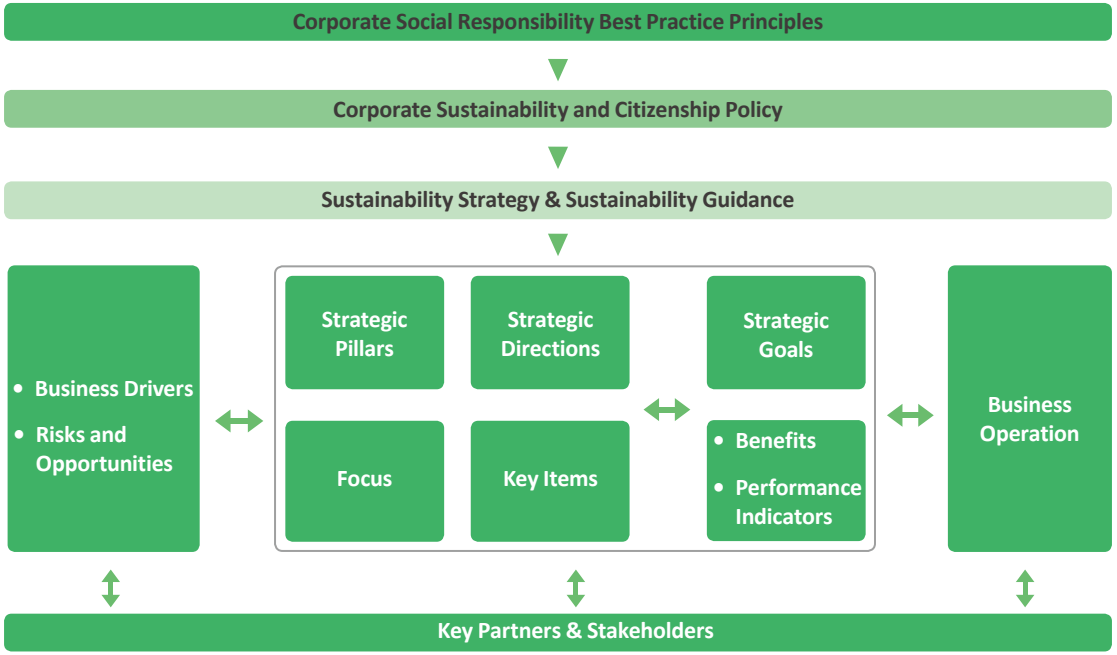
SUSTAINABILITY GOVERNANCE

Sustainability Management Framework

The ASE "Corporate Social Responsibility Best Practice Principles" outline the highest guiding principles for ASE's corporate social responsibility practices, and the "Corporate Sustainability and Citizenship Policy" forms the basis of our sustainability policy and commitment[1].

The principles and policy form the ASE Sustainability Management Framework where we identify and evaluate business drivers, risks and opportunities related to sustainability trends, formulate corresponding "Sustainability Strategy" and focus on ASE's future.

Our "Sustainability Guidance" assists ASE to strengthen its sustainability strategy in its operational management while creating value. We continue to draw upon feedback from our partners and stakeholders and continue to adjust and improve on our decision making process for the overall sustainability of the economy, environment and community.



[1] ASE has become a wholly owned subsidiary of ASE Holding on 30th April, 2018, and is obligated to follow the policies and procedures set forth by ASE Holding. For "Corporate Social Responsibility Best Practice Principles" and "Corporate Sustainability and Citizenship Policy", please refer to ASE Holding website, respectively: http://ir.aseglobal.com/html/ir_doc.php and http://www.aseglobal.com/en/csr_corporate_sustainability_policy.html

2.1 Sustainability Management Organization

In 2015, ASE formally established the Corporate Sustainability Committee ("CSC") as the highest level of organization for the ASE Group's sustainability management. The first term of the CSC is chaired by the Chief Operating Officer[1] and comprised of ASE's top management executives, who also serve as members of the board of directors. The CSC is responsible for overseeing corporate-wide sustainability affairs and making decisions, and reports directly to the board of directors. The "Corporate CSR Center" serves as the secretariat of the CSC; it is a full-time unit dedicated to the promotion of the ASE Group's sustainability, and it reports the promotion and implementation status of sustainability issues to the CSC every quarter.

The CSC is fully supported by five Sustainability Taskforces, in which representatives from all of our corporate responsibility related business segments are brought together. The Sustainability Taskforces include "Corporate Governance Taskforce", "Environment and Green Innovation Taskforce", "Supply Chain Management Taskforce", "Employee Care and Development Taskforce", and "Social Involvement Taskforce", with relevant vice presidents and department supervisors appointed as taskforce coordinators. Each taskforce holds meetings regularly or irregularly, and convenes formal taskforce meeting at least once half yearly to report to taskforce coordinators on the implementation effectiveness and emerging issues on sustainability. Based on their respective practical needs, the Sustainability Taskforces integrate and coordinate ASE's global resources in different operational approaches. Through the involvement in external organizations, the Sustainability Taskforces communicate and engage with different stakeholders to strengthen each taskforce's sustainable functions, initiate related key sustainability projects and develop relevant performance indicators, and assist the ASE Group's promotion and implementation of sustainable.

Sustainability Management Structure

Board of Directors

- Identify corporate-wide sustainability mission or vision, and declare policies, systems or relevant management guidelines

Corporate Sustainability Committee

- Develop and establish corporate-wide sustainability vision, policies, and targets
- Identify risks and opportunities related to corporate-level sustainability issues and determine responsive strategies and investments
- Supervise the planning and implementation of corporate-wide sustainability strategies
- Oversee corporate-wide sustainability performance and information disclosure

Corporate CSR Center

- Integrate corporate sustainability action plans and promote the execution of action plans
- Assess corporate-wide sustainability performance
- Lead information disclosure efforts for corporate-wide sustainability performance

Sustainability Taskforces

- Develop action plans in response to the sustainability targets
- Monitor implementation progress of the action plans and evaluate performance
- Provide consultancy, as well as expertise and experience sharing for sustainability issues

governance system. Our global manufacturing sites follow instructions and decisions of the CSC to manage local sustainability issues and implement sustainability actions in daily operations.

In 2017, our Chief Executive Officer[2] and Chief Administrator Officer were invited to join CSC to become committee members. In the 2017 CSC annual meeting, committee members reviewed the previous year's sustainability performance and actual level of target achievement, while formulating operational direction, goals and promotion plans of 2018 for each Sustainability Taskforce. For sustainability performance and target of each Sustainability Taskforce, please refer to details in related chapters.

[1] ASE Group Chief Operating Officer Tien Wu became General Manager and Chief Executive Officer of ASE Inc. on April 30, 2018.
[2] ASE Group Chief Executive Officer Jason C.S. Chang became Chairman and Chief Executive Officer of ASE Holding. on April 30, 2018.

Sustainability Taskforce Key Activities in 2017

Corporate Governance Taskforce

Sustainability Governance Facilitation
- Facilitate the assessment of corporate economic and tax value
- Plan remuneration policies for top management executives
- Amend major internal documents
- Proclaim latest Code of Business Conduct and Ethics

Key Projects
- Promotion of ethics management
- Annual evaluation of board of directors performance
- Total Impact Measurement and Management (TIMM) - Economic and Tax

Departments Involved
- Legal, Accounting, Finance, Internal Audit, Internal Control, Investor Relations, Legal Compliance

External Collaboration and Partnership
- External compensation consultant (remuneration policies for top management executives)
- External legal consultant (documents formulation and amendment)
- Governmental authority (corporate governance and policy consultation)
- Professional training institutions (director training courses)
- External management consultant (TIMM)

Environment and Green Innovation Taskforce

Sustainability Governance Facilitation
- Facilitate the assessment of corporate environmental value
- Facilitate 2017 Form 20-F climate change information disclosure
- Promote Renewable Energy Certificates (RECs) as a carbon management tool
- Formulate ASE Group's carbon management strategies
- Revise and announce Eco-Design guidelines

Key Projects
- Development of Environmental Performance Dashboard System for all manufacturing sites
- Development of green solution project sharing system
- 100% external GHG inventory of all manufacturing sites
- Inventory and verification of Scope 3 GHG emission
- Eco-efficiency assessment of Bumping product
- Energy-saving efficiency assessment of POS, NAS, WiFi Module, and VAD product
- Science-Based Target (SBT) Assessment
- Total Impact Measurement and Management (TIMM) -Environmental Profit and Loss (EP&L) assessment

Department Involved
- EHS, Facility, R&D

External Collaboration and Partnership
- Taiwan Semiconductor Industry Association (TSIA) (GHG inventory)
- Taiwan Corporate Sustainability Forum (TCSF) (benchmarking learning)
- Science-Based Targets initiative (SBTi)
- National Taipei University of Technology (Eco-efficiency assessment)
- External management consultants (Energy-saving efficiency assessment/EP&L)

Supply Chain Management Taskforce

Sustainability Governance Facilitation
- Facilitate the assessment of corporate economic and social value
- Amend "ASE Group Supplier Sustainability Assessment Questionnaire"
- Develop standardized documents for supplier sustainability audit
- Facilitate the capacity building program of sustainable supply chain management for procurement employees

Key Projects
- ASE Supplier Sustainability Awards
- Inventory program of suppliers' GHG emission
- Capability building program of sustainable supply chain management
- Third-party sustainability audits of suppliers
- Total Impact Measurement and Management (TIMM) - Social Profit and Loss (SP&L) assessment

Department Involved
- Procurement, Quality Control, Sales, Customer Service, EHS

External Collaboration and Partnership
- National Kaohsiung First University of Science and Technology (Supplier Sustainability Awards)
- Responsible Business Alliance (RBA) (supplier risk management)
- Responsible Minerals Initiative (RMI) (conflict minerals management)
- National Cheng Kung University (supply chain GHG inventory)
- External management consultants (supplier conflict minerals audit/ supplier sustainability audit/SP&L)

Employee Care and Development Taskforce

Sustainability Governance Facilitation
- Facilitate the assessment of corporate social value
- Develop ASE Group Employee Engagement Survey framework
- Establish ASE Group Employee Engagement Survey questionnaires
- Promote the capacity building program of employee engagement for HR Department

Key Projects
- Projects to increase employee engagement
- Pursuit of corporate sustainability and human resources practice sharing
- Talent development program: Greater China region
- Development of training effectiveness model
- Total Impact Measurement and Management (TIMM) - Social Profit and Loss (SP&L) assessment

Department Involved
- HR, EHS, General Manager Office

External Collaboration and Partnership
- National Sun Yat-sen University (knowledge management/talent development)
- External management consultant (Employee Engagement Survey/SP&L)

Social Involvement Taskforce

Sustainability Governance Facilitation
- Facilitate the assessment of corporate social value
- Formulate performance indicators of social engagement project
- Formulate "ASE Group Public Affairs Engagement Policy"

Key Projects
- Identification of social return on investment (SROI) of campus LED projects
- Environmental Conversation Fund programs
- Total Impact Measurement and Management (TIMM) - Social Profit and Loss (SP&L) assessment

Department Involved
- Public Relations, HR, Marketing Communications, ASE Culture and Educational Foundation

External Collaboration and Partnership
- External management consultant (SROI/SP&L)
- Multiple external organizations (Please refer to subsequent chapters for details)

Functioning Mechanism

- Taskforce regular meetings
- Issue-oriented communication meetings
- Project meetings
- Expert lectures
- Forum/Seminars
- Workshop
- Trainings

2.2 Shaping Sustainable Culture

We embarked on a program to promote the ASE Group sustainability management vision, mission, strategy and policy to all of ASE's sites since 2016. As part of the program, we focus on sharing sustainability efforts at various sites, current trends and challenges facing businesses as well as global industry standards in corporate sustainability. Our objective is to provide trainings programs and guidance through diversified channels and activities that will enable each of our sites to design and implement their sustainability plans locally.

Promoting Sustainable Culture

We not only promote a culture of sustainability within ASE, but also actively organize and participate in sustainability-related forums and awards. In addition, we vigorously respond to evaluations and surveys conducted by external agencies or organizations to allow our external stakeholders to better understand our company. Furthermore, we share and promote sustainable development with other companies. Through experiences exchanged with other companies and feedback from external agencies or organizations, we can examine our company's performance and results in promoting sustainability and further adjust our path to sustainable development in the future.

In 2017, ASE Group held three top management sustainability forums, two practical seminars on corporate sustainability and human resources[1], and a supplier awards ceremony[2]. These events helped to spread the ASE's sustainability philosophy and performance. We also invited external experts to give a series of lectures about the latest sustainability trends and information, share knowledge and exchange ideas with attendees. In the same year, ASE Kaohsiung, the ASE Cultural and Educational Foundation, the Chung-Hua Institution for Economic Research, and the Taiwan Alliance for Sustainable Supply (TASS) jointly organized the Taiwan Sustainable Supply Circular Economy Forum[3]. Industry representatives, scholars and experts were invited to discuss the concept of the circular economy and a sustainable future for the semiconductor industry.

Fulfilling Sustainable Management

In 2015, the ASE Group joined the Responsible Business Alliance (RBA, previously the Electronic Industry Citizens Coalition or EICC). Every year, all of ASE's facilities (there are currently 19 including both ASE and USI) complete the RBA's Self-Assessment Questionnaire (SAQ) to identify the labor, environmental, and ethical risks in their operations.

In 2017, to strengthen sustainable management, the CSC decided that for a period of two years beginning in 2018, all facilities around the world must complete the RBA's Validated Audit Program (VAP). By completing the VAP, the sustainable social and environmental management practices, including the implementation and performance of management mechanisms of every facility can be identified. Facilities can use the results as a basis for follow-up improvements to effectively reduce operational risks. So far, 8 facilities have been conducted RBA VAP. The audit reports will be provided to ASE's customers through RBA-Online.

ASE Kaohsiung Top Management Sustainability Forum


ASE Chungli Top Management Sustainability Forum

USI Top Management Sustainability Forum

[1] For more details, please see 6.3 Employee Development.
[2] For more details, please see 7.3 Supplier Sustainability Management.
[3] For more details, please see 5.5 Sustainable Manufacturing.

2.3 Sustainability Strategy

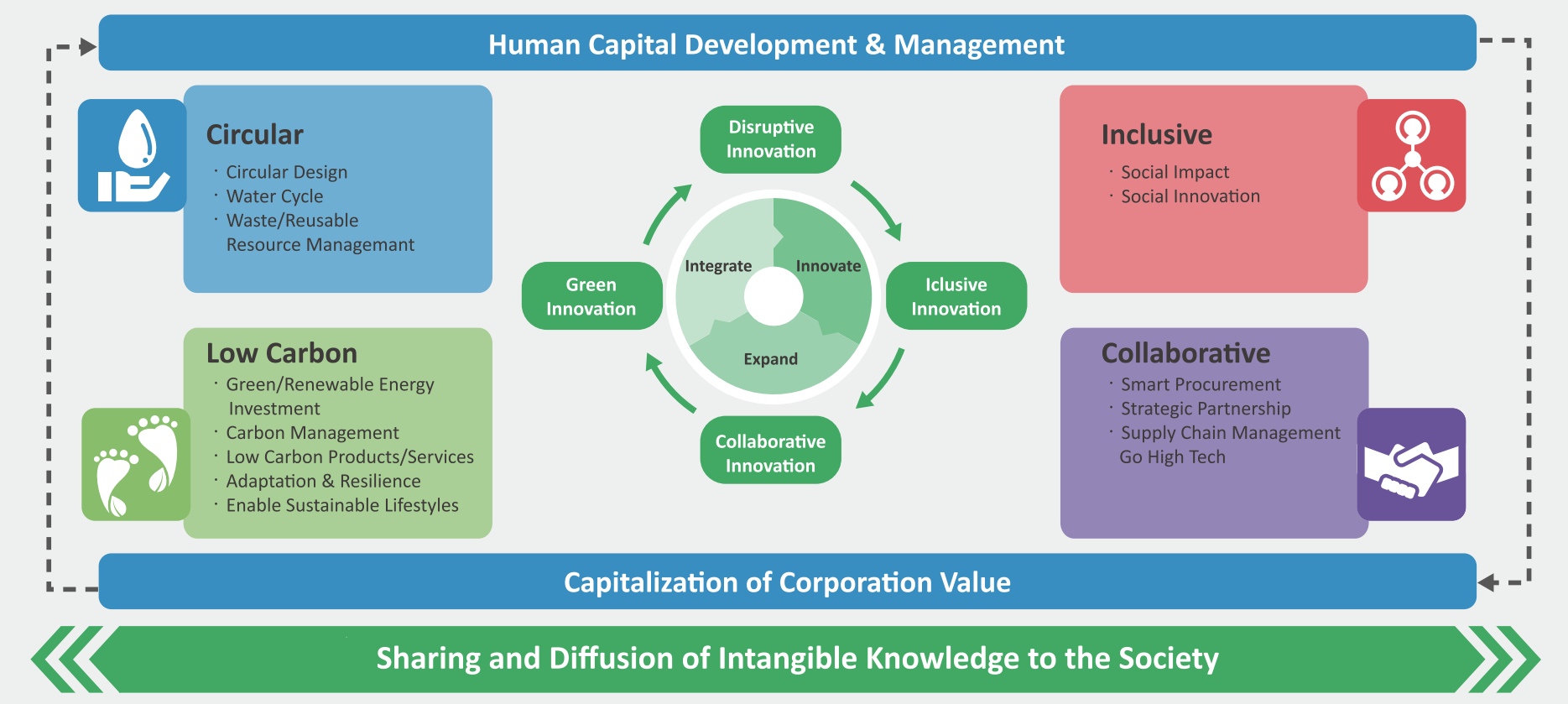
To address risks and opportunities arising from sustainability megatrends including climate change, energy & fuel, material resource scarcity, water scarcity, population growth and supply chain globalization challenges, ASE approaches sustainability through four strategic pillars - low carbon, circular, inclusive and collaborative - to carry out comprehensive and feasible actions.

We view human capital development as the core driver for pursuing the strategic pillars. The innovative momentum conveyed by our value creation model drives our long-term value creation. Our sustainability strategy aims to reduce potential impacts from sustainability risks, quantify our intangible assets and achieve UN Sustainable Development Goals (SDGs).

We aim to create sustainable values in the long run, share our knowledge to multiple stakeholders, and make a positive impact on society by leveraging our leading position in the semiconductor industry.

Contributing to global sustainable development

ASE's long-term sustainability strategy not only creates sustainable values for both ASE and the society, but also helps meet the UN Sustainable Development Goals (SDGs). We considered how ASE can contribute to SDGs based on our core value, and then prioritized eight SDGs (as shown below) that are in line with our strategy.



Strategic Pillars	Strategic Directions	Progress in 2017
Low Carbon	**Carbon Management** Build up the overall carbon management strategies, policies and systems to facilitate the low carbon development	• All of our global facilities conducted greenhouse gas (GHG) inventories (Scope 1 and 2) and achieved ISO14064-1 GHG Verification • Completed GHG inventory of our Kaohsiung facilities' scope 3 emissions (including fuel and energy related activities and waste transport/handling) • Established environmental performance dashboard to track quarterly performance improvements in, for example, electricity eco-efficiency • Completed ISO14067 carbon footprint verification for Bumping and substrate products
	Green & Renewable Energy Investment Build up ASE's green/renewable investment strategy to prevent external costs and find new opportunities	• Promoted the use of Renewable Energy Certificates as carbon management tool(purchased 188,600 MWh of I-RECs) • Purchased 4,500 MWh of green power (solar and wind power)
	Low Carbon Products/Services Provide low-carbon solutions (services or products) to the market	• Established patent reward system specific for green design innovations • Revised Eco-design guidance and roll-out the revised design requirements to promote Eco-friendly product design
	Adaptation & Resilience Identify vulnerabilities caused by a changing climate and develop adaptation strategies to reduce climate risks	• Introduced the business continuity management (BCM) system in USI (adopted in TW, ZJ) • Gathered the information of extreme climate events faced by our facilities and devised suitable response plans • Upgraded existing facilities and constructed new manufacturing plants and office buildings to meet green building standards (1 "Diamond-rated", 1 "Silver-rated"& 1 "Copper-rated" EEWH certifications and 1 "Platinum-rated" & 1 "Gold-rated" LEED certifications awarded in the year 2017)
	Enable Sustainable lifestyles Shape low-carbon culture internally and image as a leading provider of low-carbon solutions externally	• N/A
Circular	**Circular Design** Integrate circular thinking into product and process design to facilitate sustainable resources usage and foster profitable circular business	• Established ASE's promotion blueprint for circular design • Identified the major environmental impacts of our Bumping product line, and establish its eco-efficiency assessment model
	Water Cycle Set up ASE water objective and strategy and build up ASE circular water cycle	• Completed ISO14046 organizational water footprint inventory • Completed zero process wastewater discharge system (in USI Jinqiao Plant) where the recycled water is reused in air conditioning and green irrigation • Constructed wastewater treatment system (in Chungli Plant) with 7,500 metric tons daily processing capacity
	Waste/Reusable Resource Management Identify and develop materials and production process with circular potential to minimize waste	• Created an inventory of recoverable metals (investigate valuable metals that could be recycled/reused) • Improved our methodology for recovering metals from liquid wastes (develop best recycling methods according to the sources and characteristics of our liquid wastes) • Developed methods for processing waste molding compound from our molding process into materials capable for reuse in manufacturing IC Tray
Inclusive	**Social Impact** Develop the conceptual framework for social involvement as well as a corresponding monitoring and evaluation mechanism	• Formulated the performance indicators for evaluating our social involvement projects • Completed Social Return on Investment (SROI) analysis of our Campus LED Project
	Social Innovation Identify social problems and target populations to be addressed and collaborate with partners to find new business opportunities through social innovation	• N/A
Collaborative	**Smart Procurement** Build up responsible and sustainable procurement mechanism to strengthen corporate risk management system	• Integrated sustainability risk assessment into procurement decision-making flow to improve the supplier screening mechanism. • Engaged a third party to perform on-site sustainability audits for the identified high-risk critical suppliers
	Supply Chain Management Go High Tech Increase and optimize supply chain traceability (e.g. tier 2 suppliers)	• Established a Group sharing platform of suppliers' sustainability information for all facilities • Established conflict minerals management platform • Strengthened the real-time management and enhance the transparency of supply chain management across different sites in ASE group via management tools and platforms
	Strategic Partnership Build up strategic partnership with companies possessing different capabilities and resources to foster innovation	• Helped suppliers to complete GHG inventories as well as third party verifications • Completed the EHS cloud for semiconductor packaging and testing industry (the green supply chain initiative) • Advised and promoted green supply chain for semiconductor packaging and testing industry

2.4 Sustainable Value Assessment

In today's rapidly changing business context (including environmental degradation, energy and resource shortages, increasingly severe climate change, tightened government regulations, and lack of revolutionary breakthroughs in information technology, etc.), traditional shareholder interest-oriented financial reporting is no longer able to reflect the broad and longer-term consequences of the decisions organizations make to respond to sustainability-related risks and opportunities in the future. The long-term sustainable development of an enterprise is no longer aiming to maximize only shareholder value, but rather to maximize value for all stakeholders. ASE strives to create value for all stakeholders while simultaneously driving shareholder value.

In 2017, we has undertaken an value assessment study using PwC's Total Impact Measurement and Management (TIMM) framework and in collaboration with PwC Taiwan to assess the sustainable value created by ASE operations from four key aspects: economic, tax, social, and environmental. Based upon the monetization framework detailed in the Natural Capital Protocol and the Social Capital Protocol as well as the Integrated Reporting principles, we apply TIMM to assess our operations'impacts on stakeholders in the aforementioned aspects and monetize the impacts thereby facilitate business decision making, performance evaluation, and stakeholder communication. Since the methodologies of TIMM are still under development, the results from the assessment does not reflect nor has any impact on ASE's past, present, or future financial performance.

ASE's sustainable value for stakeholders arise from positive changes in the following aspects:

- Economic aspect: We review and evaluate the effects of key impact drivers on our shareholders, suppliers, and employees and express the effects in monetary units.
- Tax aspect: We assess our contribution to the local government's public finance according to the overall tax paid in our operation activities, which, in turn, represents our contribution to the well-being of local people.
- Social aspect: We measure and value the consequences of business activities on our suppliers, employees, and communities based upon the seven principles of Social Return on Investment.
- Environmental aspect: We follow the Natural Capital Protocol to measure and monetize our environmental impact of business operations.

Through the learnings from the sustainable value assessment, we hope to gradually incorporate integrated thinking into our decision-making process. Conventional financial reporting focus on business financial performance and traditional business decision making has tended to focus on relatively short-term financial outcomes. In contrast, the sustainable value assessment put more emphasis on the interaction between different capitals, such as financial, manufacturing, intellectual, human, natural, and social capitals, as well as how to derive short-, medium- and long-term value by using and affecting the capitals. Embedding integrated thinking in the company culture promotes more holistic, long-term thinking and decision making by the organisation across a comprehensive range of factors material to long-term value creation.

Sustainable Value Assessment Results

We apply TIMM to assess our sustainable value created for stakeholders in the economic, tax, environmental, and social aspects. The 2016 and 2017 TIMM assessment results (as detailed below) show that our overall sustainable value in 2017 grew by 9% compared to 2016. Our sustainable contribution to stakeholders in the economic aspect forms the majority (more than 60%) of the overall sustainable value in both years, in particular through our operations' positive impact on the financial satisfaction and livelihood maintenance of stakeholders. Payroll for employees accounts for the highest proportion of the economic sustainable value. We also make a sizeable contribution to support the local government's finance and the well-being of local people via the taxes we paid. Like most manufacturing companies, our operations inevitably have a negative impact on the environment while creating economic value. GHG emissions and water consumption accounted for the largest proportion (over 90%) of the overall environmental impacts. We make other contributions to society, mostly from the value created through supplier partnerships and employee engagement. The further explanations of the assessment results on each aspect are presented in the relevant sections of this report.
A document containing all the assumptions and the calculation values used, together with the detailed TIMM framework and stakeholder influence maps, can be found on our website[1] .
As the noted English economist John Maynard Keynes once said, "It is better to be roughly right than precisely wrong." We are not pursuing a precise number that represents a specific meaning, but rather expecting to use the TIMM assessment results as a reference for setting up key performance indicators for each sustainable management aspect, as the first step towards better sustainable management using total-impact based decision making, thereby creating greater value for stakeholders while using limited resources.

[1] http://ase.aseglobal.com/public/downloads/en/ASE_TIMM_Report_EN.pdf

COMMUNICATION AND STAKEHOLDER ENGAGEMENT

ASE Group is committed to conducting effective and strategic stakeholder engagement and communication while emphasizing transparent and balanced information disclosure.

Communicating with our stakeholders is key to the long-term and continuous improvement of our enterprise. Through dedicated communication mechanisms, we collect and incorporate important stakeholder feedback into our strategies and operations worldwide. An important goal of stakeholder engagement is to seek feedback from diverse stakeholder groups and transform that feedback into action.

3.1 Identification and Communication with Stakeholders

We define stakeholders as a group or an organization that can affect or be affected by ASE. Based on the 5 major principles (dependency, responsibility, influence, diverse perspective, tension) of the AA1000 SES-2011 Stakeholder Engagement Standard (SES), we have identified 9 major categories of stakeholders. They are categorized into two groups based on whether the impact is direct or indirect. Our direct stakeholders include shareholders, employees, customers, and suppliers; our indirect stakeholders include community residents, government, industry unions and associations, media, and non-governmental organizations ("NGOs").

We engage with our stakeholders through a variety of means, depending on the nature of the relationship. The methods of engagement will vary depending on the stakeholders, the issues of concern and the purpose of engagement.

Our communication mechanisms & focus

Stakeholders | Communication mechanisms[1]
2017 Issues of Concerns | 2017 Communication key outcome[2]

Customers

- Customer quarterly business review meeting
- Customer audits
- Customer service platform
- Technical forums

- Business Strategy and Performance
- Innovation Management
- Customer Relationship Management

- Satisfied customer percentage increased from 90% in 2016 to 92% in 2017, which exceeded our "90% satisfied customer" target.

Employees

- GM mailbox
- Intranet web site
- Satisfaction survey on employees
- Dedicated employee helpline

- Employee Health & Safety
- Employee Communication
- Talent Development

- Our global facilities conducted in total 327 new employee orientations, 162 foreign employee forums and 477 regular employee communication sessions.

Shareholders

- Annual financial reports
- Quarterly earnings conference
- Annual shareholder meeting
- Institutional investors' conference (Quarterly)

- Business Strategy and Performance
- Waste Management

- In 2017, ASE set a new record as consolidated revenue reached NT$290.4 billion, an increase of about NT$15.6 billion, or a growth of about 6% from 2016. The 2017 net operating income was NT$25.2 billion, a decrease of NT$1.4 billion, or a decline of 5.4% from 2016.

Suppliers

- Supplier questionnaire survey
- Supplier on-site audits
- Annual supplier forum
- Supplier capacity-building activities

- Business Strategy and Performance
- Supply Chain Sustainable
- Innovation management

- Over 125 companies from all over the world attended our Supplier Awards Ceremony. 17 award winners were recognized for their extraordinary performance in their support to ASE and 3 award winners were recognized for attaining Excellence in Sustainability.

Government

- Communication meetings, conferences, forums or seminars held by government authorities
- Proactive dialogue with government authorities
- Reporting through government portal

- Regulatory Compliance
- Employee Health & Safety
- Green Solutions

- Co-worked with other companies in the semiconductor packaging and testing industry to establish the TSIA ESH Committee for addressing the issues of industrial safety and environmental protection as well as propose amendments in environmental protection regulations to the government through the Industrial Technology Research Institute.
- Strictly adhere to the standard procedure for dealing with accidents at work and notification to the local authorities within the regulatory time period. There was no major injuries in 2017, and the total occupational injury accident was reduced by 42% compared to 2017.

Community

- ASE Charity Foundation
- ASE Cultural and Educational Foundation
- Employee volunteer activities
- Community perception surveys and needs assessments

- Water Resource Management
- Waste Management
- Significant Community Development

- ASE contributed US$806k in community engagement programs to more than 740 beneficiaries including 122 underprivileged children, scholarships for 638 low-income family students and 42 charitable institutions.

Industry Unions And Associations

- Organizational member conference
- Technology forums held by industry unions/ associations

- Waste Management
- Climate Change
- Water Resource Management

- We engaged over 136 external organizations and contributed US$540k in public advocacy wherein US$450K was for the support of public policy and industry development.
- Joined the TSIA's Waste Disposal Contractor Self-Discipline Convention, strictly supervised the poor performance contractors to improve their management capabilities.

Media

- Press releases
- Spokesperson interviews
- Company's website

- Significant Community Development
- Business Strategy and Performance
- Waste Management

- We conduct an annual media seminar to engage media professionals covering our industry and to educate and update them on the global and segment market outlook, technologies and ASE's progress in corporate sustainability.

NGOs

- Communication meetings, forums, seminars or workshops held by NGOs
- Company's website
- Volunteer activity cooperation with NGOs

- Waste Management
- Public Policy & Initiatives
- Climate Change

- We contributed US$1.37 million in support of environmental conservation programs, charitable activities and civic educational programs through collaboration with 20 NGOs.

[1] We communicate with each stakeholder at irregular intervals unless otherwise indicated.
[2] For more information, please see relevant chapters and sections of this report.

3.2 Materiality Assessment

Materiality Assessment Procedures

- 40 potential issues (2 new issues added in 2017: taxation and customer relationship management) were collected from ASE's list of issues in 2016, GRI Topics, SASB Material ESG Issues, DJSI & CDP Sustainability Issues.
- An initial screening of the potential issues was conducted based on ASE's operational focus and major incidents in the past.

Identify sustainability issues → **Survey stakeholder concerns** → **Analyze impact** → **Determine the material topics**

- To facilitate its presentation, the identified sustainability issues were consolidated into 21 issue groups that were used for materiality analysis survey.
- 1,408 questionnaires were completed to understand stakeholders' level of concern for each sustainability issue group.

- 107 managers from relevant departments as well as our sustainability taskforces were invited to express their thoughts on the degree of impact on ASE's business and external systems for each sustainability issue group.

- The sustainability issue groups were prioritized based on the overall score considering stakeholder concerns and business impact of each issue group.
- A total of 16 key issue groups were selected for disclosure, which cover 20 corresponding GRI material topics as well as 5 self-defined topics. The information of non-key sustainability issues deemed relevant to ASE was also disclosed publicly.

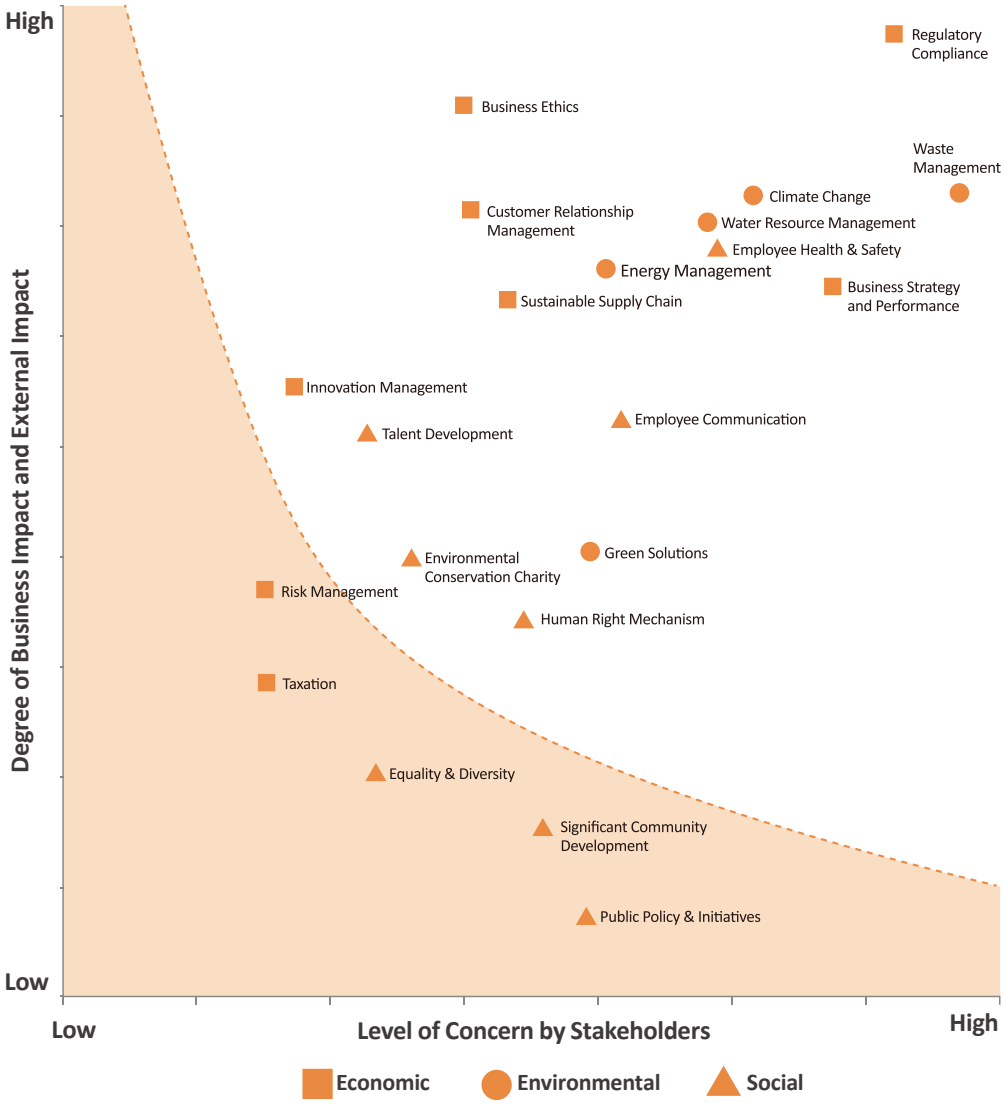
Analyzing Public Opinion

While conducting materiality assessment, ASE analyses media coverage from 17 major Taiwan-based news portals including Chinatimes, Liberty Times Net, Appledaily, UDN, Formosa Newsletter as well as 5 major social media platforms such as Facebook and YouTube. Much of the reporting in 2017 were related to local and community involvement, environmental sustainability, the merger of ASE and SPIL[1], employee benefits, technology and R&D, wherein most of the negative coverage was focused on employee welfare issues.

Regarding such negative coverage, we communicated with stakeholders immediately through the following channels: (1) we released official statement of the actual situation to respond and explain clearly within the shortest possible time, and (2) we communicate internally to employees to state the facts and clarify the discrepancies through e-mails, intranet website, etc.

[1] Siliconware Precision Industries Co., Ltd.

Results of Materiality Assessment



Material Issue Group		GRI Material Topic	The Boundary for the Material Issue	
			Where the impact occurs	Our Involvement with the Impacts
Economic	Regulatory Compliance	Environmental compliance, Socioeconomic compliance	All Manufacturing Facilities	Failure to comply with applicable laws and regulations may damage the image and reputation of the company.
	Business Strategy and Performance	Economic performance	All Manufacturing Facilities	Lack of a sound business strategy could damage the company's profit and performance.
	Business Ethics	Anti-corruption, Anti-competitive behavior, Customer privacy	All Manufacturing Facilities	Failure to maintain high standards of ethical business conduct can result in serious potential consequences for long-term business operations.
	Customer Relationship Management	Customer relationship management*	All Manufacturing Facilities	Failure to properly manage customer relationship may lead to a decrease in customer satisfaction and loyalty.
	Sustainable Supply Chain	Procurement practices, Supplier environmental assessment, Supplier social assessment, Conflict minerals management*	All Manufacturing Facilities, Suppliers	Failure to develop stable partnerships with suppliers may lead to increased costs and deteriorating quality, thus indirectly reducing the company's competitiveness.
	Innovation Management	Innovation Management*	All Manufacturing Facilities	Lack of continuous technological innovation may lead to increased costs and reduced efficiency, thereby reducing the company's competitiveness.
Environmental	Waste Management	Effluents and Waste	All Manufacturing Facilities	Effective waste management can reduce waste generation and related costs, and continuously reduce ASE's operational impact on the environment.
	Climate Change	Emissions	All Manufacturing Facilities	Continuous promotion of GHG reduction actions at all facilities can mitigate global warming and reduce the risks arising from climate change.
	Water Resource Management	Water, Effluents and Waste	All Manufacturing Facilities	Failure to properly manage water use in our facilities may lead to water environmental degradation.
	Energy Management	Energy	All Manufacturing Facilities	Lack of an effective energy management system could result in more energy consumption and increased GHG emissions.
	Green Solutions	Green manufacturing*	All Manufacturing Facilities	Green products help to improve business and environmental performance, and positions ASE at the forefront of market and regulatory trends to gain competitive advantage.
Social	Employee Health & Safety	Occupational health and safety	All Manufacturing Facilities	Lack of a good health and safety management system may lead to absenteeism and reduce productivity and quality.
	Employee Communication	Labor/management relations	All Manufacturing Facilities	Lack of good labor relations may damage organizational harmony and weaken our competitiveness.
	Talent Development	Employment, Training and education	All Manufacturing Facilities	Lack of adequate training and development programs could negatively affect talent recruitment and retention.
	Environmental Conservation Charity	Environmental Conservation Charity*	All Manufacturing Facilities, Community	Sound environmental conservation activities help to build positive and constructive relationships at the local level and strengthen our social license to operate.
	Human Rights Mechanism	Human rights assessment, Child labor, Forced or compulsory labor	All Manufacturing Facilities, Suppliers	Failure to uphold the basic human rights of employees may negatively affect the company's sustainable development.

* Issues important to ASE but not included under the GRI Standards.

Strategic Goals Of Key Issues

On schedule Room for improvement

2017 Key Issues	Business Impact on ASE	Strategy	2020 Target	Progress/ Status
Regulatory Compliance	Compliance with all applicable laws ensures public trust and helps reduce financial risks that would occur either directly through fines or indirectly through impacts on reputation.	Ensure compliance with all applicable laws: continuously promote compliance awareness through education and training, and improve compliance management systems and processes.	No major violation	On schedule
Waste Management	Effective waste management can reduce waste generation and related costs, and continuously reduce ASE's operational impact on the environment.	Improve source management: identify and develop materials and production process with circular potential to minimize waste.	75% waste recovery rate (2020)	On schedule
Climate Change	Climate change has become a focal point of environmental issues around the world, in particular for ASE where there is a growing dependence on energy.	Reduce GHG emissions & provide green manufacturing services: green facilities (efficient building designs), energy conservation, efficient use of natural resource, adopting renewable energy (such as solar installations and green power purchases), green product design.	5% reduction in GHG intensity (GHG emissions per revenue) compared to 2015 (2020)	On schedule
			100% GHG Verification	On schedule
Business Strategy and Performance	The global economic situation has undergone rapid changes in recent years. In the face of uncertainties such as the rise in interest rates in the United States, emerging market debt risks and the growing popularity of protectionism, effective planning and development of business strategies are crucial to ensuring our operations' competitiveness, and survival.	Continuous innovation and resource integration: Continue to focus on technological innovation, increase R&D and capital expenditures, and increase the overall economic scale to generate sufficient profitable growth space; integrate resources to improve efficiency, reduce costs, avoid duplicated investments allowing more resources for R&D to offer better technology and services.	Continuous revenue and margin growth	Room for improvement
Water Resource Management	Effective water resource management diminishes the impact of water shortages on ASE and the value chain, and strengthen corporate competitiveness.	Establish sustainable water recycling system: set up ASE water management objective and strategy based upon integrated circular thinking.	The total water withdrawal (Reduction by 15% in 2020 compared with 2015)	Room for improvement
			80% Process water recycling rate (Process water for reuse/Process use water)	Room for improvement
Business Ethics	Establishing norms of business conduct and ethics and creating an honest and responsible culture are key to our long-term business success.	Implement business conduct and ethics-related policies and regulations: continue to promote education and training, commit to comply with ethical standards in all ASE business activities, and ensure the effectiveness of reporting systems by audit.	100% employee training coverage	On schedule
			100% subsidiary roll-out coverage	On schedule
Employee Health & Safety	Having an advanced and proactive health and safety management system is conducive to reducing absenteeism and improving productivity and quality.	Continuously improve health and safety management system: make all reasonable efforts to prevent accidents and promote health.	Zero cases of major injury and occupational disease	On schedule
			Disabling Frequency Rate (F.R.) and disabling Severity Rate (S.R.) 10% less than industry average	On schedule
Energy Management	Having an effective energy management system help to increase our energy efficiency and lower our energy costs, thereby reducing our energy consumption and GHG emissions.	Continue to improve energy management: establish standardized management systems through ISO 50001, improve energy efficiency through PDCA improvement method, and build smart energy management systems to facilitate precise control and lower standby mode energy consumption.	More than 2% energy saving ratio (current year's energy saving from projects/total electricity consumption of the year)	On schedule

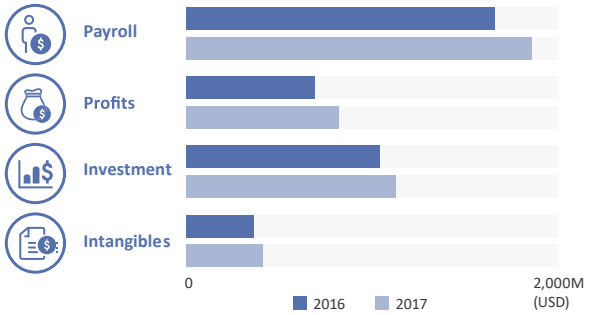
2017 Key Issues	Business Impact on ASE	Strategy	2020 Target	Progress/ Status
Customer Relationship Management	Good customer relationship management helps to improve our customers' satisfaction and loyalty, thereby increases our profit and core competitiveness.	Continuously enhance customer communication: provide a variety of communication channels, and use online customer service platforms to instantly interact and exchange information with customers; enhance information security management to ensure the confidentiality and integrity of customer proprietary information.	Maintain at least 90% customer satisfaction.	
Sustainable Supply Chain	Establishing a sustainable supply chain is a win-win strategy that strengthens the protection of our suppliers' employees and assets and indirectly improves our competitiveness.	Ensure supply chain's sustainable development: establish partnerships with our suppliers to ensure that they provide a safe working environment, their employees are respected and dignified, and their operations are ethical and environmentally friendly.	Ensure 100% critical direct material suppliers of packaging and material service complete foreign workers' human rights risk assessment and improvement.	
Employee Communication	Good labor relations promote organizational harmony and improve organizational competitiveness.	Implement employee engagement survey and feedback mechanisms: encourage employees to actively participate in company activities, solicit for feedback using our employee engagement survey, and offer competitive compensation and benefit programs.	Conduct employee engagement survey in all of our facilities.	
Innovation Management	Continuous innovation of technologies lower costs, improve efficiency, thereby reducing resource consumption and energy consumption. In addition, business model innovation on the value chain can increase ASE's core competitiveness and enable expansion capacity.	1) Integration of group-wide innovation resources: establish knowledge sharing and diffusion mechanisms, and ensure synergistic effects of inputs in R&D innovation. 2) Provide differentiated products and services: focus on the development of advanced semiconductor packaging and testing solutions, and develop innovative business model on value chain.	1) Establish a cross-site R&D innovation best practice (knowledge) sharing platform 2) Advanced package/module technology development for high-end applications	
Talent Development	Good training and development programs help attract and retain talents, and create a pleasant working environment, thereby enhancing ASE's productivity, strengthening innovation and further enhancing profitability.	Enhance talent development and training effectiveness: provide challenging and valuable professional career for employees by offering training and promotion opportunities within the company.	Deployment of the ASE six-path employee career development system in all manufacturing sites.	
			Target to achieve the number of internal certified trainers at 6% of ASE total headcount (equal to the ratio of ASE's supervisors).	
Green Solutions	Green products help to improve business and environmental performance, and position ASE at the forefront of market and regulatory trends. Green solutions also reduce costs, increase the company's competitive advantage, long-term profitability and sustainability.	Sustainable manufacturing service: provide product solutions that are compact, lightweight and energy efficient as well as provide eco-efficient and responsible manufacturing services.	Develop a methodology for energy saving assessment of our products in the use phase.	
Environmental Conservation Charity	Active community development through strategic charitable and educational programs, and social work helps to build positive and constructive relationships at the local level, strengthen our social license to operate and create a well-educated workforce for future recruitment.	Our environmental conservation program primarily focuses on: environmental education promotion, environmental quality enhancement, environmental impact minimization and environmental arts promotion.	Contribute NT$100 million per year in environmental conservation.	
Human Right Mechanism	Upholding fundamental rights of employees as well as creating an environment that guarantees human rights are essential for a sustainable business.	Protection of human rights: prohibition of forced labor, child labor, discrimination and harassment; ensuring rights of freedom of association and privacy; provision of reasonable working hours and appropriate compensation and benefits.	Conduct risk assessments for 100% of our foreign worker agencies.	

CORPORATE GOVERNANCE

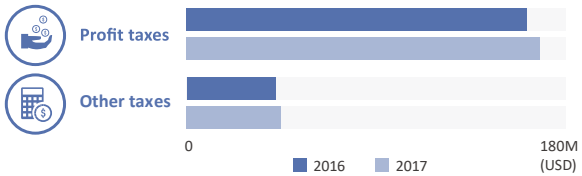
ASE Group is committed to maintaining sound corporate governance, continuously practicing ethics in all areas of our business, and complying with all laws and applicable regulations where we operate.

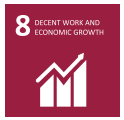
ASE strives to establish an organizational culture of integrity and accountability and is committed to maintaining high standards of ethics, effective corporate governance, and accountability mechanisms in every aspect of its business, as well as conducting business in a socially responsible and honest manner serves both the company's and shareholders' long-term interests.

Sustainable Value Assessment - Economic Aspect



Sustainable Value Assessment - Tax Aspect





[Link to SDGs]

2017 Key Performance

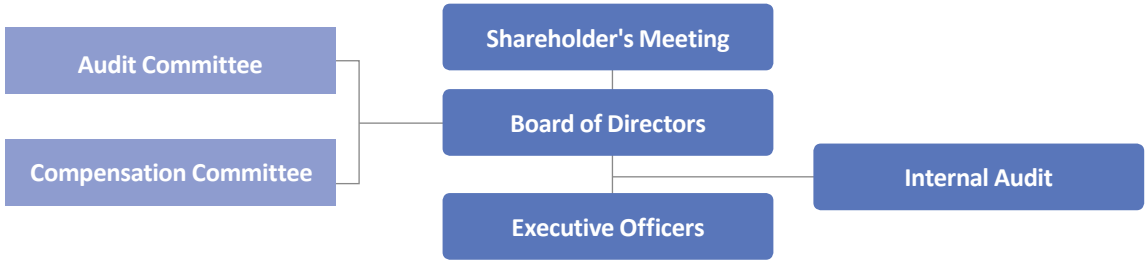
ASE proactively examines its corporate governance practices and effectiveness of corporate governance implementation through the Corporate Governance Evaluation System launched by Financial Supervisory Commission ("FSC"). Through self-assessment, our top management executives place great emphasis on strengthening our corporate governance. In 2017, ASE was among the top 20% of all listed companies under the Corporate Governance Evaluation System for our outstanding performances in "Protecting Shareholder Rights and Interests" and "Putting Corporate Social Responsibility into Practice".

In 2017, ASE was continuously selected to be a constituent stock of the "TWSE Corporate Governance 100 Index (TWSE CG100 Index)" based on our corporate governance evaluation result of 2016, liquidity test, and financial indicators. In the future, our efforts will continue in promoting corporate governance, enhancing information transparency, and gradually assimilating elements of sustainable governance into the company's management system.

[1] Total training hours = course duration x number of people.

4.1 Board of Directors

The ASE's board of directors (the "board") has set up the "Audit Committee[1]" and the "Compensation Committee[1]", which convene meetings and faithfully perform the duties prescribed in charters and applicable laws and regulations. They shall submit their proposals to be resolved by the board. In parallel, ASE has an Internal Audit which is responsible for periodical audits and presenting audit results to the audit committee and the board.



Structure and Authority of Board of Directors

The board is the highest governing body of ASE. Jason Chang has served as Chairman of the board since ASE's listing on the Taiwan Stock Exchange in 1989, and concurrently as the Chief Executive Officer since 2003. The chairman utilizes a strategic leadership style to lead the management team and all employees in consolidating the core business, confronting challenges and creating new business opportunities, establishing ASE's leading position in the market of semiconductor assembly and test services.

Prior to being an ASE Holding's wholly-owned subsidiary, the board consisted of eleven members, each serving a three-year term. Three members of our board of directors are independent directors as defined in Rule 10A-3 under the U.S. Securities Exchange Act of 1934 as well as defined by the Regulations Governing Appointment of Independent Directors and Compliance Matters for Public Companies by Taiwan FSC. In addition to certain authorities and duties granted by or in accordance with the Taiwan's Company Act and ASE's Articles of Incorporation or shareholders resolutions, the board is actively engaged in the supervision of the overall operational condition of the company, business strategy formulation and development, risk identification regarding operation, finance as well as taxation, and overseeing, planning and implementation of ASE Group's corporate sustainability.

In 2017, a total of thirteen board meetings were convened, and each of these meetings was attended by at least two independent board members in their supervisory capacity[2]. To manage and avoid conflicts of interest, directors or the corporates they represent involving conflicts of interest which may in turn jeopardize the interest of the company, are not allowed to participate in the discussion, vote at the meeting or exercise voting rights on behalf of other directors[3].

[1] For further details on the composition and authority of the audit committee and compensation committee please refer to our 2017 Form 20-F "Item 6." (http://aseir.aseglobal.com/html/ir_annual.php)
[2] In 2017, the average board meeting attendance rate was 88% which concluded actual attendance (72%) and attendance by proxy.
[3] For further details on directors' attendance of meetings and information regarding conflict of interest, please refer to our 2017 Annual Report in Chinese.

Diversity of Board of Directors

ASE developed the "Corporate Governance Best Practice Principles[1]", clearly specifying the diversity guideline for the board members. Not only are gender, age, nationality and cultural background part of the diversity, professional background and skills are also taken into consideration when determining the composition of the board. One of the board members is female, and the ages of board members range from 38 to 74. The members of the board hold a variety of professional backgrounds and industry experiences[2], and possess the abilities to conduct risk oversight and to lead the enterprise from an international market perspective. To strengthen professionalism and knowledge and to respond to constantly changing and increasing sustainability issues worldwide, board members have continuously participated in training courses covering subjects on corporate sustainability for more than six hours per person per year.

2017 Training Courses for Board Members

Types	Course Name	Total Training Hours (Course Duration * Number of Trainees)
Strategic Management	Exploring mergers and acquisitions from the perspective of directors	3 hours
	Analysing new anti-tax avoidance systems adopted by Taiwan, China, and worldwide and firms' adaptive strategies	3 hours
	Challenges and prioritized missions of audit committee	3 hours
Risk Management	The impact of money laundering prevention on firm operations	27 hours
	How to strengthen risk and crisis management	33 hours
	How directors and supervisors supervise risk and crisis management and enhance corporate governance	3 hours
	Fraud risk management in practice	3 hours
	Trade financing and anti-money laundering activities of international financial institutions	3 hours
	Information security governance under the development of science and technology	3 hours
Total number of training hours		**81 hours**

Board Participation in Sustainability Governance

To realize ASE Group's commitment to sustainability and corporate citizenship, the board participates in the supervision and management of ASE Group's performance in economic, environmental and social issues. When board members make major decisions, they often take social, environmental and economic factors into consideration. For example, in 2017 (the fourth consecutive year of contribution), the board resolved to promote environmental protection efforts in Taiwan by contributing an amount of US$3.4 million (NT$100.0 million) and by amending and formulating a total of five documents related to sustainable development; independent directors serve as final review members for the "ASE Group Supplier Sustainability Award" for the second consecutive year. In addition, the chairman accepted an invitation from the CSC to become one of the members. In 2017, six directors served as members of the CSC and regularly monitor the implementation results and future plans of sustainability programs.

Board Performance and Compensation

We have formulated compensation policies for our top management. In addition to individual performance, the compensation of top management is also determined based on the achievement of the company's financial[3] and non-financial[4] performance targets. The compensation of the CEO and other top management is approved by the board.

To enhance overall efficiency of the board and to measure the performance of the board and individual members with respect to leading and supervising the company's performance, we established an evaluation system that incorporates financial and non-financial indicators as well as sustainability-related elements[5] in 2016. At the end of 2017, our directors adopted a self-evaluation method to assess the performance of the board members and the board for the year. The evaluation results were submitted to the Compensation Committee and the board in 2018 to serve as references for director performance and compensation. Meanwhile, the evaluation results was published on the company website[6].

[1] ASE has become a wholly owned subsidiary of ASE Holding on 30th April, 2018, and is obligated to follow the policies and procedures set forth by ASE Holding. For "Corporate Social Best Practice Principles", please refer to the ASE Holding's website: http://ir.aseglobal.com/html/ir_doc.php?

[2] For further details on the composition of the board of directors, and professional backgrounds and industry experiences of board members, please refer to 2017 Annual Report in Chinese "Ch. 3. Corporate Governance Report" or 2017 Form 20-F "Item 6".

[3] such as the performance of operating revenues, operating profits, net income, and P/E ratio

[4] such as the performance of reputation risks, customer satisfaction, feedback from stakeholders engagement, environmental and social results

[5] such as the board members' realization of the ASE's commitment to sustainability, including corporate governance, environment, employees, supply chain, society, and stakeholders. For further details, please refer to "Corporate Sustainability and Citizenship Policy" on ASE Holding's website at http://www.aseglobal.com/en/csr_corporate_sustainability_policy.html

[6] For further details on 2017 Board Performance Evaluation Results, please refer to ASE's website and visit http://aseir.aseglobal.com/html/ir_board.php

Compensation for top management includes both cash and stock options. The characteristics of the industry and the nature of the company's business are taken into consideration when determining the ratio of bonus payout based on the short-term performance of top management and the time for payment of the variable part of compensation. Furthermore, we believe that the ownership of company shares by the directors who hold senior management positions help align their interests and actions with the interests of ASE's shareholders. In 2017, we formulated a Stock Ownership Guidelines. To enhance corporate governance and ensure the accountability of financial results, we reserve the right to cancel and require reimbursement of any variable compensation received by the CEO and CFO to the extent permitted by applicable laws. In 2017, we also formulated a Clawback Policy. These two important documents were publicly disclosed after the approval by ASE Holding's board of director in 2018.

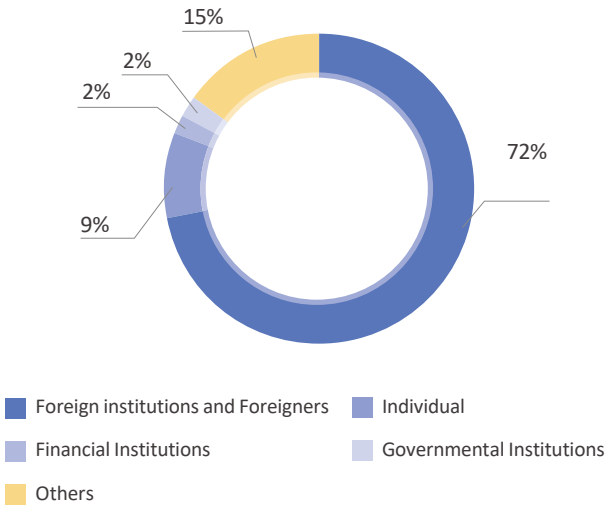
Information Transparency

We place great emphasis on the stakeholders' right to know, and faithfully comply with applicable regulations regarding information disclosure in order to provide them with regular and timely information on company financial conditions and business operations, major internal documents, and corporate governance status, etc. through diversified channels. These channels include the company website, Market Observation Post System (MOPS), annual report, SEC Filing Form 20-F, corporate sustainability report, quarterly earnings release, press conference, and annual shareholders' meeting. To treat stakeholders equally, we concurrently disclose the information of the preceding matters in both Chinese and English.

Shareholder Rights and Interests

To ensure shareholders' rights of being fully informed of, participating in and making decisions over important matters of the company, we have actively responded to TWSE's promotion of corporate governance related measures. These measures include a candidate nomination system for board member elections, an electronic voting system, case-by-case voting at shareholder meetings, and the disclosure of voting results on a case-by-case basis. The shareholders' meetings are held in an effective, legal and convenient way for shareholders to exercise their shareholders' rights, encouraging shareholders participation in corporate governance and thereby leading to improved attendance at shareholders' meetings.

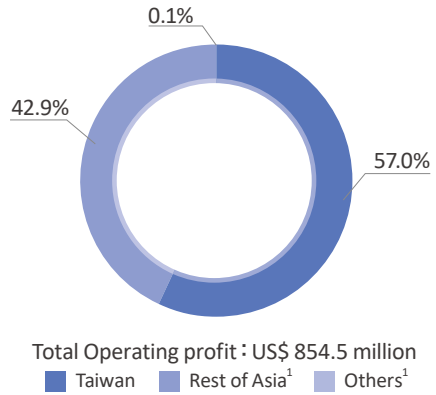
Structure of Shareholders



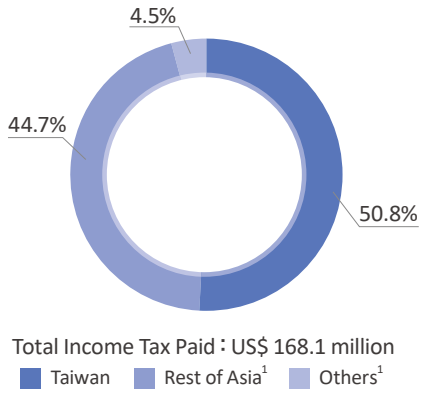
4.2 Economic Performance and Tax Governance

We categorize our operating profit and income tax paid geographically based on the country in which ASE and subsidiaries are located. Around 57% of ASE Group's operating profits are generated from our business operations in Taiwan. Meanwhile, 50.8% of our income tax payments were also made to the Taiwan R.O.C. government.

2017 Operating Profit



2017 Income Tax Paid



[1] Rest of Asia includes China, South Korea, Singapore, Malaysia, and Japan. Others include America and Mexico, etc.

In 2017 and 2016, the reported tax rates were 21% and 19%, respectively, and the cash tax rates[1] were 16% and 19%, respectively.

In conformity with the core values of our tax policy, ASE is committed to fulfilling its tax payment obligations while considering the impacts and risks associated with tax payment in its business activities and promoting corporate innovativeness, research and development, and reinvestment to achieve sustainable development in accordance with government policies. Each individual entity pays taxes where profits are earned and ensures transactions are conducted at arm's length. We do not use secrecy jurisdictions or so-called "tax havens" that are meant for tax avoidance or aggressive tax planning. These core values and spirit are the foundation of our tax policy.

ASE Group Tax Policy

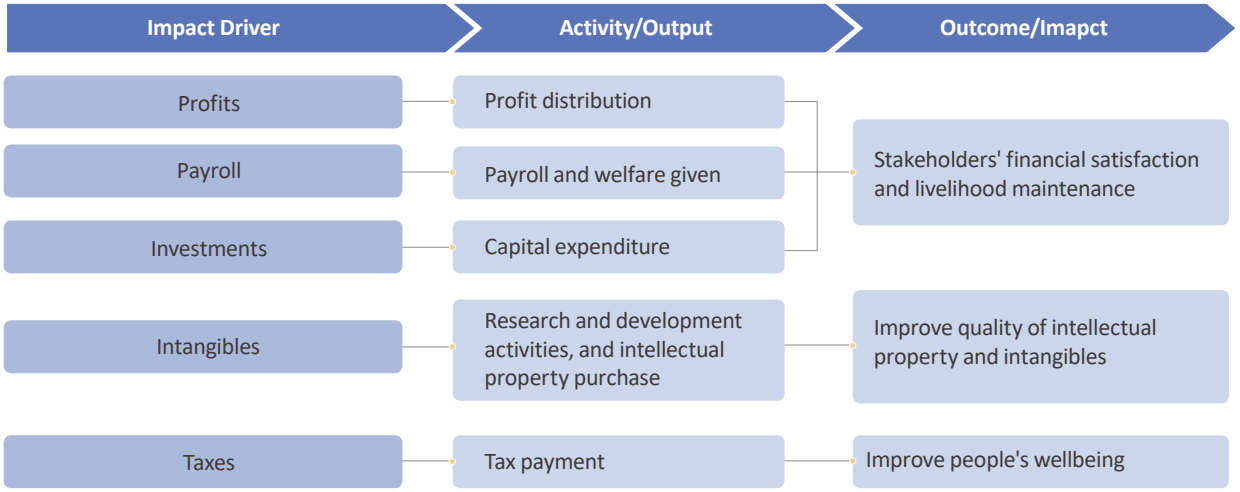
ASE Group believes that being an honest taxpayer can foster economic growth and help to maintain sustainable business in the long term.
ASE Group is committed to the following:

1. Complying with all applicable tax laws and regulations of all countries in which we operate and duly reporting and paying all necessary taxes in a timely manner.
2. Constructing an appropriate mechanism to evaluate potential tax risks which are given rise to our global manufacturing and sales activities.
3. Taking into consideration of both short term and long term tax impacts when making major business decisions.
4. Being transparent and disclosing tax information in accordance with applicable regulations and reporting requirements.
5. Developing mutually trustful and respectful relationships with tax authorities in the countries we operate, and communicating with them on tax matters where appropriate.

Sustainable Value Assessment - Economic and Tax Aspects

ASE has based its economic sustainable value assessment on the extent to which its contributions increase social value. The generation and distribution of economic value reflect how wealth is created for every stakeholder. We not only create employment opportunities and provide employees with salaries and benefits, but also incorporate major capital expenditures that have been outsourced to suppliers and intangible assets to include the economic value generated during their expected usage period. We also continuously invest in product innovation and technology and service R&D to upgrade the quality of our intellectual property, enhance profitability and maximize the profits distributed to shareholders. All these demonstrate that capital flows during our operational processes are sufficient to satisfy the financial needs of every stakeholder. In 2017, employee salaries and benefits generated the highest sustainable value in the economic impact assessment results, a clear indication that the local labor markets in which ASE operates are of great concern to the company. We provide competitive, performance-oriented compensation as well as the opportunity to share in profits. The economic sustainable value was higher in 2017 than in the previous year. The main reasons for this were increases in both net profit and employee salaries. As ASE's revenue increases, we prioritize the distribution of the increased profits to the employees who worked hard to create it, so that the rate at which employee salaries grow will exceed ASE's profit growth rate.

ASE's tax sustainable value assessment is calculated by viewing the taxes paid on its various operational activities as contributions to local government coffers. In this way, we can assess the value of our contribution towards improving the local community. In 2017, the main source of sustainable value contributed by the tax impact was the income tax directly related to our operating profits. The 2017 tax sustainable value was higher compared to the previous year. The main reasons were an increase in net profits and a corresponding increase in tax payments.



[1] Cash tax rates = income tax paid÷profit before income tax

4.3 Code of Business Conduct and Ethics

Policies and Specifications

ASE's board of directors has successively approved and published ethical corporate management related regulations which clearly specify the policies and specification, behaviour guidelines, operational procedures and grievance systems to prevent unethical behaviours. These policies aim to shape ASE's culture of honesty and responsibility and to realize its commitment of compliance to the highest ethical standards in ASE's overall business activities.

Ethical related regulations[1]

- Code of Business Conduct and Ethics
- Corporate Governance Best Practice Principles
- Corporate Social Responsibility Best Practice Principles
- Ethical Corporate Management Best Practice Principles
- Procedure for Ethical Management and Guidelines for Conduct
- Administrative and Practice Procedures to Prevent Insider Trading
- Fair Competition and Antitrust Laws Compliance Policy
- Guidance on Prevention of Corruption

Organization and Authority

As the highest governance body of ASE's business conduct and ethics, the CSC coordinates and supervises the establishment and implementation of the ethical corporate management policies and specifications. The CSC periodically reviews the promotion of business conduct and ethics and the compliance of policies and specifications, and reports to the board of directors. The Corporate Governance Taskforce under the CSC promotes ethical policies and specifications to our global manufacturing sites and assists in managing and adopting appropriate policies and specifications to ensure ethical management in compliance with the requirements of local laws and regulations. Global manufacturing sites are responsible for planning the internal organization, structure, and allocation of responsibilities, formulating standard operating procedures and conduct guidelines in accordance with corporate policies and specifications, and promoting awareness and educational activities with respect to ethics policy in internal management and in daily operation. The Internal Audit is in charge of supervision to ensure the operating effectiveness of reporting system.

Education and Promotion

To guide ASE Members[2] and the company's stakeholders to better understand ASE's business ethics standards, we publish our "Code of Business Conduct and Ethics" on the company website and disseminate our ethical related policies, guidelines, practices, and implementation status of the board and management levels within the company. We also communicate ASE's concept of business ethics and company's specific practices through education, promotion and online training and various methods.

2017 Promotion and Implementation:

- Planned the procedures for handling violation of ethical conduct.
- Proclaimed latest "Code of Business Conduct and Ethics" to the human resource executives of ASE's global manufacturing sites to enhance their compliance.
- Held trainings in ASE's manufacturing sites in Taiwan, China, Japan, Korea, Singapore, and Malaysia to introduce policies and specifications such as "Code of Business Conduct and Ethics", "Supplier Code of Conduct", "Supplier Code of Conduct Commitment Letter", or RBA Code of Conduct. The participants included personnel from Procurement, Facility, EHS, HR, QA, and General Manager Office.
- Completed ASE Kaohsiung employee on-line training program which includes courses on business conduct and ethics.

Consultation and Report

We have established channel of consultation for ASE Members and various internal and external reporting channels[3]. ASE Members or any third party may report to the internal or external channels, either using their own identity or anonymously. Investigation and improvements were made according to related reported issues, emphasizing on the importance of business ethics and integrity by providing educational training (such as e-mail advocacy and online quizzes). We are committed to keeping the whistleblower's identity and reporting contents confidential, and protecting him/her from any unfair treatment or retaliation as a result of the violation reporting.

The cases received through the "Code of Conduct Compliance Reporting System" and "Accounting, Internal Accounting Controls or Auditing Matters Reporting Mailbox" in 2017 have been investigated and handled in accordance with relevant processing procedures in the current year. In 2017, there were no cases related to violation of business conduct and ethics, or accounting, internal control and audit, and the company did not engage in any political contributions.

In 2018, for the purpose to reinforce the whistle-blowing mechanism, ASE Holding appoints an independent third party to assist in handling any reporting regarding insiders' misconducts and provide legal services in the subsequent investigation.

[1] ASE has become a wholly owned subsidiary of ASE Holding on 30th April, 2018, and is obligated to follow the policies and procedures set forth by ASE Holding. For ethical corporate management related regulation, please refer to the ASE Holding's website: http://ir.aseglobal.com/html/ir_doc.php?

[2] "ASE Members" includes all employees, officers, supervisors and directors of ASE, its subsidiaries and joint ventures.

[3] For further details on internal and external report channels, please refer to ASE Holding's website - http://www.aseglobal.com/en/csr_business_conduct_ethics.html

4.4 Internal Control and Auditing

Processing Procedures for Violation Reporting

Internal Control

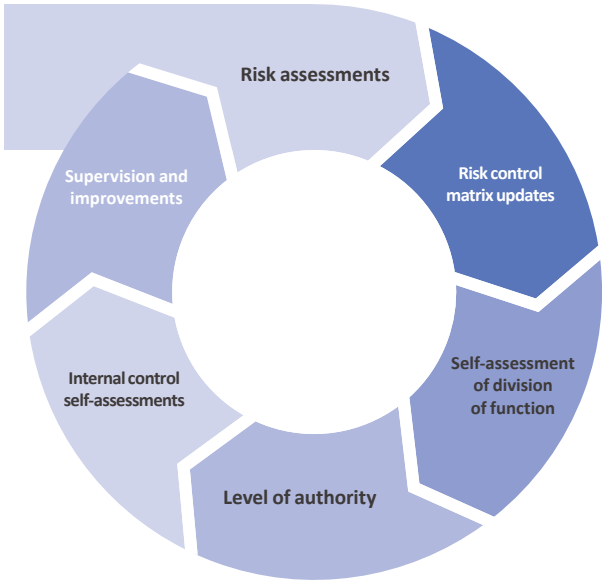
Our internal control policies are based on the Regulations Governing Establishment of Internal Control Systems by Public Companies established by the FSC and relevant regulations established by the U.S. Securities and Exchange Commission. The policies take into account our actual operational activities, are designed and approved by our managers and the board, and are implemented and managed by our managers, the board, and other employees. The policies include company-level and operations-level policies; the objectives of these policies are to define the scope and standards of the internal control system for our business units and subsidiaries, ensure the effectiveness of internal control design and implementation, facilitate sound company operations, and achieve the following goals:

- Operational effectiveness and efficiency
- Reliable, timely, transparent reports in compliance with relevant regulations
- Compliance with relevant laws and regulations

Every year, all of our subsidiaries conduct internal control self-assessments. The scope of the assessments covers the design and implementation of the company's internal control systems (e.g., division of function, system authority management, review and decision rights updates, and Sarbanes-Oxley internal control assessment). The purpose is to implement a self-supervisory mechanism that allows a rapid response to environmental changes, based on which we can adjust the design and implementation of internal control systems, and improve the quality and efficiency of internal control.

To raise employee awareness of internal control, we provided education and training in internal control self-assessment to our manufacturing sites in Taiwan and China in 2017[1]. We built an online internal control management platform in ASE Kaohsiung to provide information regarding internal control, management guidelines, laws and regulations, education and training, and internal control maintenance and operations units. This information can be accessed by employees at any time. In addition, we introduced an online function for internal control design self-assessment in which internal control risk radar charts are generated from self-assessment results and internal and external audit feedback. These serve as review indicators to improve our internal control systems.

ASE Internal Control Management Process



[1] including ASE Kaohsiung, ASE Shanghai (A&T), ASE Shanghai (Material), ASE Suzhou, ASE Kunshan, and subsidiaries of Ding Hui Real Estate

Internal Audit

The Group Internal Audit under the board assists the board and the managers in inspecting and evaluating the validity of the internal control system, as well as assessing the effectiveness and efficiency of the company's operations; the reliability, timeliness and transparency of reports; and compliance with regulations. It also offers suggestions for improvements when necessary to ensure the continued effective implementation of the internal control system.

The Group Internal Audit allocates an appropriate number of qualified, full-time internal auditors based on factors including the scale of the investment, business conditions, management requirements, and relevant laws and regulations to perform internal auditing tasks from an independent, objective, and impartial standpoint. Our competency standards for internal auditors comply with the provisions stipulated by the competent authorities. Auditors undergo professional training on an annual basis and take part in relevant business training organized by accreditation bodies or by the company itself to upgrade their capabilities and the quality of their audits as well as to continuously improve auditing procedures and verification processes and skills. In this way, they can actively develop their auditing and supplementary verification tools and upgrade the effectiveness of their auditing work.

The Group Internal Audit has established a risk-focused internal audit system to carefully evaluate the risks in each subject in every audit category. The assessment results are then used to determine the focus, scope, method, procedures and frequency of the auditing work, as well as determine the significant risks that should be prioritized and where checks need to be strengthened. In this way, the company can achieve the most efficient allocation of auditing resources and keep the board and managers updated regarding the status of its internal control operations. Managers can thereby understand existing shortcomings or hidden risks, and effectively assist the company and subsidiaries in improving the internal control system, risk management, and corporate governance. The Group Internal Audit reviews the internal control self-assessment reports of the company and its subsidiaries' on an annual basis along with improvements to the internal control shortcomings and anomalies discovered during audits. These serve as a basis for the board and CEO to assess the validity of the overall internal control system and for issuing statements on the internal control system.

The Group Internal Audit delivers audit reports and follow-up summary reports to the CEO, chairperson and independent directors on a monthly basis for reference purposes. The supervisor of the Group Internal Audit also attends the Audit Committee's quarterly meetings to report to independent directors the audit results. The supervisor also reports to the board on the progress and findings of auditing operations, and follows up on and internal audit requests and suggestions raised by independent directors, the Audit Committee and the board. These requests and suggestions are administered and reported within a specified time period.

4.5 Human Rights Management

ASE implements and manages human rights protections according to the following four principles:

Protect

ASE complies with all labor and gender equality related laws and regulations where we operate, and provides employees with a safe and healthy work environment.

In 2017, our human resources departments in all locations of operation continued to review local laws and regulations related to human rights at regular management meetings to safeguard employees' interests.

Respect

ASE forbids forced labor, child labor, discrimination, and harassment, and guarantees the freedom of association, privacy, reasonable working hours and appropriate compensation and benefits.

We specifically target five of our facilities with foreign employees (Kaohsiung, Chungli, Malaysia, Singapore, and Shanghai facilities), by reinforcing our review on the hiring process and operation to prevent any occurrence of forced labor or bonded labor (debt slavery). In addition, we strictly prohibit our labor brokers from collecting inappropriate recruitment fees during the recruitment process and we audit our labor brokers to ensure that they comply with RBA (Responsible Business Alliance) principles.

Remedy

ASE vows to maintain an accessible and open grievance mechanism, and to take immediate remedial measures if any violation of human rights issues occurred. Our grievance mechanisms include internal channels (employee suggestion box, grievance hotline, etc.) and external channels (reporting mailbox on official website).

In 2017, we received no complaints of human rights violations.

Management

ASE continuously promotes human rights education, regularly assesses human rights risks, reports and discloses assessment results to top executives and to the public.

In 2017, ASE's global facilities implemented human rights training related courses that took a total 91,472 hours (around 2 hours per employee), with participation by 58,517 employees (85 % of total number of employees). Meanwhile, the "Employee Care and Development Taskforce" under the Corporate Sustainability Committee summarizes and identifies human rights related issues, and implements improvement activities according to P-D-C-A (Plan-Do-Check-Action) steps.

ASE Group Human Rights Impact Assessments and Management Activities

Stakeholder (Vulnerable Subjects)	Issues of Concern	Impact Assessments	Targets in 2017	Actual Execution Status in 2017	Targets in 2018
Employees 1. Female Employees 2. Foreign Workers	(1) Equality	Annual review and evaluation by the sustainable development committee's Employee Care and Development Team 100% acceptance rate of human rights inspections, reviews and management of foreign employee recruitment processes, requirement for labor brokers to meet RBA principles in 2017	(1) Continuous implementation of human rights education training, at least 2 hours per person on average (2) Stronger foreign employee management programs to reduce risk of forced labor or debt slavery	(1) All facilities provided human right education and training, of at least 2 hours per person on average (2) All facilities which employ foreign employees (Kaohsiung, Zhongli, Malaysia, Singapore, and Shanghai plants) have strengthened their foreign employee management programs. In 2017, there were no occurrences of forced labor or debt slavery	(1) Improvements to labor broker management by performing audits and inspections (2) Continuing provision of human rights education and training, at least 2 hours per person on average
Supplier	(1) Conflict Minerals (2) Working Hours (3) Child Labor (4) Health & Safety	Annual supplier sustainability performance reviews using the following criteria: (1) Sustainability requirements (2) Risk assessment (3) Audit verification (4) Continual improvement	(1) No child labor (2) Increase the number of suppliers certified as not dealing in conflict minerals (3) 100% completion of high-risks supplier audits	(1) No child labor was used (2) 100% of the suppliers were certified as not dealing in conflict minerals (3) Audited 100% of high-risk suppliers	(1) No child labor (2) Continued assessments of whether suppliers deal in conflict minerals and regular assessments of sustainability performance for compliance with relevant regulations
Customers	(1) Customer Privacy	(1) Quarterly reviews of information security performance (2) Quarterly business review meeting to survey customer satisfaction	(1) Regular internal information security audits (2) Annual employee information security training courses	(1) Performed three internal information security audits in 2017 (2) All employees participated in information security training courses in 2017	(1) Implementation of annual internal information security audit management (2) Continuing employee information security training (3) Activities to strengthen employee information security skills
Community	(1) Noise	(1) Daily monitoring of noise data (2) Monthly plant meetings to verify whether local communities are free from noise pollution	(1) Noise monitoring system construction (2) Continuing improvements to environmental quality of communities near ASE plants	(1) Set up plant perimeter noise monitoring systems (2) Continued to work with universities to implement projects to improve environmental quality of communities near ASE plants	(1) Noise control within the limits stipulated by regulations (2) Continued improvements to environmental quality of nearby communities

ASE[1] Group human rights management guidance is set out in the following Documents:

1. "ASE Group Human Rights Policy". For detailed contents, please refer to ASE Holding's company website, http://www.aseglobal.com/en/csr_human_rights_management.html
2. "Corporate Social Responsibility Best Practice Principles". For detailed contents, please refer to ASE Holding's company website, http://ir.aseglobal.com/html/ir_doc.php
3. "Code of Business Conduct and Ethics". For detailed contents, please refer to ASE Holding's company website, http://www.aseglobal.com/en/csr_business_conduct_ethics.html
4. "ASE Supplier Code of Conduct". For detailed contents, please refer to ASE Holding's company website, http://www.aseglobal.com/en/csr_supplier_coc.html

[1] ASE has become a wholly owned subsidiary of ASE Holding on 30th April, 2018, and is obligated to follow the policies and procedures set forth by ASE Holding.

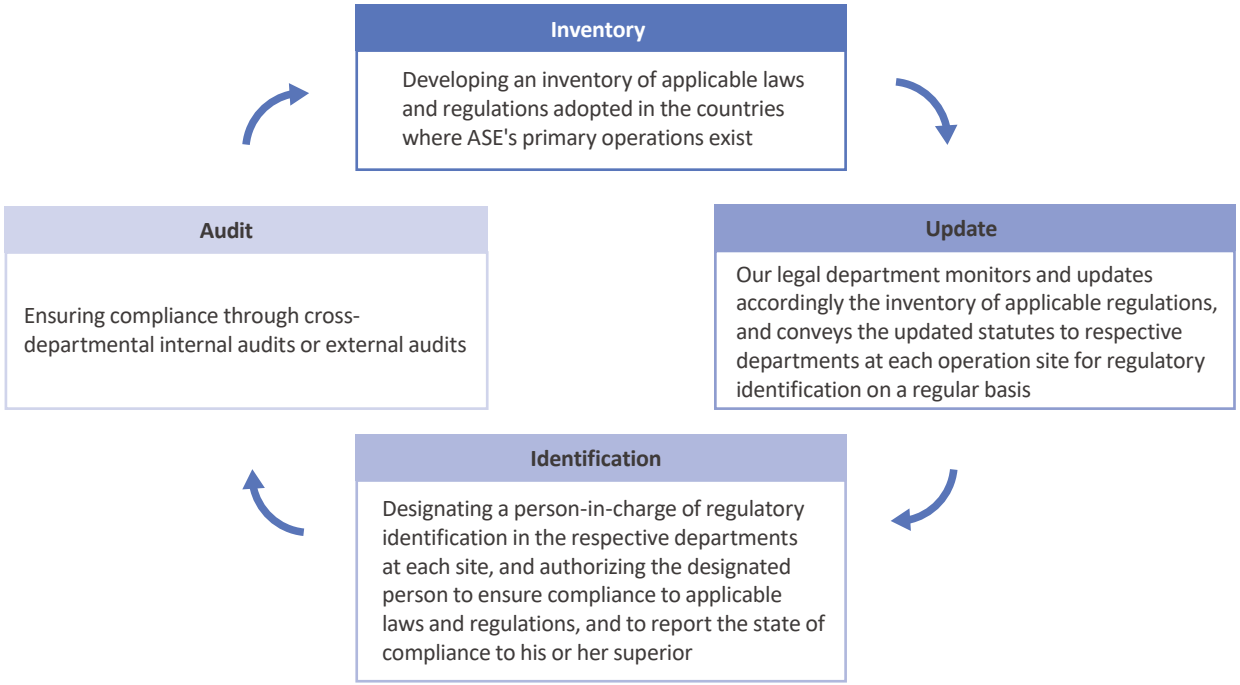
4.6 Regulatory Compliance

We adopt a systematic approach to ensure that we comply with all applicable laws and regulations through the joint efforts of our Group and local management teams. Our Group Legal Department regularly monitors any changes in domestic and foreign laws and regulations, and conveys the updated statutes to the respective departments for regulatory identification of our local operations' compliance with applicable laws and regulations. To ensure the effectiveness of the regulatory identification, we invite third-party professionals to perform external audits on areas where compliance risks have increased to ensure that we fully comply with applicable laws and regulations.

All ASE employees, managers, supervisors and directors are responsible for complying with applicable laws. In 2017, we continued to adjust our mechanisms and measures according to the changes in laws in all major areas, and inform all our members about company operation-related laws through education, training and announcements.

We consider legal compliance the main foundation of our sustainable development. In the future, we will strive to establish legal compliance risk reporting systems at all locations where we operate, to prevent any possible violations and respond to the increasingly stringent legal environment in a responsible and proactive manner. We strongly believe that a thorough understanding of the law and strict compliance are necessary to achieve sustainable development.

Regulatory Compliance Process



4.7 Risk Management

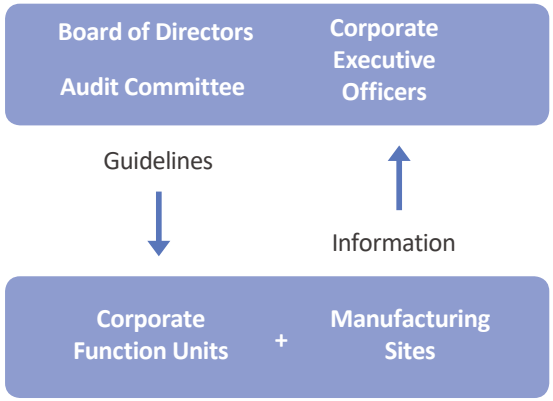
We manage risks through designated departments and functions ("risk functions") across all of our organizations. In addition, we implement Enterprise Risk Management ("ERM") at our major manufacturing sites (i.e., Kaohsiung, Chungli, Shanghai (A&T), Shanghai (Material), Kunshan, Suzhou facilities, and the USI Group) as well as all group-level functional departments. We held a series of workshops which help participants to understand and to develop risk management skills, and to apply what they have learned to real-life ERM projects. Risks or events that might have an influence on our business objectives are identified and evaluated, in order to decide on appropriate responses. In addition, the identification and management of long-term emerging risks[1] are embedded into our ERM program. We have established the mechanism of prevention, early warning, emergency response, crisis management and business continuity plans that mitigate, transfer or avoid risks. We are confident that these mechanisms effectively kept the respective risk scenarios under control.

Our risk review process is described below. Corporate level and operational level risks are identified, prioritised and reported on risk registers[2]. Major risks are assessed in terms of risk level[3] and control effectiveness, and then mapped onto a Risk Map. In addition, a correlation analysis is conducted to analyze possible interdependence of the major risks. Furthermore, risk mitigation plans are defined to reduce the residual risk if judged necessary. The major risks, together with suitable risk response plans, are reported to top management, and the progress will be monitored quarterly. In 2017, we introduced a top-down ERM approach to connect the top management with the rest of the organization on risk matters and ensure sound management of corporate-wide risks. Specifically, our top management are invited to identify key risks that are "top of mind" for the company. These top-down identified risks are then reviewed through our current ERM process, enhancing the efficiency and effectiveness of the decision-making process across the organization.

Risk Management Integrated with Internal Controls and Internal Audits

We view internal controls as an important part of ERM. ERM is more effective with internal controls that cover risk responses and other ERM processes in place. We identify and document all of our major risks together with related controls. The effectiveness of controls are reviewed in the annual Control Self Assessment. In addition, we redesigned our risk assessment system and linked our current internal control activities to corresponding risk scenarios such that a complete list of internal control measures can be pre-defined in the system to help our risk functions to more accurately assess the effectiveness of risk control. Finally, our internal audit system carries out independent appraisals of the implementation of key risk mitigation plans by our risk functions thereby ensuring that risks are properly managed.

Risk Management Organization Scheme



Risk Management Process

Risk Identification	Risk questionnaires are used to gather exposure information to identify risks/events that might adversely affect the achievement of ASE's business objectives.
Risk Assessment	Risks are assessed from three perspectives: • Likelihood • Impact (on finance, business continuity, and reputation) • Control effectiveness
Risk Response	Identify and evaluate possible responses to risk, and the evaluation criteria include: • Cost of implementation • Effectiveness (degree to which a response will reduce impact) • Feasibility (difficulty) • Time required for implementation

[1] We define an emerging risk as: an issue that is perceived to be potentially significant in future but do not currently exists, or a previously known issue that is evolving in unexpected ways with unanticipated consequences.
[2] The risk registers include a description of the overall risk, characteristics (scenario and impact) of the risk; and current risk management activities including mitigation strategy/control measures.
[3] Risk levels are determined according to the likelihood and impact of risks.

We identify and analyze possible risks for our business operation, and provide corresponding monitoring measures and control mechanisms for those risks that are of high impact.

Long-term Emerging Risks

Hacking/Cyberattacks

As ASE factories become fully-automated, the increased use of industrial robotics have made them the possible targets of cyberattacks. Possible attack scenarios range from the typical manipulation and sabotage of our production processes which could paralyze our entire production line, to theft of confidential information or extortion through ransomware. As our factories become more automated, our demand for smart devices, embedded systems, information transmission between devices and cloud service channels rise. As a result, even one or two viruses or loopholes may cause chaos and shut down our entire production line. Such a disaster would be accompanied by substantial financial losses and reputational damage to the firm. Faced with these severe security challenges, we collaborated with information security standard-setting professionals, software developers and information security experts to identify high risk system-level or software vulnerabilities, and formulate an effective cyber security strategy for protecting our automated factories.

Tightening of Environmental Protection Laws and Regulations

As the tightening of environmental protection laws and regulations in the future may force our facilities to shut down production if they fail to meet these stricter environmental standards. In addition, new and pending laws and regulations related to the environment or climate change could increase our expenses or require us to alter our manufacturing processes, thereby affecting our operations. In response thereto, we continuously monitor the developments in regulations and improve on our business continuity management.

Changes in U.S. Trade Policies

The United States is undergoing major political changes which has created uncertainty regarding future U.S. trade policies. If the United States raises tariffs on imports from China, USI, which uses China as its main production base may lose competitiveness due to increased production costs. Therefore, we continue to observe closely any changes in U.S. trade policies, devise production plans according to the latest worldwide taxation policies, monitor the intentions of our U.S. customers to seek new suppliers and assess the facilities that may be affected by the changes.

Financial Risk

Interest Rate Changes

Our exposure to interest rate risks relates primarily to our long-term floating rate loans, which is normally incurred to support our corporate activities and capital expenditures. We entered into several interest rate swap contracts to mitigate the interest rate risk on our long-term loans.

Exchange Rate Changes

Exchange rate movements against the NT dollar, our functional currency, give rise to the risk of foreign currency exposure. To protect against reductions in value and the volatility of future cash flows caused by changes in foreign currency exchange rates, we utilize currency forward contracts and swap contracts from time to time to reduce the impact of foreign currency fluctuations on our results of operations.

Other Risk

For details on climate change related risks, please refer to 5.1 Climate Change Management and Energy Efficiency. For details on other Risk Management, please refer to "Item 3. Key Information - Risk Factors" of our 2017 Form 20-F.

4.8 Future Plan

ASE supports the government initiatives on corporate governance and will continue to align closely with the "Corporate Governance Roadmap (2018~2020)" promoted by the TWSE. By upholding high standards of corporate governance and business ethics, we aim to enhance our global competitiveness in line with world class enterprises.

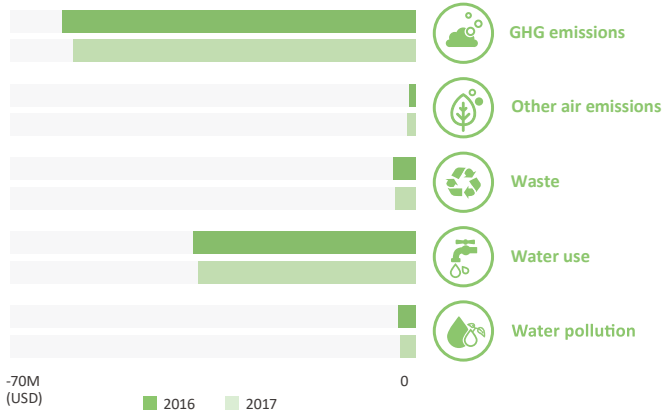
This is the first time that we have incorporated TIMM and referenced the results of the sustainable value assessment. From the economic and taxation perspective, we have contributed to local governments in infrastructure building and raising the welfare standards of local residents to create a stable society conducive to businesses. These developments are in line with ASE's approach to sustainability and is one of the influencing factors affecting sustainability. In addition, creating long-term profits for shareholders is consistent with stable dividends and stock price performance in recent years. We will continue to focus on technological innovation and increase our R&D and capital expenditures to upgrade the competitiveness of the industry, seize market opportunities, and create economic stability for our shareholders, employees and suppliers. Although environment-related taxes do not account for a significant portion of overall taxes at the present time, we foresee that countries may move towards tightening of environmental and carbon tax regulations in the near future. In anticipation of these developments, we are considering to designate environmental taxes as one of the leading indicators of transition risks when managing and analyzing environmental changes.

ENVIRONMENTAL SUSTAINABILITY

ASE Group is committed to improving our eco-efficiency and protecting the environment by continuously enhancing resources recycling, and reducing greenhouse gas emissions, waste generation, wastewater effluent, and chemical usage.

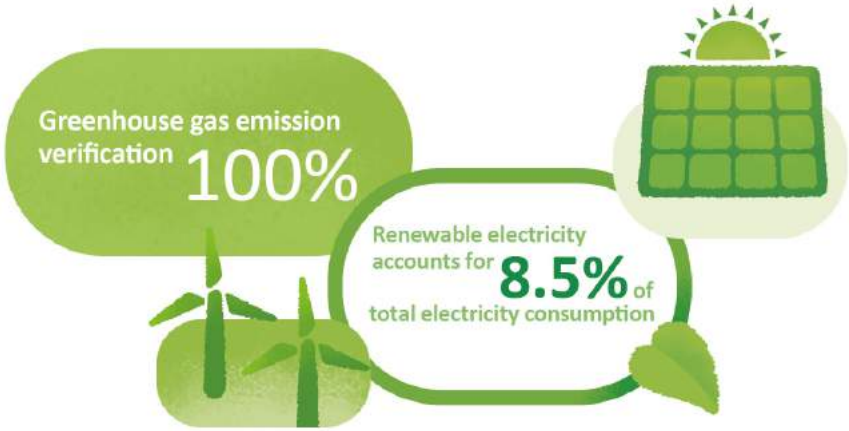
ASE strives to develop and promote a green concept in all facets of its enterprise. We are committed to ensuring the protection of the earth through our efforts to reduce greenhouse gas emissions, waste and effluent. In addition, from the initial product design stage, we conscientiously incorporate environmental considerations into continuous process improvement as well as in new product development to provide green manufacturing services with minimum pollution and waste output.

Sustainable Value Assessment - Environmental Aspect



[Link to SDGs]

2017 Key Performance



Target Achievement Status

2017 Material Aspects	KPI	2017 Target	Status	2017 Performance	2018 Target	2020 Target
Waste Management	Waste recycling rate	71%	Achieved	71%	72.5%	75%
Climate Change	GHG intensity (GHG emissions/revenue)	2% reduction compared to 2015	Achieved	15% reduction compared to 2015	3% reduction compared to 2015	5% reduction compared to 2015
	GHG verification	100%	Achieved	100%	100%	100%
Water Resource Management	Water withdrawal	6% reduction compared to 2015	Not achieved	1 % increase compared to 2015	9% reduction compared to 2015	15% reduction compared to 2015
	Process water recycling rate (Process water for reuse/Process use water)	77.5%	Not achieved	62%	78%	80%
Energy Management	Energy saving ratio from energy saving projects	NA	-	2.7% of 2017 power need	2% of 2018 power need[1]	2% of 2020 power need
Green Solutions	Building a methodology for energy saving assessment of our products in the use phase	NA	-	NA	Quantification of energy saving and carbon reduction benefits of USI's key products in the use phase	Develop a methodology for energy saving assessment of our products in the use phase

[1] Energy savings from green buildings are not included.

Environmental Management System and Certification		
ISO 14001 Environment Management System Coverage: 100%	IECQ HSPM QC080000 Hazardous Substance Process Management Coverage: 100% except for ISE Labs*	ISO14064-1 Greenhouse Gas Emission Verification Coverage: 100%
ISO 50001 Energy Management System Coverage: ASE Kaohsiung, Chungli,USI Zhanjiang, USI Taiwan, USI Shenzhen, USI Kunshan, USI Mexico	ISO 14067 Carbon Footprint Verification Product & service type: Leadframe, BGA, Chip Scale Package(CSP), flip chip, Bumping, Substrate Coverage: ASE Kaohsiung	ISO 14046 Water Footprint Verification Coverage: ASE Kaohsiung
ISO 14045 Product Eco-efficiency Coverage: ASE Kaohsiung		

* ISE Labs is IC testing facility that does not require IECQ HSPM QC080000 Certification.

In internal management, we adopt the guidelines set out by the United Nations Framework Convention on Climate Change (UNFCCC or FCCC) by encouraging all facilities to submit their own self-initiated goals that are set according to their own operation scale and capabilities. The concept of "common but differentiated responsibilities (CBDR)" helps steer the ASE operations to achieve 2020 Environmental Goals through the support from the Environment and Green Innovation Taskforce. Progress is monitored by tracking information from all facilities, including power consumption, water withdrawal, waste, etc. through dynamic environmental performance billboards and then reported to the Corporate Sustainability Committee. We have also established a Green Solutions Sharing Platform to promote sustainable design in new product development, such as minimizing material usage; developing and selecting materials with low carbon footprints; supervising hazardous substance; achieving higher energy and water resource efficiency use in the manufacturing process; and sharing management-related knowledge and practices in manufacturing, waste products and gas emissions. We encourage our employees to address environmental sustainability issues and jointly improve the company's environmental performance.

5.1 Climate Change Management and Energy Efficiency

We have established a clear focus on low-carbon development in response to climate change and fluctuating energy supply. We are committed to taking firm actions to mitigate the emission of greenhouse gases throughout our business operations. We aim to address and integrate climate change with our development strategies by

1. Establishing an overall carbon management system to implement low-carbon strategies and policies in accordance with our three major guiding principles – "energy saving," "green energy" and "energy storage".
2. Investing in renewable energy.
3. Innovating and promoting low-carbon products and services.
4. Identifying our vulnerabilities to climate change and developing adaptation strategies.
5. Cultivating a "green" corporate culture and becoming a leading low-carbon solution provider.

In order to effectively implement and fulfill ASE's commitments on and corporate social responsibility, we examined the financial implications of the risks and opportunities resulting from climate change. We also continuously manage climate change-related activities and performance. We have established a stable system to address climate change adaptation and mitigation, which includes constructing green facilities (high-efficiency building designs), conserving energy, increasing energy efficiency, installing solar panels, purchasing renewable energy and International Renewable Energy Certificates (I-RECs), as well as other initiatives. We are seeking to minimize the impact and potential risks of climate change. ASE also continues to participate in the Climate Change and Supply Chain programs of the CDP (formerly the Carbon Disclosure Project; it is the international nonprofit organization that provides the most comprehensive environmental data from global companies). We received a grade of "A-" (leadership-level) in 2017 in both these programs. More information about the CDP can be found on its website: https://www.cdp.net/en

Under the framework of the existing Enterprise Risk Management (ERM) system, ASE identified climate change risks and opportunities by referring to the risk and opportunity issues in the Task Force on Climate-related Financial Disclosures (TCFD) issued by the Financial Stability Board[1](FSB) in 2017. The overall assessment process is as follows:

Risk and opportunity screening: Climate change risks and opportunities are screened in accordance with industry characteristics and internal assessment questionnaires are designed accordingly.

Facility training and inventorying: Education and training activities at the corporate and facility levels are organized to explain risk definitions, legislation, markets and technological trends, as well as establish a consistent and quantitative risk standard. In addition, inventory assessment questionnaires are used to collect information on each facility's climate change-related risks and opportunities. The information includes impact period, impact extent and probability of occurrence, as well as the opportunities that may arise from responding to these risks.

Significant risk and opportunity identification: Inventory content is recovered and the risk value of each issue is assessed in accordance with the degree of impact and probability of occurrence to analyse the significant risks and opportunities.

Outside-in perspectives: We use authoritative industry studies on climate change risks to carefully assess the significant identified risks and determine if there are any significant risks yet to be identified.

Confirmation by senior management: Finally, a senior management team (the COO, CFO and CAO) reviews the identified results and confirms related risks and opportunities, and then recommends specific responses, plans and strategies for the potential business opportunities that could arise from the identified risks.

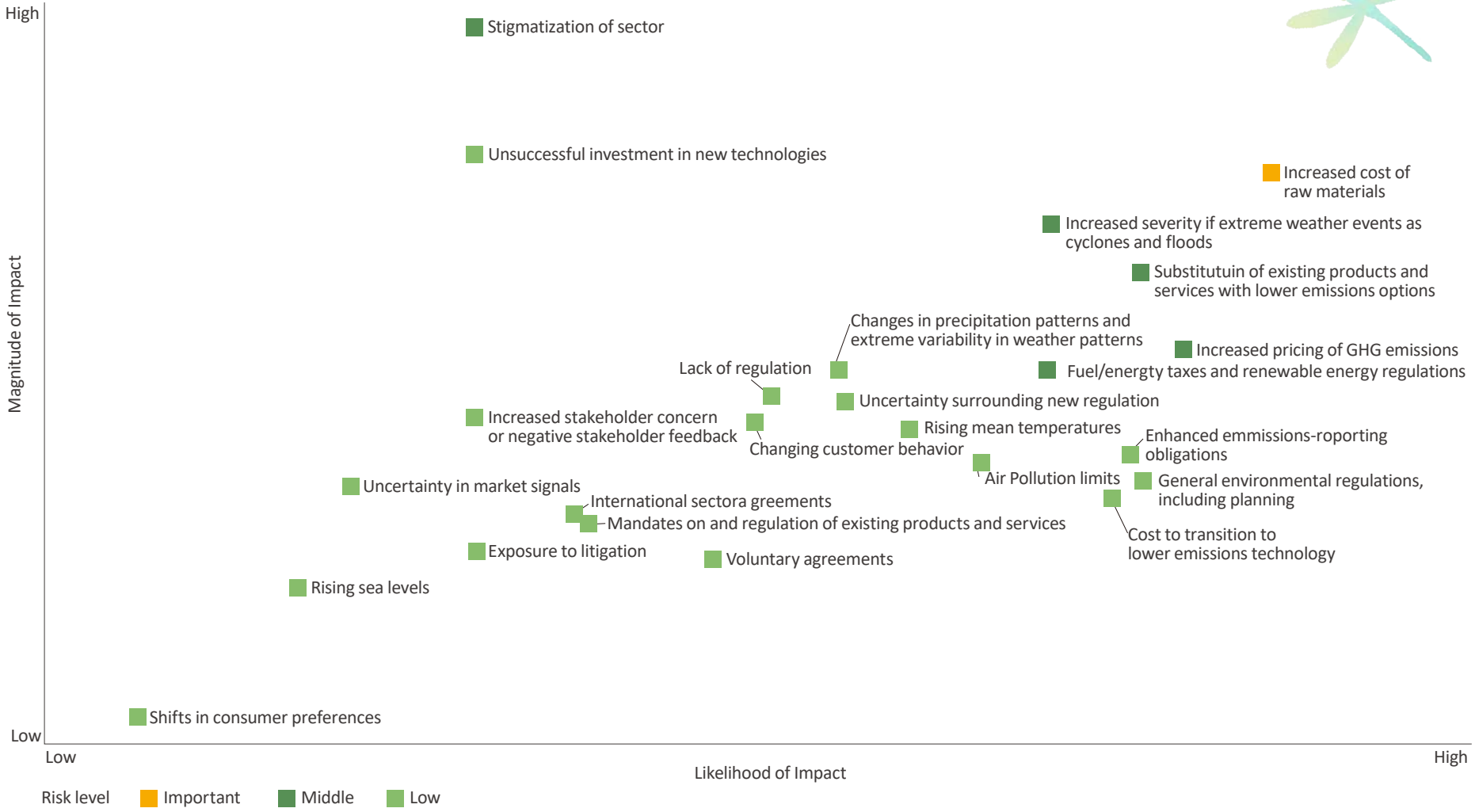
[1] Financial Stability Board (FSB) is a specialized international organization responsible for overseeing and advising the global financial system founded in April, 2009.

Structure of Climate-related Financial Disclosure

Risk Governance	• Board's oversight of climate change-related risks and opportunities • Role of management in assessing and managing climate change-related risks and opportunities	Organizational Response Management	The Corporate Sustainability Committee is the company's highest level of organization for the Group's sustainability management. The committee is made up of senior executives who are also board of director members, and the COO serves as the first chair. Every quarter, the committee oversees the promotion and implementation of affairs related to the company's sustainable development, makes decisions and directly reports to the board of directors.
Strategies	• Identify short-, medium- and long-term climate change-related risks and opportunities • Determine impact of climate change-related risks and opportunities on organization's operations, strategies and financial planning • Assess the resilience of organization's strategies under different climate-related scenarios		• The company defines short-term as less than three years, medium-term as three to five years and long-term as more than five years, in accordance with existing internal objective management processes. The following risk and opportunities have been identified: I. Risks: a. Short-term: increased cost of raw materials; fuel/energy taxes and renewable energy regulations; increased severity of extreme weather events b. Medium-term: increased pricing of GHG emissions; substitution of existing products and services with lower emissions options c. Long-term: stigmatization of sector II. Opportunities: a. Short-term: more efficient buildings; reduced water usage and consumption; shift to decentralized energy generation; obtaining public sector incentives b. Medium-term: participating in carbon market; development and/or expansion of low-carbon products and services; R&D and innovation; participating in renewable energy programs and energy efficiency measures c. Long-term: new market partnerships; resource substitution/diversification • After assessing the impact of the major identified risks and opportunities, the company formulates corresponding response strategies that include R&D investment; introduction of adaptation and mitigation measures; and operating equipment and facilities. For more details, please refer to section 5.1, "Climate Change Management and Energy Efficiency, strategies" • We use Nationally Determined Contributions (NDCs) to conduct scenario analysis, evaluate the impact on operations and formulate response strategies
Risk Management	• Organization's process for identifying and assessing climate-change related risks • Organization's process for managing climate-related risks • Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management		We use the company's enterprise risk management (ERM) system to manage climate change-related risks. This year, we also applied the TCFD framework to risk and opportunity screening; facility training and inventorying; outside-in perspectives; and managerial confirmation to identify, assess and respond to risks. For more information, please refer to our 2017 Form 20-F "Climate Change Management" at http://aseir.aseglobal.com/attachment/2018040318074261351682 2_en.pdf
Metrics and Objectives	• The metrics used by the organization to assess climate-change related strategies and risk management procedures • Organization discloses Scope 1, 2 and, if applicable, Scope 3, greenhouse gas emissions and related risks • Describe the targets used by organization to manage climate-change related risks and opportunities and performance against targets		• Please refer to Environmental Sustainability > Target Achievement Status > Climate Change, Water Resources Management, Energy Management and Green Solution Indicators • Please refer to the Greenhouse Gas Emissions and Risks Matrix Diagram • Please refer to Environmental Sustainability > Target Achievement Status > Climate Change, Water Resources Management, Energy Management and Green Solution Indicators

Using the above procedure, we identified six medium and important level risks in 2017. They were: increased cost of raw materials; increased pricing of GHG emissions; fuel/energy taxes and renewable energy regulations; substitution of existing products and services with lower emissions options; stigmatization of sector; and increased severity of extreme weather events. We also identified 11 corresponding opportunities. They are: a shift towards more efficient buildings; reduced water usage and consumption; use of new technology, participating in carbon market; a shift to decentralized energy generation; development and/or expansion of low-carbon products and services; new products and services through R&D and innovation; new market partnerships; acquisition of public sector incentives; participating in renewable energy programs and energy efficiency measures and resource substitution and diversification.

Climate Risks Matrix Diagram



ASE's Climate-related Risks and Opportunities

Type	Climate change-related risks	Potential financial impact	Type	Climate-change related opportunities	Potential financial impact
Transitional	Increased cost of raw materials	Increased manufacturing costs if raw material (i.e. energy or water) prices change	Resource efficiency	More efficient buildings	Fixed assets'value increase (i.e. receiving good energy-efficient building evaluations)
	Increased pricing of GHG emissions	Increased operating costs		Reduced water usage and consumption	Better preparation for changes to government policy and legislation
	Fuel/energy taxes and renewable energy regulations	Payments, fines or lawsuits Asset degradation or early phasing out due to policy changes	Energy sources	• Participating in carbon market • Shift to decentralized energy generation • Use of new technology	Reduction in greenhouse gas emissions, lower sensitivity to changes in carbon costs Increased flexibility with electricity usage from use of decentralized energy storage devices
	Substitution of existing products and services with lower emissions options	Reduction in demand for products or services	Products/ services	• Development or expansion of low-carbon products and services • R&D and innovation	Improving competitiveness of products; meeting demands of high-end customers and responding to market demands; increasing revenues
	Stigmatization of sector	Reduction in demand for products or services	Markets	• New market partnerships • Acquisition of public sector incentives	Working with local governments, companies or banks; benefiting from development of new markets; obtaining green building bulk rewards; reducing water bills
Physical	Increased severity of extreme weather events	Production capacity reduction or disruption (i.e. facility closures, transport difficulties, supply chain breakage)	Climate resiliency	• Participating in renewable energy programs and energy efficiency measures • Resource substitution and diversification	Increasing market value through climate resiliency projects (i.e. renewable energy source investment, infrastructure, buildings, diversified material sources)

Response Measures

- Improve energy efficiency, promote energy efficient and water recycling and reuse programs[1]
- Use green facilities to construct new factories[2] , establish potential flood analyses and emergency response measures
- Set up a supplier sustainability management process, conduct risk assessments, green procurement and product reuse[3]
- Use "environmental public welfare initiatives" and "industry-academia education"to strengthen social participation[4]
- Continue to monitor, identify and communicate regulatory changes and trends
- Offer policy recommendations through industry unions and associations and government alignment
- Strengthen sustainable manufacturing and provide low-carbon product solutions
- Establish a positive image through international third party sustainable development certification

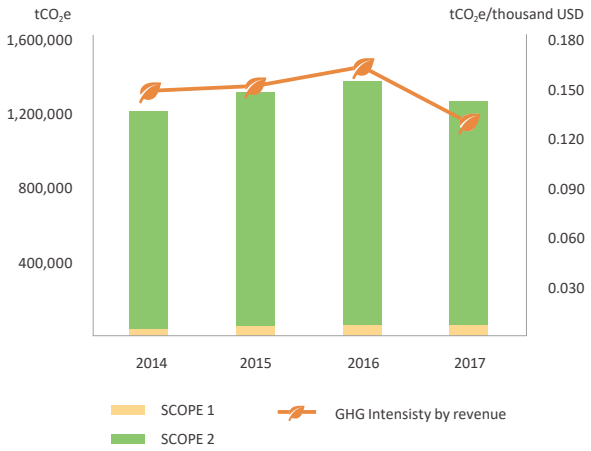
Opportunities also accompany climate change and at the United Nations Climate Change Conference in Paris in December 2015, green bond financing was a key topic. ASE began the first issue of Green bond in 2014 and used the funds for Green Buildings and conservation programs in energy and resources. We will continue assessing and planning Green Bond issue, to capture the opportunities provided by new green trends. ASE Group will integrate greater facility management in accordance with its merger and acquisition plans. We will re-examine our inventories, conduct preparatory work for Science based carbon emissions reduction targets, and invite experts to conduct assessments and outline future management methods.

[1] Management costs, please refer to Environmental Expenditures and Investments > Operating Costs.
[2] Management costs, please refer to Environmental Expenditures and Investments > Operating Costs > Resource Sustainability Usage Costs.
[3] Management costs, please refer to Environmental Expenditures and Investments > Supplier and Client Upstream/Downstream Costs.
[4] Management costs, please refer to Environmental Expenditures and Investments > Social Activity Costs.

Greenhouse Gas Emissions

Carbon management is an integral part of ASE's operations. We monitor our carbon emission through GHG inventory. Since 2016, every facility[1] has obtained ISO14064-1 GHG emissions verification. In 2017, our GHG emissions (Scope 1 and 2) from ASE's manufacturing facilities[2] totalled 1,276,373 tCO_2e[3,4], an 8% decrease compared to 2016's 1,384,808 tCO_2e. The reduction resulted from the procurement of renewable energy certificates issued by the International REC Standard, which uses market-based methodology[5] to calculate Scope 2 emissions. Between 2016 and 2017, our GHG emission intensity per revenue[6] decreased from 0.166 to 0.130 (tCO_2e/ thousand USD). We continue to actively implement all types of energy-saving programs, and comply with green building standards when constructing new facilities and upgrading existing facilities.

GHG emission



95% of our GHG emissions come from Scope 2 electricity purchase; the remaining 5% was mainly from stationary and mobile combustion sources, fugitive and process emissions.

Scope 1 emission activity (60,675 tCO_2e)	
Stationary combustion	44%
Mobile combustion	5%
Fugitive emissions	12%
Process emissions	39%

Scope 2 emission activity (1,215,698 tCO_2e)	
Electricity	98.8%
Heating	0.7%
Cooling	0%
Steam	0.5%

In addition to conducting internal greenhouse gas inventories annually and continuously reducing emissions, ASE also implements a series of emission source identifications for Scope 3 value chain emissions. The Kaohsiung facility has implemented third party verification of Scope 3 emissions using quantitative assessments. Information is used to identify the most feasible carbon emissions reduction hotspots. We also encourage our value chain partners to work with ASE to jointly reduce greenhouse gas emissions. Please refer to Section 7.3 for more information on supply chain greenhouse gas inventory assistance projects.

Scope 3 Category	Reference for emission factor	Emissions(tCO_2e)
Fuel-and energy-related activities	EPA Product Carbon Footprint Database	99.33
Purchased goods and services	EPA Product Carbon Footprint Database	387,800.86
Upstream transportation and distribution	EPA Product Carbon Footprint Database	12,394.83
Waste generated in operations	EPA Product Carbon Footprint Database	13,796.03
Employee commuting	EPA Product Carbon Footprint Database and research data	10,255.61

[1] This includes all packaging, testing, and electronic manufacturing services facilities.
[2] The consolidation approach is followed by operational control, and this includes all packaging, testing, and electronic manufacturing services facilities.
[3] Our inventory of greenhouse gases include: CO_2, CH_4, N_2O, HFC, PFC, NF_3, SF_6.
[4] The electricity usage emissions were calculated by the emission factor from sites' local utilities. Global warming potential (GWP) values refer to IPCC Fifth Assessment Report, AR5.
[5] Scope 2 emissions, which are using location-based method (and does not include purchased renewable energy benefits), are 1,372,987 tCO_2e.
[6] This includes all the revenue from ASE's packaging/testing/ material (ATM) facilities and USI electronic manufacturing service (EMS) facilities while revenue from real estate is not included.

Carbon Footprint Verification

We established a GHG inventory database and the ISO 14040 Life Cycle Assessment (LCA) system to collect the environmental impact data from four of our major assembly products- Leadframe package, Ball Grid Array (BGA) package, WLP, and flip chip package and substrates. From 2016~2017, we received ISO 14067 verification for our package series products (as shown in table below). The inventory results indicated that IC chip occupied the majority of GHG emissions, and electricity consumption was the major GHG emission source in the manufacturing stage.

1. BGA package_ Gold wire	2. BGA package_ Copper wire
3. Flip Chip package_ Gold wire	4. Flip Chip package_ Copper wire
5. Flip Chip package_ Silver wire	6. Leadframe package_ Gold wire
7. Leadframe package_ Copper wire	8. Chip Scale Package(CSP)
9. Bumping (Newly added in 2017)	10.Substrate (Newly added in 2017)

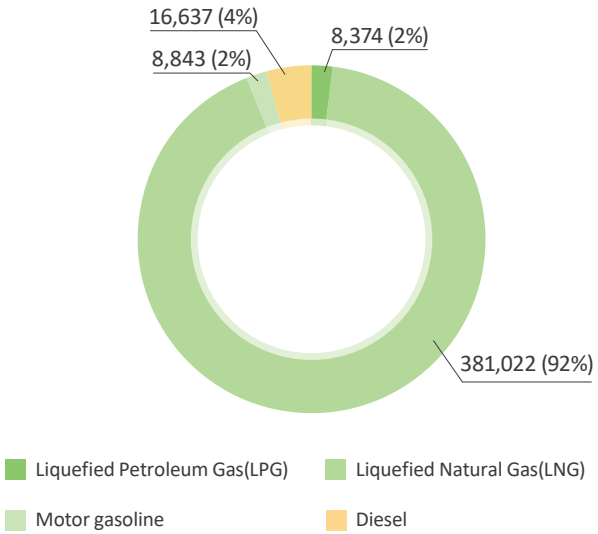
Energy Management and Conservation

The majority of ASE's facilities are powered by electricity purchased from public power plants, with only a small number using natural gas, gasoline or diesel fuel. We have already implemented the ISO 50001 international standard at our Kaohsiung and Chungli facilities, as well as at the USI Zhangjiang, Kunshan, Shenzhen and Taiwan facilities to better manage energy use and improve energy efficiency. The USI Mexico facility was certified in May 2017. In addition, the Kaohsiung facility established an energy management information platform to monitor real-time energy consumption.

Non-renewable Fossil Fuels

Fossil fuel usages are mainly for electric generators, forklifts, company vehicles, and boilers in living areas. When sorted by heat value (Giga Joules, GJ), the major fuel consumption from 2014 to 2017 is as shown in the Appendix ASE Environmental Data. Total consumption of fossil fuel (LNG, diesel, motor gasoline, LPG) is 414,876 GJ[1].

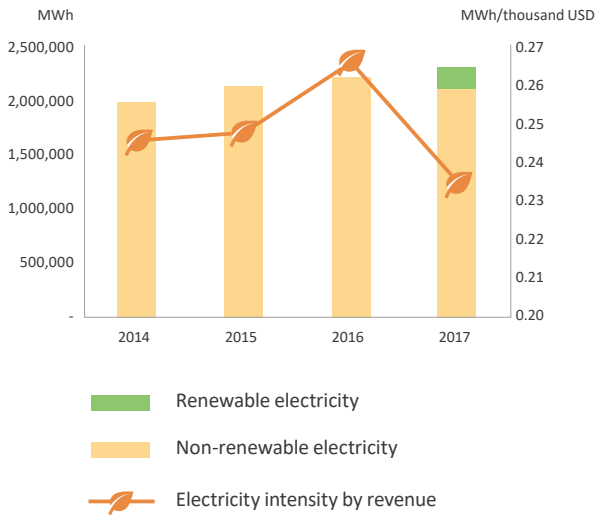
2017 ASE Fuel Consumption (Unit: GJ)



Electricity Consumption

Our main energy management indicator is electricity intensity per revenue[2] (MWh/thousand USD revenue). In 2017, the overall energy intensity fell by 11.8% compared to 2016. Green energy (including renewable energy/ certificates) accounted for 8.5% of the electricity used in 2017. We will continue to identify energy-saving hotspots and optimize production management and scheduling.

Electricity Consumption



[1] Fuel heating value is referred from the"heating value of energy products"table. Our total internal energy consumption = non-renewable fuel consumption + renewable fuel (electricity) consumption + purchased and used electricity, heating, cooling and steam = 8,824,209 GJ.

[2] This includes all the revenue from ASE's packaging/testing/ material (ATM) facilities and USI electronic manufacturing service (EMS) facilities while revenue from real estate is not included.

Investing in Green Energy

The most meaningful approach in GHG management is to migrate to non-carbon based sources of energy. Our power needs are considerable, and we see green power and clean energy as viable alternatives to migrate away from carbon sources and reducing our overall GHG emissions. In 2017, ASE's renewable energy consumption is 195,595 MWh. The major programs are listed as below.

Scope	Source area of renewable energy	Development method	Power generation in 2017(MWh)	Accumulation(MWh)
Kaohsiung & Chungli facilities	Taiwan	Green power purchase (solar and wind power[1])	4,500	15,200
Kaohsiung facility[2]	Taiwan	Solar power installation	38.4	38.4
ISE Labs	United states of America	Solar power installation	307	1,085
Kunshan facility	China	Solar power purchase	2,149	3,999
Weihai, USI Zhangjiang, Jinqiao, Shenzhen, Kunshan facilities	China	I-RECs purchase	188,600	188,600

[1] Our green power comes from the Bureau of Energy's voluntary Green Power Pilot Program.
[2] K26's solar power generation has accumulated Taiwan Renewable Energy Certificates(T-RECs) since August 2017; for cumulative amount, see the National Renewable Energy Certification Center (https://www.trec.org.tw/)

Overall Energy Conservation Results

Although our overall electricity usage rose in 2017 due to production increase, our energy conservation efforts have had a positive impact on our total electricity consumption and Scope 2 emissions. We implemented 160 energy conservation projects, resulting in estimated electricity savings of 60,988 MWh[1](equivalent to 2.7%[2] of the year's electricity demand), which equates to an emissions reduction of 34,637 tCO_2e[3]. This is amount to the estimated emissions from the annual electricity consumption of 17,000 Taiwanese households[4] . In 2018, we will set facility energy efficiency standards that will serve as the criteria for considering equipment replacement.

Major Energy Saving and Carbon Reduction Projects

Project Type	Description of Project
Processes	• DI water recycling in sawing machine • Adjust water usage for vacuum pump to reduce indirect energy consumption • Install smart meter to improve electricity management • Replace high power consumption computers • Add power saving mode setting for machinery • Add hot water recovery and automatic standby function settings for washing machine
Building Facilities	• Change to low energy consumption LED lightings • Replace old chiller of air conditioning system • Chilled water system optimization • Add Variable Frequency Drive (VFD) to Heating Ventilation and Air Conditioning (HVAC) and pumping system • Solar panel installation • Rationalize ventilation volume to reduce energy consumption • Air compressor heat recovery
Low Carbon Energy Purchase	• Green power purchase • Solar power purchase

[ASE Kaohsiung] Air compressor heat recovery

[ASE Chungli] Washing machine with heat exchanger

[ASE Malaysia] Air compressor optimization_ pipe connection

[USI Jinqiao] Low energy consumption LED lightings

[1] The electricity saving was estimated using ISO 50001, difference of electric meter before and after projects and evaluation of equipment efficiency. Electricity saving 60,988 MWh equates 219,555 GJ.
[2] Without power saving from green buildings, it is around 2.4% of the year's electricity demand.
[3] The CO2 equivalent is calculated based on each facility's local electricity emission factor.
[4] The calculation is based on the household electricity consumption, 300 kWh, per month estimated by Taipower Company in 2017.

ASE Promotes the Building of Smart Grid

To address the shortcomings of current energy supply, traditional methods such as intentional rolling blackouts or low-frequency tripping are regularly used to minimize electricity usage. As a long term solution, ASE is proactively working on building the smart grid - an electrical grid that leverages on digital technology to address the complex and increasing energy needs in today's world. The potential benefits of the smart grid are extensive and include helping companies to significantly reduce energy costs and lower peak power demand; and improving power supply flexibility and resilience.

We invited the Chung-Hua Institution for Economic Research and the Taiwan Institute of Economic Research to participate in a two-year (2018–2019) cooperative project to identify ways in which the semiconductor industry can accelerate the building of smart grids. The project will study smart grid applications in the global manufacturing industry, analyse applications, benefits and various related issues, and offer recommendations to the industry. A policy proposal on facilitating the collaboration of manufacturing industries with the smart grid industry will be submitted to the government. It will also include proposals promoting the participation of high-tech industries in the design and demonstration of smart grid mechanisms, as well as in the planning of demand response system and feedback mechanism verifications.

The goals of the project are to solve the energy crisis through smart innovations and develop synergy between the manufacturing industry and the power supply companies.

Depending on the results of our research, we will invest capital to build regional power grids, energy management systems and energy storage facilities. We estimate that the overall investment will exceed NT$100 million. The Kaohsiung facilities are scheduled to implement smart grids in 2019, which will lower our energy costs, reduce peak demand for electricity in Taiwan and fulfil our corporate social responsibility. It will also allow us to achieve our goal of sustainable development and encourage more firms to promote the use of smart grids.

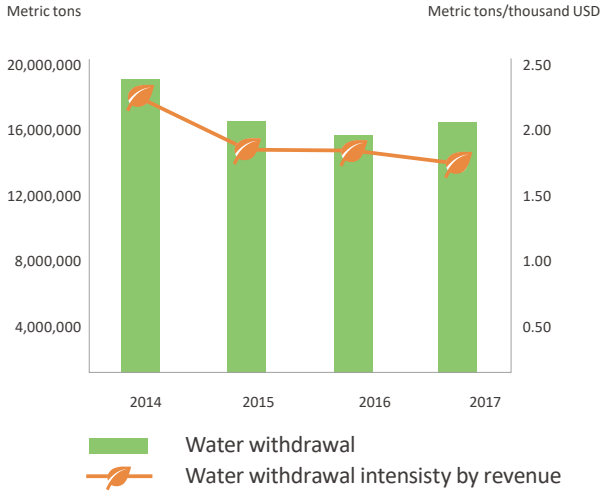
ASE Shanghai (Material) Facility-Cogeneration system

ASE Shanghai (Material) set up a cogeneration system in March 2017 at a cost of US$5.73 million to lower its energy consumption. The system collects the steam, ice water and electricity needed for natural gas supply and usage. A test run was conducted in March 2018. The system is expected to lead to lower energy costs and an annual carbon emissions reduction of 10,000 tCO_2e.

5.2 Water Resource Management

Our water management program is based on three approaches: reduce, reuse & recycle. Municipal water is the main source of water used for our business operation[1]. The record provided by our facility water meters and water bills showed our overall water intake in 2017 was 16,034,472 metric tons[2]. This represented a 6% increase compared to 2016 due to a production capacity increase and manufacturing process changes. The increased water usage came from our Chungli, Kunshan, Suzhou, Weihai, Korea, Malaysia and Singapore facilities, as well as ISE Labs and USI Jinqiao and Kunshan facilities. On the other hand, our water intensity per revenue[3] (metric ton/thousand USD) in 2017 was 1.639, a reduction of 9.5% compared to 2016's 1.811. We will continue to invest in water reclaiming facilities at our plants and work towards reducing our consumption.

Water withdrawal



[1] The water source for all facilities is municipal water, with the exception of the Nantou and Chungli facilities, which use 224,576 metric of groundwater, and the Kaohsiung and Kunshan facilities, which harvest and reuse 49,554 metric of rainwater.
[2] This data includes all packaging, testing, and electronic manufacturing services facilities.
[3] This includes all the revenue from ASE's packaging/testing/ material (ATM) facilities and USI electronic manufacturing service (EMS) facilities while revenue from real estate is not included.

In 2017, ASE reclaimed a total of 15,175,519 metric tons[1] of water (equivalent to 95% of the year's water withdrawal). Due to isolated incidents such as sludge-clogged water recycling pipes at the ASE Kaohsiung facility and the street that pipes passed through collapsed, the water recycling plant was unable to recycle the entire discharged water amount for a period of nearly nine months. For these reasons, the company's recycled water performance was poorer in 2017 and this is also the reason that water withdrawal cannot be further decreased. Our primary water recycling methods are ultra-filtration systems, chemical mechanical polishing (CMP) wastewater recycling, and reverse osmosis (RO) water recycling. We also harvest rainwater for scrubbing towers and cooling towers. In 2017, we forged ahead with water conservation projects, including the automation of the process water recycling system, quality controls for cooling water, and the use of waste cooling water for flushing toilets.

In addition, the process water recycling rate of Kaohsiung K14B Reclaimed Water Recycling Plant and Chungli Effluent Recycling Plant was improved from 90 to 95 %. Chungli Effluent Recycling Plant's phase II expansion project is scheduled to become operational in 2019. This will increase the recovery of reclaimed water from 4,500 metric tons to 10,000 metric tons. Meanwhile, Kaohsiung K14B Reclaimed Water Recycling Plant's phase II project has been redesigned to boost the wastewater recovery rate from the 50 to 70%. When it becomes operational in the first quarter of 2019, the reclaimed water recovery capacity will increase from 10,000 metric tons to 20,000 metric tons. ASE also has plans to apply for K14B to be certified as an environmental education facility as part of its efforts to promote water conservation in pursuit of corporate sustainability.

In 2012, ASE became the first semiconductor packaging and testing provider to receive water footprint accreditation for its products. To further understand the environmental impact of our water management and monitor the changes before and after the establishment of our reclaimed water recycling plant, our Kaohsiung facility adopted ISO14046 standards for measuring organizational water footprint inventory. By doing so, we are able to identify the focus areas for water conservation and enhance our water resource usage.

Wastewater Management

All the wastewater from ASE's plants is processed through proper sewage facilities. Wastewater treatment is divided into more than 20 categories based on their characteristics, such as: organic wastewater, inorganic wastewater, domestic sewage, fluorine-containing waste, copper-containing waste, general acidic wastewater. In 2017, we discharged 11,742,595[2] metric tons of wastewater, 8% goes to ocean while 92% discharges to land[3]. The effluent water quality conforms to current regulations and is regularly tested to ensure that it has no significant environmental impact on the surrounding water bodies. Substantial investments have been made to replace and upgrade wastewater treatment related facilities gradually.

Externally, ASE conducted offsite sampling and analysis of our effluent quality every quarter. Internally, to enhance wastewater quality control, our corporate chemical lab was accredited by Taiwan Accreditation Foundation (TAF). It is now able to conduct in-house measurement of our wastewater to ensure that the water quality from our operations and effluent is in compliance with regulated standards. ASE has voluntarily raised the water quality requirement standards for effluent treated by reclaimed recycling process, so the standards are stricter than the laws and regulations (as shown in Appendix, Environmental Data, B. Effluent quality of our facilities with on-site wastewater treatment).

USI Jinqiao Facility –
Zero Process Wastewater Discharge

The USI Jinqiao facility has implemented advanced zero process wastewater discharge technology to reduce the risk of water outages or shortages. Phase I and phase II investments exceeded RMB17 million (US$2.52 million). Multi-media filtration, biological activated carbon filtration, continuous membrane filtration, electrodialysis reversal, an advanced oxidation process and heat evaporation machines were implemented. Reusing reclaimed process wastewater help reduce mains water consumption. The water can also be used for air conditioners, green irrigation and toilets to achieve zero process water discharge.

Chungli Facility –
Phase I Wastewater Construction Project

Our Chungli facility invested NT$250 million in installing a wastewater treatment system with a daily treatment capacity of 7,500 metric tons to prepare for future capacity expansions and provide support for the wastewater treatment systems of other facilities. The system became operational in April 2017. Its organic and inorganic wastewater systems use both physical and chemical treatment processes, while sludge drying is used to treat sludge and improve wastewater quality.

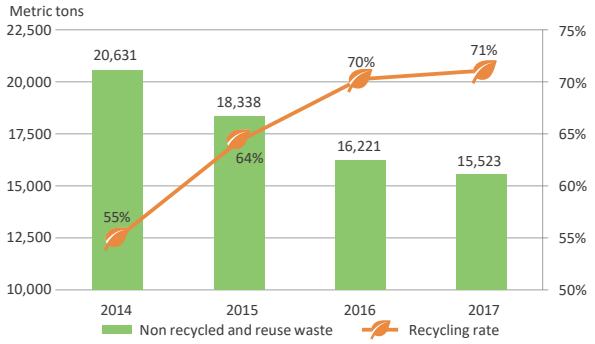
[1] The volume of recovered water was estimated using our facilities'water meter records and assessing water recovery equipment efficiency.
[2] Three electronic manufacturing services facilities (Kunshan, Shenzhen, and Mexico) do not have on-site wastewater treatment facility, so the amount of wastewater discharge is estimated. Others'data is recorded from water meters.
[3] Discharging to land means the wastewater goes to river, lake, sewerage and underground.

5.3 Pollution Prevention

All of ASE's facilities strive to reduce their pollutant emissions to minimize the impact on the environment and slow down climate change. ASE uses the ISO 14001 Environmental Management System standard as the foundation of its pollution prevention efforts. It has also adopted the "plan-do-check-act" management model to continuously improve, and works to integrate its organization and management system requirements. The company uses high-efficiency prevention facilities and action plans to address pollution emissions behavior and volume, seeking to find common ground between its sustainable development goals and environmental protection.

Waste Management

ASE generated 53,638 metric tons of waste in 2017, a reduction of 1.5% compared to 2016. The volume of general waste increased by 404 metric tons, while the volume of hazardous waste decreased by 1,230 metric tons. Of the total amount of generated waste[1], 71%(composed of 25% hazardous waste and 46% general waste) was reused, recycled, recovered or composted to lower the impact on the environment. The remaining 29% was treated using other methods, including landfilling, incinerating and solidifying.



[1] Waste is treated locally at all operational sites (under the Basel Convention, waste should be treated locally to prevent environmental pollution generated from cross-boundary transportation).
[2] The waste weight data is calculated by summing up the weight of each trip to remove the waste.

To lower the impact of pollutants on the environment, ASE is not only working to reduce pollution sources and find alternative materials that can lower the amount of waste generated, but has also begun to adopt waste regeneration measures to recycle and reuse waste effectively. For example, the cushioning materials used in the packaging of products and empty raw material barrels are recycled and reused. We are also continuing with our efforts to cut down on pollutant generation and optimize waste treatment, such as treating hazardous waste from factories by ourselves, reducing the number of pollutant sources and recycling waste liquids. We also collaborate with academia to drive optimization and take protective measures to reduce the impact of pollution on the environment. Our aim is to become a benchmark company in environmental protection.

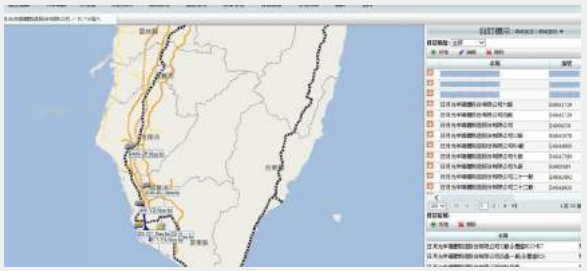
2017 Waste Treatment Methods (unit: metric tons)[2]	Reusing	Recycling	Recovery, including energy recovery	Composting	Landfilling	Incinerating	Solidifying	Other
Hazardous waste	6,088	4,185	3,187	0	5	5,625	5,176	1,006
General waste	1,260	18,971	3,569	855	2,837	603	68	203

Waste Management at Facilities

In addition to regularly scheduled network/paper checks and on-site audit, ASE also has non-announced audits to confirm that waste are properly disposed of by disposal agencies. In 2017, 164 network/paper checks, 119 scheduled on-site inspections and 47 non-announced inspections were conducted. No significant anomalies were discovered during these inspections. Through the audit and communication mechanism helps to ensure waste management companies develop in sync with ASE.

Waste Disposal

Qualified waste disposal companies are commissioned to dispose of the waste produced during the manufacturing process, and sign waste clearance and treatment contracts to employ optimal waste treatment methods. Real-time GPS tracking is used during the waste removal process to verify the transport routes taken are correct. The records of waste management companies are also scrutinized to ensure the waste has been handled in a manner that is legally compliant. In 2017, no waste management companies were found to be in breach of contract, nor were there any leakage issues in the storage, clearance and treatment of waste.



Gas Emissions Control

The main types of gas emissions produced by ASE's facilities are volatile organic compounds (VOCs), sulfur oxides (SOx), nitrogen oxides (NOx) and particulate pollutants. We use various methods to treat gas emissions, including wet scrubbers, activated carbon adsorption, condenser systems, advance oxidation processes and regenerative thermal oxidizers. After emissions standards are met, emissions are discharged into the atmosphere.

In 2017, ASE generated 281 metric tons of VOCs[1], 11 metric tons of SOx[2], 26 metric tons of NOx[3] and zero tons of ozone depleting substances[4]. As the ASE Kaohsiung facility began upgrading at the end of 2016 the Regenerative Thermal Oxidizer it set up to improve its VOCs treatment efficiency, the SOx emissions amount increased by 1.42 metric tons and the NOx emissions amount increased by 12.06 metric tons compared to the previous year. The air pollutants were handled using existing treatment facilities, while we also strove to improve treatment efficiency. In 2017, we achieved a 44 % reduction rate in gas emissions. This rate was calculated by an impartial, third party agency using end emissions testing to reflect actual reductions. Actual VOCs emissions rose by 12 metric tons in 2017 compared to 2016 as an indirect result of operational expansion. However, the elimination of emissions or improvement of efficiency programs of existing prevention equipment resulted in an actual VOCs reduction of 218.4 metric tons, an 85.9% increase compared to 2016's 117.5 metric tons. We plan to continuously expand our operations in the future, and our air pollutant management plan will center on the following actions to reduce air pollutant emissions:

- Reduce usage of high VOCs raw materials, or substitute them with low-pollutant materials.
- Introduce high-efficiency treatment equipment (such as regenerative thermal oxidizers, activated carbon adsorption systems, condenser systems) into existing and new facilities.
- Integrate the resources of academia and industry to study emissions segregation and reduction at end sources, and optimize chemical agent use and displacement operating parameters at end prevention facilities.
- Install airtight negative pressure functions on machines and equipment to increase the gas collection effects and optimize the efficiency of prevention equipment.
- Upgrade existing wet scrubbing equipment to biological scrubbers by adding nutrient sources to degrade VOCs and reduce emissions.

Noise control

The noise monitoring for the perimeter of the plant complies with local regulations. Our noise management has applied the industry-university cooperation technology in the past two years to analyze and distinguish the sources of noise generation, and to directly improve specific sources, reduce noise by reducing (decreasing) noise or limiting noise. Provides the quality of the environment where local residents live and employees work. Although all of them complied with local regulations in 2017, the Korean factory still experienced a situation of the residents' grievances. The local residents hope that the operation of the factory can further effectively manage and limit the noise, so as to reduce the impact on local. The plant area has used the management model to control the noise and fully respond to the residents' requirements. It has also succeeded in achieving mutual consensus.

5.4 Green Facility

Since 2012, ASE has begun upgrading existing facilities and constructing all new manufacturing facilities and office buildings according to international Green Building standards such as the U.S. LEED (Leadership in Energy and Environmental Design) and Taiwan EEWH (Ecology, Energy Saving, Waste Reduction and Health). We further promote the "Green Factory Label" Certification by implementing the Green Building concepts as well as Clean Production Processes to create a better working environment that uses energy more efficiently, enhances people's health and safety, improves reliability, operational efficiency and business performance.

Green Buildings

As of 2017, ASE has achieved 14 Taiwan EEWH certifications as well as 7 US LEED certifications including 1 "Diamond-rated", 1 "Silver-rated" and 1 "Copper-rated" EEWH certifications, and 1 "Platinum-rated" & 1 "Gold-rated" LEED certifications which were awarded in the year 2017. Through the energy saving activities for EEWH/LEED certifications, our Green Buildings achieved electricity savings of over 299,522 MWh per year, equivalent to the carbon emission reduction of 157,560 tCO_2e[5]. We plan to pursue an additional 9 Taiwan EEWH certifications and 1 US LEED certification.

[1] VOCs are calculated using public factors, and are either directly measured or calculated using mass balancing.
[2] SOx is calculated using public factors, or converted using the composition ratio.
[3] NOx is calculated using public factors, or directly measured.
[4] Only emissions of ozone depleting substances used as raw materials during manufacturing activities are considered. Other vaporization activities related to manufacturing activities are not considered part of the business' main activities and are therefore excluded from disclosure.
[5] Our Green Buildings awarded in the year 2017 achieved total electricity savings of 5,711,561kWh per year, equivalent to the carbon emission reduction of 3,021 tCO2e. The CO2 equivalent is calculated based on the applicable electricity emission coefficient in the year when the certification was granted. The electricity saving data of LEED certified building is calculated based on the building energy simulation methodology, ASHRAE (90.I-2007). The electricity saving data of EEWH certified building is calculated based on EEWH's energy saving assessment methodology.

ASE Green Buildings and Future Plan

21 Green Certificate

14 EEWH: 6 Diamond, 1 Sliver, 5 Copper, 2 Qualified

7 LEED: 4 Platinum, 3 Gold

10 Project Plan

1 LEED: 1 Gold

9 EEWH: 4 Diamond, 2 Copper, 3 Qualified

2012	2013	2014	2015	2016	2017	2018	2019	2020 ~
K12	K12	K21	CL-K&L	CN-HQ	K26	CN-SH	K24	K25
		K16		K22	K23	KH-dorm	K22	K23
		K15		K21	K26	CL-M	CL-C	K9
		K11		K14B	CL-K&L			USI-NK
		K7		CL-A	CL-B			
		K5						
		K4						
		K3						

K25 Designed to Meet EEWH Diamond

In response to recent trends in smart manufacturing, we plan to build smart semiconductor packaging and testing plants. We are investing NT$12.5 billion (US$416 million) into construction of the K25 Plant located in the Nanzi Export Processing Zone II (NEPZ II) in Kaohsiung. The plant is designed to cater to customers specializing in a wide range of emerging applications such as artificial intelligence, the Internet of Things, big data analysis, smart devices and robotics. The plant's R&D projects will focus on high-end packaging technologies. The K25 plant will have three storeys underground and nine floors above the ground. The plant design incorporates the principles of energy-conservation and carbon-reduction and it is designed to achieve EEWH diamond rating certification. With K25's EEWH certification, the NEPZ II may top the list of industrial parks with the highest green building density, making it a high-quality industrial zone that integrates production with a quality balance of life and ecology.

Green Factory

As of 2017, a total of seven plants received the "Green Factory Label,"[1] including our Kaohsiung K7 plant and Chungli A plant which was certified in the year 2017. We plan to obtain the "Green Factory Label" for additional four plants – Kaohsiung K9, K21, K22, K24 and K25 plants and Chungli K&L plant.

Innovations & Eco-design Achievements in Green Factories K7 & A

Since the 2013 K7 wastewater incident, we have taken the opportunity to further strengthen our environmental protection efforts by promoting green factory certification. We incorporate green innovations and eco-designs into our manufacturing process as well as set environmental targets for energy-saving, water-saving, waste-reduction, and carbon reduction. The green innovations or eco-designs implemented in our K7 plant include: 1. using DI water as a substitute for acetic acid, which can reduce the amount of organic acid used in the manufacturing process by 14,400 liters per year; 2. introducing boron-free developing agent, which can reduce the use of boron-containing agents by 1,830 kilograms per year as well as reduce boron-containing liquid waste by 2,015 metric tons; 3. introducing lead-free solder paste, which can reduce the annual usage volume of lead-containing solder paste by 1,500 kilograms; 4. installing a central chemical delivery system, which can decrease annual chemical use by 1,208 barrels; 5. recycling and reusing 474.45 kilograms of waste gold and copper wires per year; and 6. recycling and reusing 39,795 wafer cassettes per year.

Our Chungli A plant saves about 7,560MWh of electricity per year through the installation of heat-recovery chiller, and reduces 352,763 metric tons of wastewater per year through a wastewater treatment system. In addition, our Chungli facilities strive to improve wafer grinders and cutting machines and use energy-efficient lighting.

[1] "Green Factory Label" can be obtained after passing the certification of "Green Building certification" and "Clean Production Assessment". "Clean Production Assessment" is conducted by the Industrial Development Bureau (IDB) of the Ministry of Economic Affairs (MOE) and based on the concept of "clean production" as defined by the United Nations Environment Programme (UNEP).

5.5 Sustainable Manufacturing

Sustainable Manufacturing Declaration

ASE Group provides eco-efficient and responsible service to customers through the integration of sustainable practices into all stages of the manufacturing process, including material usage, design, procurement, production and packing. These practices help reduce costs, enhance competitiveness and reduce the impacts on environment, safety and health.

ASE Group is committed to:

- Complying with all applicable laws and regulations.
- Managing hazardous substances in parts and materials that are used to make products.
- Providing product solutions that are compact, lightweight and energy efficient.
- Continuously enhancing resource recycling, reducing greenhouse gas emissions, waste generation, wastewater effluent and chemical usage.
- Reducing product packaging and wastes.

ASE Group Green Laboratory

Our green laboratory is dedicated to the following:

- Evaluation and development of green materials: Evaluation of non-toxic or low toxic product raw materials and process chemicals.
- Development of environmental testing technology: Establishment of monitoring technology, mechanism and standard, compliant with world environmental regulations.
- Development of Green Process: Improve utilization rate of chemicals or raw materials; evaluate recovery, reduction and reproduction technologies for waste, wastewater and chemicals.
- Development of Environment Friendly Packaging: Develop bio-composite packaging materials.

Sustainable Manufacturing Measure

Since all of the manufacturing stages are closely interlinked in terms of environmental, health and safety impact, continuous efforts are required to make incremental improvements and to achieve technological innovation. ASE aims to make such improvement and innovative efforts throughout our operations in order to continuously deliver sustainable products to customers.

Sustainable Manufacturing Related Projects

	Project Content	Benefits
Sustainable Use of Materials	Use of boric acid-free developer for positive-type developing processes of wafer bumps	Reduce treated wastewater and lowers boron emissions by at least 1,400 kg annually
Sustainable Design	The SiP module for IoT applications is designed to allow clients to choose one single wireless communication module design that fits across different system platforms and functional requirements. USI is able to customize the chipsets and circuit design so that a universal design is shared across the motherboard design of clients' system platforms.	Simplify the motherboard design of system platforms to greatly improve shareability and reduce the waste of materials
Sustainable Production	Ink screen cleaning using acetone. Although the acetone waste contains ink after cleaning, it can still be recycled via heating because it is a highly volatile solvent	Achieve an acetone recovery rate of 90% for a reduction of eight metric tons of waste liquid annually
	Analysis of photoresist coating operations to optimize photoresist coating amounts and rotation speeds decreases raw materials and waste liquid production	Reduce the use of photoresist chemicals by 33%
	Addition of exhaust gas condensation devices above cleaning tanks to recycle volatile organic compounds (VOCs) and reduce VOC emissions	Lower COD emissions for an 80% reduction in air pollution control facility treatment needs
	Addition of air knife scraping devices for immersion tanks to reduce the need for employees to handle workpiece treatment solvents	Reduce the amount of treatment solvents by 27%
Sustainable Packaging	Change the packaging materials from PE film, which are easily damaged, to reusable PE plastic bags	Reduce packaging materials by at least 800kg annually because PE plastic bags can be reused approximately 30 times

Product Eco-Efficiency (EE)

ASE established the product eco-efficiency model with the goal of improving the environmental quality while increasing product value. By embedding the eco-efficiency concept in our internal management, material consumptions throughout the whole product life cycle can be significantly reduced which in turn reduces the environmental impact and help to achieve our environmental goals for sustainable development.

In 2016, we established EE models for BGAs and communication modules. In 2017, we took it one step further by identifying the different types of environmental impact from Bumping products. We also completed product eco-efficiency calculations and established EE assessment models of Bumping products.

Third Party Assurance

ASE completed the ISO 14067 Carbon Footprint Verification for its BGA, lead frame, CSP and flip chip products, as well as the "ISO 14045 Product Eco-efficiency assessment"[1] in 2016. In 2017, we achieved ISO 14067 Carbon Footprint Verification and ISO 14051:2011 Material Flow Cost Accounting certification for wireless module products (4G dual-band modules).

Green Contribution from Our Manufacturing Service

We provide manufacturing service to our customers to develop energy efficient products (including Wireless communication module, POS machines, Desktop internal ATX PSU with multiple-outputs, Desktop Mother Boards, Smart Handheld Devices, NAS Systems, SSD, Server systems, and micromodule converters) that reduce energy consumption by around 1 ~ 9% compared with equivalent products on the market. The energy efficient products, shipped to our clients in 2017, help reduce a total emission of at least 70,000 tCO_2e per year during their usage.

[1] The "ISO 14045 Product Eco-efficiency Assessment"is one type of environmental management tool. It considers primarily the life cycle of products, and assesses the impact of a product system on the environment.

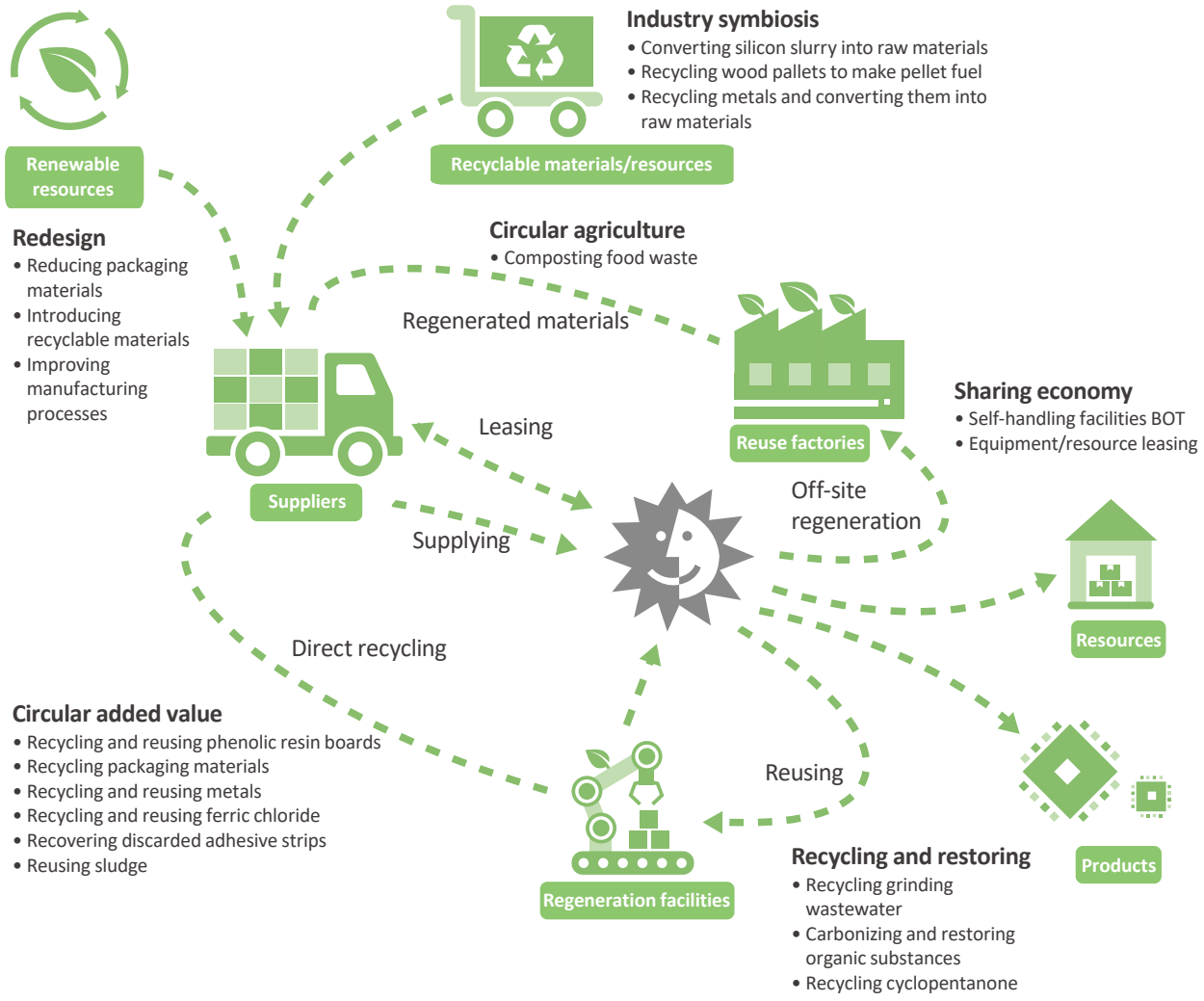
Moving Towards a Circular Economy

We define "circular"as creating sustainable business solutions that foster restorative and regenerative design, and aim to keep products, components, and materials at their highest utility and value at all times. Our long term goal is to keep products, components manufactured and materials used by ASE's value network functioning at their highest utility and value at all times.

Circular Economy Forum

The transition to a circular economy producing zero waste and pollution has become the focus of international attention. ASE organized the"2017 Circular Economy Forum" with the assistance of Chung-Hua Institution for Economic Research and the Taiwan Alliance for Sustainable Supply. We invited nearly 200 industry representatives, scholars and experts to discuss the promotion and future development of circular economy for the semiconductor industry. The forum offered perspectives from industry, government and academia, and used lectures and seminars to provide the industry with a more comprehensive understanding of circular economies and future feasibility and trends. The objective was to develop a circular and sustainable industry. Looking ahead, ASE will pursue technology leadership while also working to properly manage waste products to turn them into reusable resources, thereby allowing them to return to the supply chain and creating a circular system for sustainable development.

Circular design promotion blueprint



5.6 Environmental Sustainable Value

Sustainable Value Assessment-Environmental Aspect

ASE's environmental sustainable value assessment focuses on key environmental issues related to the company's operations, including GHG emissions, air pollution, waste water pollution, solid waste and water consumption. We apply the Natural Capital Protocol as a guideline for the development of our assessment methodology, and use the environmental profit and loss (EP&L) methodology to map out the impact of our pollutant emissions and resource consumption and compute their social costs associated with human health damage, loss of environmental resources, and ecological damage. The different types of environmental impacts can be quantified by monetizing the social costs. This allows us both to determine the overall environmental impact of our operations and to identify which major environmental issues ASE should prioritize to manage. We can also compare cross-year impacts and see the results of our improvement efforts.

Our 2017 assessment result[1] shows that GHG emissions have the largest impact, followed by water consumption. These two environmental issues account for over 90% of the overall environmental impact. The reason for such results is that the semiconductor assembly and testing manufacturing process requires large quantities of electricity and water. While our revenues increase in 2017 compared to 2016, our monetized environmental impact fell compared to 2016 due to our energy-saving and carbon emissions reduction efforts, waste recycling collaborations with suppliers, and the establishment of waste water recycling systems. The environmental sustainable value assessment is intended to raise awareness of environmental externalities that may or may not affect ASE's business, and to assess their relative importance. It contains preliminary considerations which may be subject to change. Furthermore, the evaluation result may also change, for example, as valuation techniques and methodologies evolve. It should be considered as indicative and it neither represents any final factual conclusions nor is intended to assert any factual admission by any person regarding the impact of ASE or any of its related parties on environment or society.

Impact Drivers	Output	Impact
GHG emissions	GHG Emission (Scope 1 and 2)	Human health, built environment, economic disruption, agriculture and timber, desertification, and other ecosystem services
Water use	Water consumption	Direct non-consumptive uses, indirect uses(ecosystem function), malnutrition ,and water borne disease
Air pollution	Emissions of pollutant(SOx)	Human health, forestry, materials, and water acidification
	Emissions of pollutant(NOx)	Human health, crops, and forestry
	Emissions of pollutant(VOCs)	Human health, crops, and forestry
	Emissions of pollutant(PM10)	Human health
Waste	Hazardous and non-hazardous waste (recycling and re-used are excluded)	Local and global pollution, audio and visual nuisances
Water pollution	Release of regulated contaminants	Human health
	Release of nutrient(Phosphorus)	Recreation, property values, and fishstock

[1] The sources of the financial proxy variables used are primarily referred to international research reports and documents.

5.7 Environmental Expenditures and Investments

ASE adopted the "Industry Guidelines for Environmental Accounting" published by Environmental Protection Administration of Taiwan, in 2010. We combined our existing accounting systems with environmental control coding to classify ASE's environmental expenditures into categories in accordance with the nature of costs incurred. Since 2015, our environmental expenditure is calculated and analyzed quarterly to ensure data accuracy and facilitate effective assessment.

Environmental Costs

ASE's total environmental costs for 2017 amounted to US$60.3 million, with capital expenditure and expense accounting for 42% and 58% respectively.

(million USD)			2014		2015		2016		2017	
Category		Description	Capital Investments	Operating Expenses	Capital Investments	Operating Expenses	Capital Investments	Operating Expenses	Capital Investments	Operating Expenses
Operating Cost	Pollution Prevention Cost	Air, water, other pollution prevention, etc.	34.3	5.4	24.4	5.3	23.9	7.2	12.2	8
	Resource Circulation Cost	Efficient utilization of resources, waste reducing, recycling, and disposal, etc.	10.3	6.2	17.9	9.3	4.1	11.8	12.4	15
Upstream/Downstream Cost		Green procurement, recycling of used products, etc.	-	4.7	1.4	3.6	0.9	0.7	0.56	0.3
Administration Cost		Manpower engaged in environmental improvement activities and environmental education, acquisition of external environment licenses/certification, government environmental fees, etc.	-	3.8	-	8.5	-	8.1	-	8.1
Social Activity Cost		Donations to, and support for, environmental groups or activities, etc.	-	3.4	-	3.5	-	3.2	-	3.4
Environmental Remediation Cost		Fines, recovery of the environmental degradation, degradation suits, and insurance fees, etc.	-	0.2 (1 major case*)	-	0.2 (0 major case*)	-	0.2 (0 major case*)	-	0.2 (0 major case*)
Others		Global environmental conservation cost and cost to develop products to curtail environmental impact at the product manufacturing stage, etc.	-	0.1	-	0.03	-	0.03	-	0.07
Total			44.6	23.8	43.7	30.4	28.9	31.2	25.2	35.1

* We defined major cases as the environmental-related fines or penalties greater than US$10,000.

Environmental Benefits

ASE records environmental benefits generated from activities that reduce impacts on the environment. Our total environmental benefits for 2017 amounted to US$19.7 million.

(million USD)		2014		2015		2016		2017	
Category	Description	Environmental Benefits	Economic Benefits	Environmental Benefits	Economic Benefits	Environmental Benefits	Economic Benefits	Environmental Benefits	Economic Benefits
Cost Savings	Reduction in electricity costs due to energy saving projects	52,171 MWh	5.5	106,808 MWh	10.0	197,576 MWh	15.1	60,988 MWh	5.4
	Reduction in water costs due to water saving projects	9,968,002 metric tons	4.9	13,133,452 metric tons	6.1	15,096,545 metric tons	6.0	15,175,519 metric tons	6.7
	Reduction in waste disposal costs due to waste recycling	25,669 metric tons	2.5	32,981 metric tons	4.7	38,243 metric tons	6.4	38,115 metric tons	7.6
Cost Avoidance	Reduction in environmental fine compared to previous year due to pollution prevention activities	-	-	-	0.06	-	0.002	-	0.009
Total		-	12.9	-	20.9	-	27.5	-	19.7

Our estimated environmental capital expenditures for 2018 will be approximately US$13.3 million. The board of directors has resolved in January 2018 to contribute around US$3.4 million (NT$100.0 million) through the ASE Cultural and Educational Foundation in environmental projects in 2018.

Green Bond

A corporate green bond is a financial instrument offered by companies to utilize the proceeds for funding projects that have positive environmental and climate benefits.

To demonstrate ASE's commitment on our transition to low-carbon and climate resilient growth, we issued Asia's first corporate US$300 million Green Bond through our subsidiary Anstock II Limited in July 2014. The Green Bonds matured and were fully repaid by Anstock II Limited on July 24, 2017.

As of December 2017, the total proceeds of US$300 million from the Green Bond were used to finance eligible environmental protection projects which encompass Green Buildings, Energy Efficiency Enhancement Projects and Water Recycling Projects: ASE has created Asia's largest green facilities and water recycling plant with the largest recycling usage in Taiwan. ASE has obtained 21 Green Building certifications for 18 facilities, reducing 157,000 tCO_2e; accumulated water recycled has reached 5.46 million metric tons. In the future, we will continue to assess and plan related green investment projects, hoping to promote the use of green financial instruments by enterprises in Taiwan, and further lead the industry towards a low-carbon sustainable development.

5.8 Future Plan

ASE Group will integrate greater facility management in accordance with its merger and acquisition plans. We will re-examine our inventories, conduct preparatory work for Science based carbon emissions reduction targets, and invite experts to conduct assessments and outline future management methods.

In 2018, we will evaluate the sustainability effect created by our products. We will start by assessing the energy-saving and carbon emissions reduction benefits created by the use of USI products, and then progressively extend the assessment to evaluate the benefits of semiconductor assembly, testing, and material (ATM) products.

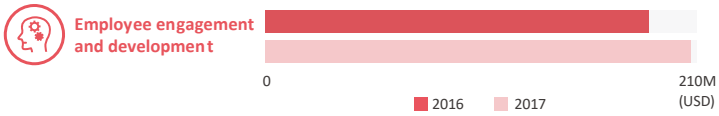
Our TIMM sustainable value assessment results shows that GHG emissions and water consumption are the main inevitable negative environmental impacts that ASE will generate while creating economic value during its operations. In the future, we will continue our efforts in energy and water conservation in order to minimize negative impacts, and we will attempt to quantify the positive environmental benefits resulting from ASE's efforts in the areas of energy efficient products, waste reductions, and wastewater recycling. In this way, we will be able to better illustrate our environmental sustainability performance.

EMPLOYEE CARE AND DEVELOPMENT

ASE Group is committed to protecting human rights, ensuring diversity in our workforce and providing employees with a safe, healthy and stimulating work environment.

ASE is committed to continuously invest in talent cultivation by motivating employees to further their career within the company and retaining highly skilled and experienced employees. We respect the rights of our employees and we strive to provide a safe, comfortable, healthy and productive workplace for our employees.

Sustainable Value Assessment – Social Aspect (Employees)



[Link to SDGs]

2017 Key Performance

Target Achievement Status

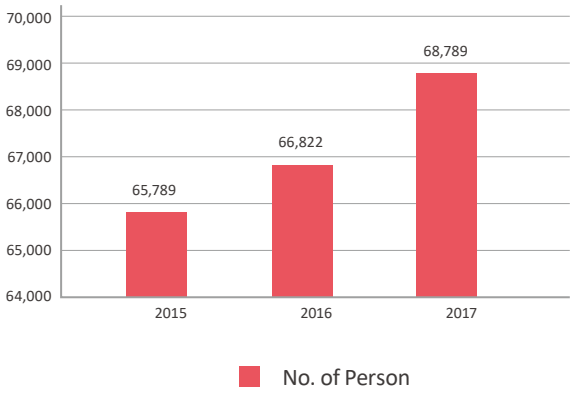
2017 Material Aspects	KPI	2017 Target	Status	2017 Performance	2018 Target	2020 Target
Employee Health & Safety	Occupational disease and major injury cases[1]	Zero cases of occupational Disease and major injury	Achieved	Zero cases of occupational Disease and major injury	Zero cases of occupational Disease and major injury	Zero cases of major injury and occupational disease
	Disabling Injury Frequency Rate (F.R.)[2] and Disabling Injury Severity Rate (S.R.)[3]	Lower than the average of Taiwan's Semiconductor/ electronics and components industry	Achieved	ATM F.R. : 0.564 ATM S.R. : 10.485 EMS F.R. : 0.267 EMS S.R. : 5.058	Lower than the average of Taiwan's Semiconductor/ electronics and components	10% lower than the average of Taiwan's Semiconductor/electronics and components
Employee Communication	Employee engagement survey	70% Survey coverage 73% Actively engaged employees	Achieved	Survey coverage[4] increased to 73% of total facilities. Employee engagement survey result[5] was 75%	Roll-out of the employee engagement survey model to the facilities in Asia, next survey conducted in 2019 (80% Survey coverage 73% Actively engaged employees in 2019)	Conduct employee engagement survey in all of our facilities
Talent Development	Generation rate of ASE six-path employee career development system	To reach 80% of ASE six-path employee career development system	Achieved	All sites achieved 81% of ASE six-path employee career development system	To reach 85% of ASE six-path employee career development system	Deployment of the ASE six-path employee career development system in all manufacturing sites
	Number of internal certified trainers	5% increase compared to 2016	Not Achieved (Carried forward to the long-term target)	3,909 internal certified trainers in 2017, which is 5.6% of ASE total headcounts and 2% more than year 2016	The number of internal certified trainers will reach 5.8% of ASE total headcount	The number of internal certified trainers reach 6% of ASE total headcount

[1] Major injuries are defined as occupational injuries (excluding traffic accidents) resulting in death, more than 3 people injured simultaneously, or more than 3 days in hospital.
[2] Disabling Injury Frequency Rate (F.R.) = Disabling injury cases × 1,000,000 / Total actual working hours
[3] Disabling Injury Severity Rate (S.R.) = Disabling injury work loss days × 1,000,000 / Total actual working hours
[4] The coverage rate is based on the proportion of the total number of plant sites in the Group.
[5] The engagement result is calculated by positive answers.

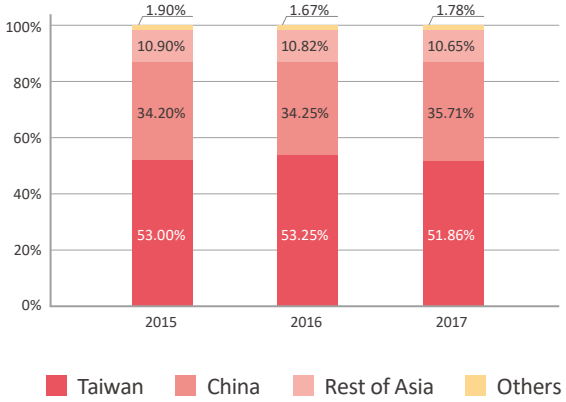
6.1 Overview of ASE Employees

In 2017, ASE's workforce comprises of approximately 68,000 employees in 9 countries (including 19 manufacturing facilities and 15 sales offices) across three continents with most employees working in Taiwan (52%) and in China (36%). 93% are regular employees, while the remaining 7% contract employees; 60% are direct employees, and 13% foreign employees. ASE Group has a relatively gender-balanced workforce, where female makes about 50% of our total workforce. The proportion of our female supervisors is 29%, 47% and 50% of our employees are of age groups between 16 to 30 and 31 to 49, respectively. In addition, over 53% of ASE Group's employees have Bachelor's Degrees or above.

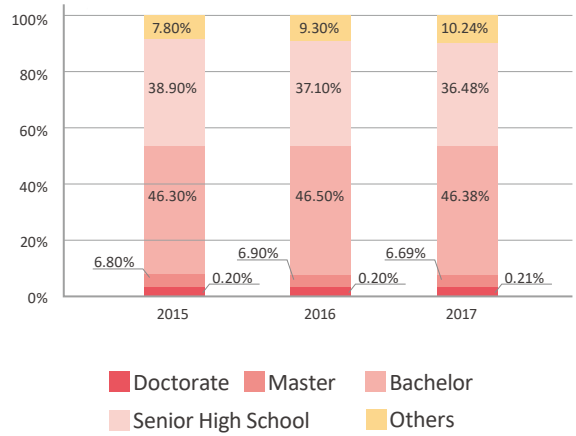
ASE Group Total Employee Numbers (2015~2017)



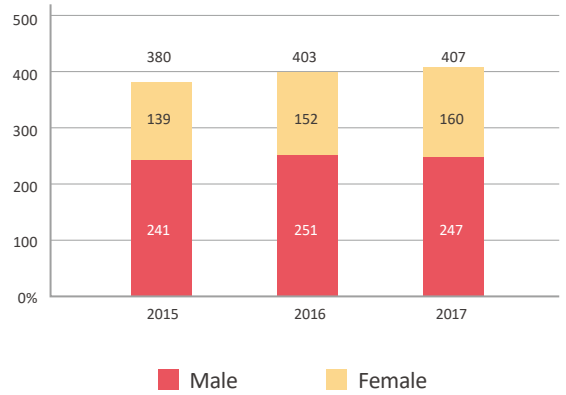
Geographical Distribution



Educational Background Distribution

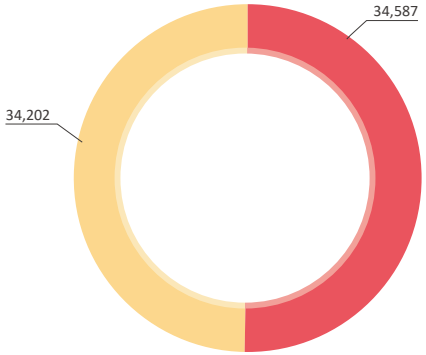


Disable Employee Hired Number



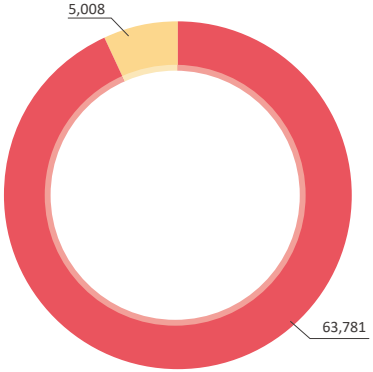
Workforce Structure[1]

All Employees by Gender



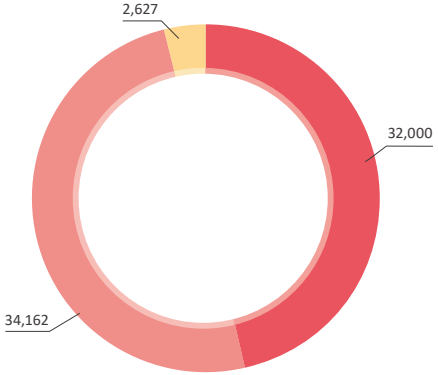
Male 50.28% Female 49.72%

Regular/Non-Regular Employees



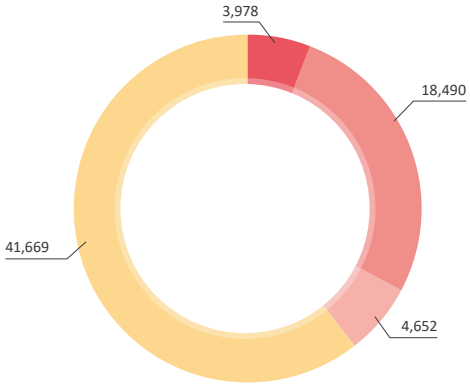
Regular Employee 92.72%
Non-Regular Employee 7.28%

Employee Age Distribution



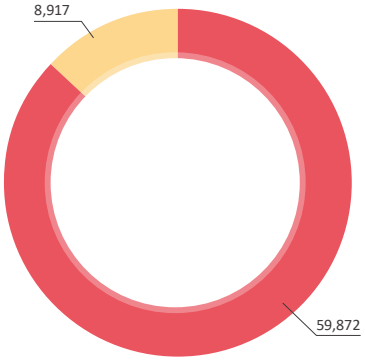
Age 16~30 46.52% Age 31~49 49.66%
Age 50 above 3.82%

Employees by Job Category



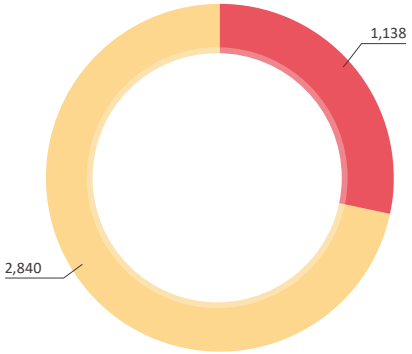
Management 5.9% Engineering 27.08%
Administration 6.68% Direct Labor 60.34%

Senior Management[2]



Local Hired[3] 87.04%
Non-Local Hired 12.96%

Female Superior Ratio



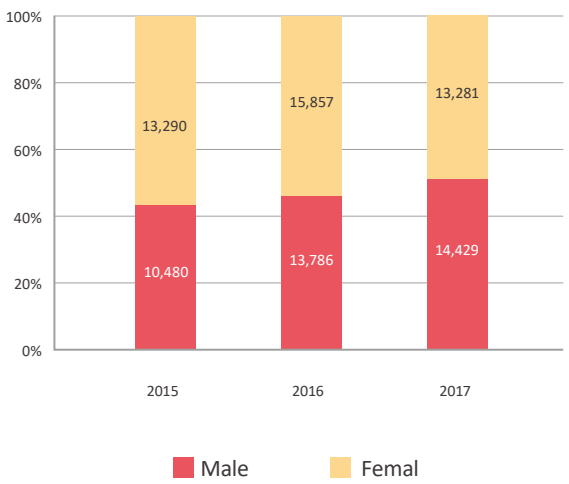
Female Superior 28.61%
Male Superior 71.39%

[1] The workforce data covers all of our manufacturing facilities, but excludes our sales, administrative and other offices located in North America and Europe.
[2] Senior management refers to Managers, Department Directors, and Vice Presidents and above.
[3] Local Hired refers to the employee whose nationality is the same as the country where our facility is located.

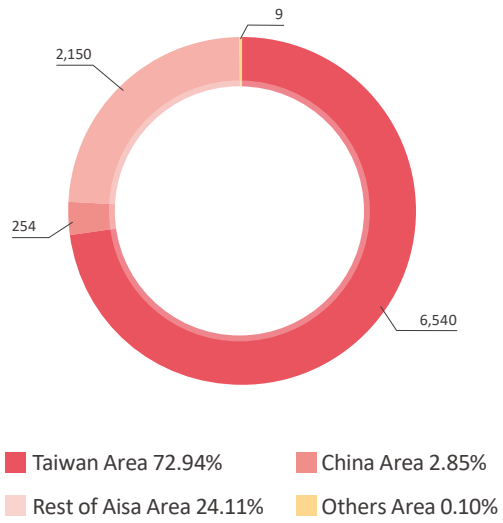
Global workforce diversity and inclusion

ASE's recruitment policy is based on diversity and inclusion. It does not discriminate on the basis of race, gender, nationality, religion, political affiliation, sexual orientation or age. All of the company's facilities also comply with local regulations and abide by the Code of Conduct of the Responsible Business Alliance (RBA). We do not hire child labor. As of Dec. 31, 2017, ASE employed 407 disabled employees and 8,900 foreign employees. As soon as foreign employees join ASE, we arrange language classes for them to aid in their education and training. Translators are also available at our facilities. New employees are provided with information regarding local life and culture, and are guided by other senior and experienced foreign employees. All foreign workers are entitled to the same benefits enjoyed by local employees. ASE respects employees from different cultures, and does not discriminate against them. This inclusion helps us to continuously improve our team performance and innovation capabilities to better meet the demands of different types of customers and diverse markets. Meanwhile, in order to create local job opportunities and train the next generation of the workforce, ASE's Kaohsiung, Chungli, Shanghai and Suzhou facilities, as well as USI facilities collaborate with local universities to carry out joint industry-academia recruitment projects. ASE employs diverse recruiting methods, including employee referrals and alternative military service programs. It also recruits at international job fairs, on social media platforms and through online job boards.

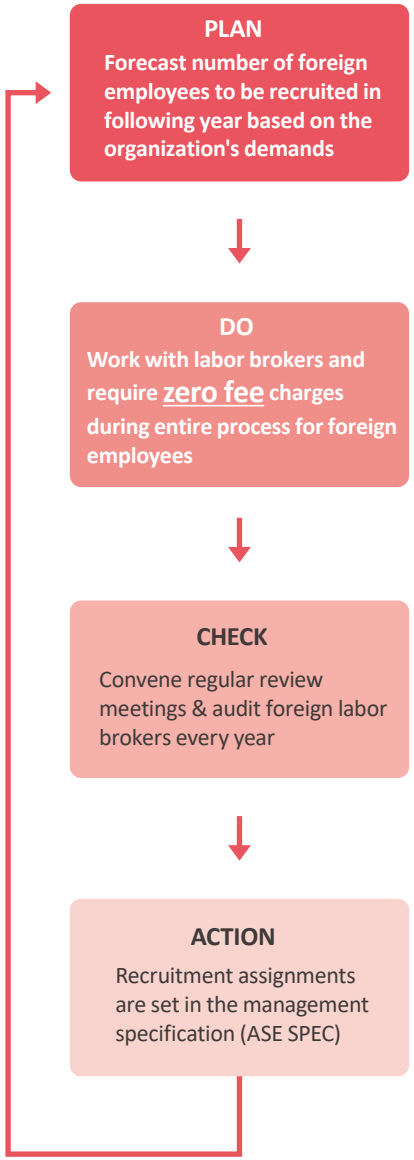
New Employees Share of Total Workforce



Foreign Employees Hired Number



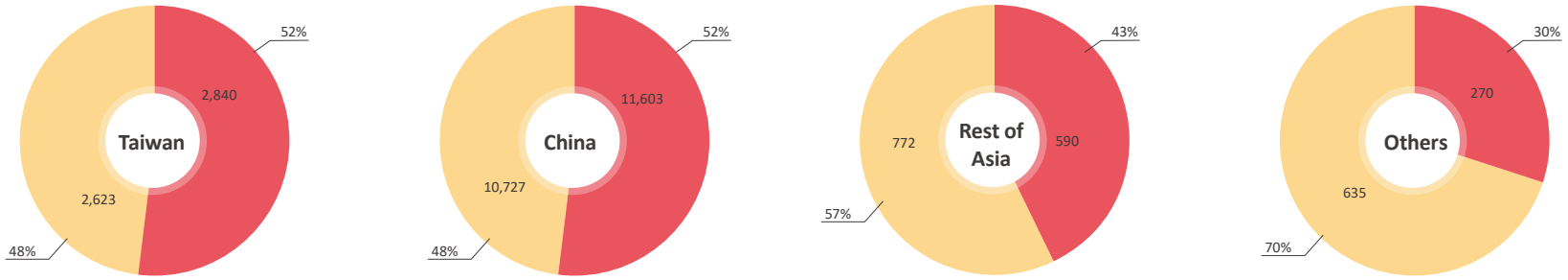
Foreign Employee Recruitment and Management PDCA



Turnover Statistics

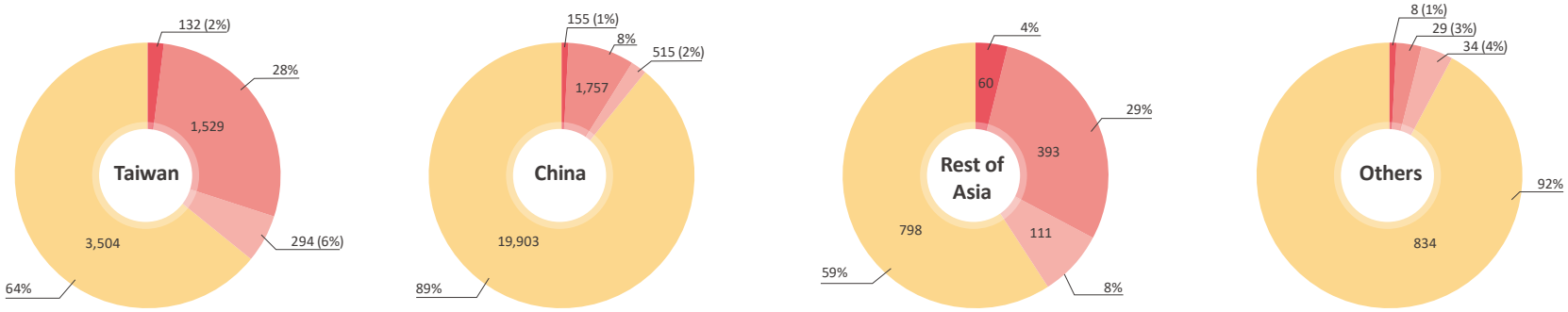
Gender

- Male
- Female



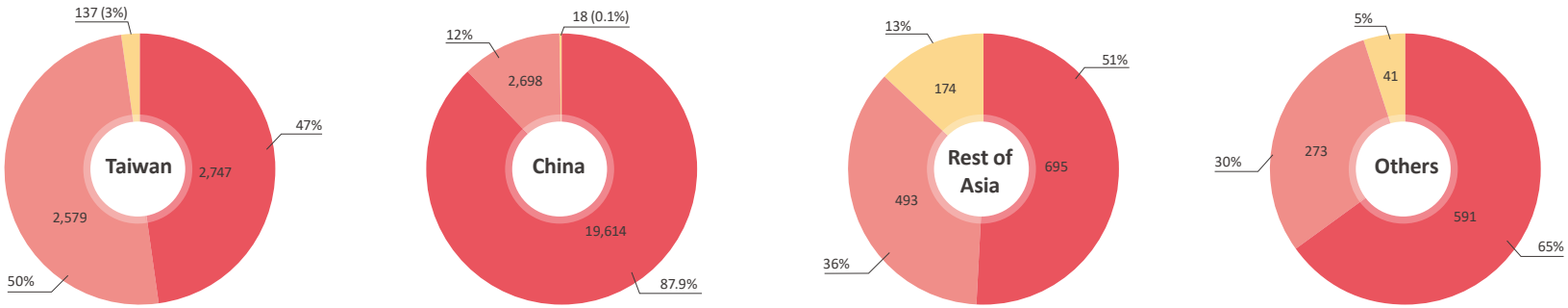
Employee Category

- Management
- Engineering
- Administration
- Skill Operation



Age

- Age 16~30
- Age 31~49
- Age 50 above



6.2 Employee Care

ASE pays attention to employees' interests, physical and mental health while working in the company. Thus, we have established "Employee Welfare Committee", "Employee Meal Committee" and "Labor Pension Fund Committee" that aims to develop a more comprehensive and sound welfare system for our employees.

Compensation & Welfare

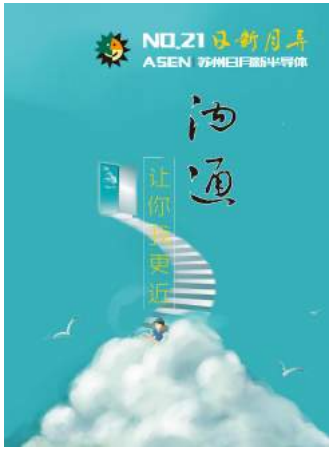
In addition to offering fair and non-discriminatory compensation, our full-time employees are entitled to a consistent remuneration package. ASE reviews local market pay practices annually to ensure our employees' base pay remains competitive. In 2017, the ratio of the basic salary of women to men for direct employees was 1 : 1.1; for indirect employees[1], it was 1 : 1.19; and for management employees, 1 : 1.15. All employees, regardless of gender or job title, are required to undergo performance appraisals. We offer monthly incentive bonuses and annual profit-sharing bonuses to reward employees' diligent contributions to the company. Cash bonuses are rewarded to the employees with the top performance each month based on our business results. Annual bonuses are rewarded to employees who have fulfilled their responsibilities and delivered superior results within the financial year. In 2017, ASE paid our employees approximately NT$5.51 billion through incentive bonuses. ASE also has an employee stock option program for the purpose of retaining outstanding employees. Employee stock options are valid for 10 years from the issue date.

Labor Unions

ASE respects employees' human rights and harmonious labor/management relations. We have labor unions at certain of our facilities including ASE Kaohsiung, Weihai, Suzhou, Wuxi, Shanghai (A&T), Korea, Japan, Singapore and USI Zhangjiang & Mexico, and these Unions have been serving ASE employees for many years. At the end of 2017, the total number of union members was 24,873, accounting for around 36% of ASE Group total headcount. Union meetings are held once every quarter to communicate with employee representatives and resolve employee welfare related issues.

USI Publications

ASEKH Publications



ASEN Publications

Employee Communication

We respect employees' opinions and provide various channels for employees to voice any comments or concerns they may have related to their workplace. Our Human Resources Department has provided various two-way communication channels, including:

- Intranet — to publish company's latest news
- E-mails Announcements — to announce group-wide updates and messages from top management
- Bulletin Boards — to provide information related to labor compliance policy, health and safety, and company activities
- On-Site TV News/Information — to broadcast employees' welfare-related information
- General Manager/Plant Director Mailbox — to deliver employees' opinions/suggestions to GM/Plant Director directly
- Employee Opinions Box — to collect and respond to employees' grievance and feedback
- Employee/Foreign Employee Symposium — to share and discuss work experiences, regular symposium with foreign employee every month
- Counseling Room — to provide one-on-one counseling sessions
- Labor Meeting — to have a communication between HR & labor representative quarterly
- Periodical Issue — to interview employee and let employee to express their opinions

[1] Indirect employee is detined as any other regular employees other than direct labor.

Employee Engagement Survey

A company's most important asset is its employees. One of the long-term strategies for implementing sustainable development is using human capital effectively to create value. In the past, we conducted surveys based on employee satisfaction. After many years of analysis, reference to international trends, and discussions with scholars and experts, we collaborated with a consultant to conduct "Employee Engagement Survey" for the first time in 2017. This survey helps an organization to collect and measure employee opinions effectively, and then develop strategic methodology to attract, retain, and nurture outstanding employees. In 2016, we established the "ASE Group Employee Engagement Survey Implementation Guidelines" as a common principle and operation method for the implementation of the engagement survey in each site. ASE Group plans to conduct a comprehensive survey every two years. In 2017, we teamed up for the first time with 14 of our facilities (in the greater China region) to survey indirect employees on 15 items in six major fields of employee engagement.

ASE Employee Satisfaction/Engagement Survey Result & Target

Year	2013(Satisfaction)	2014(Satisfaction)	2015(Satisfaction)	2017 Target	2017(Engagement)	2019 Target
Satisfaction/ Engagement(%)	67.8	72.3	70.6	73	75	>=73
Conduct Coverage (%)	34.7	25.1	64	70	73.6	80
Conduct Sites	5	4	9	10	14	16

We invited 21,591 employees (80 percent of the company's indirect employees) to participate in the survey, and received 16,254 responses - a response rate of 75 percent. The survey had a six-point scale. The overall employee engagement survey result was 75 percent (based on positive answers). If we adopt a more stringent criteria to count the data (only including moderately & strongly positive answers), then the overall employee engagement survey result was 46 percent. Our improvement actions are based on the 46 percent data. We invited the HR departments of the 14 participating facilities to coordinate with expert consultants and organize three "employee engagement workshops" to better understand the implications behind the feedback. They were also asked to carry out improvement plans for the top 10 weaknesses at their respective facilities and implement these improvements in 2018.

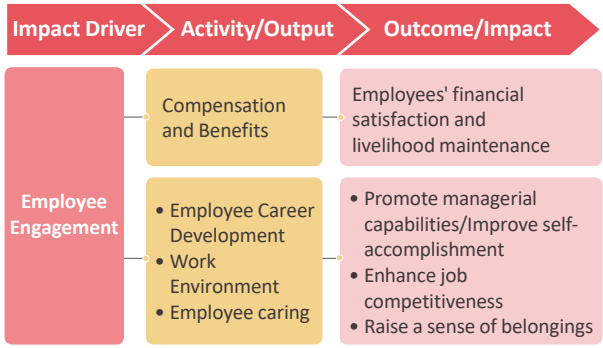
The Behaviors of Employee Engagement

Willing to Promote	Willing to Stay	Make an All-out Effort
Often say good things of the company to colleagues and customers	Has a strong sense of belonging and eagers to be a one of the organization	Not only do the best at the work, but also willing to pay extra effort for the success

ASE Employee Engagement Workshop

Sustainable Value Assessment – Social Aspect (Employees)

ASE's social impact sustainable value assessment for employees focuses on the feeling and feedback directly from employees' involved in company operations. Salaries and benefits, employee career development, the work environment, and employee care are considered the influence paths and source of the generation of employee social value. In the 2017 social impact assessment results for employees, the sustainable value generated by increasing competiveness in the job market was the highest, which indicates the experience that employees gain from working at ASE contributes to increasing their competitiveness in the job market. There were no significant differences between the 2016 and 2017 assessment results.



Employee Mental and Physical Health Care

Health Care
All ASE facilities provide healthy and delicious meals inside clean and hygienic dining halls. The company also subsidizes 50% (or more) of meal expenses. It offers employees free regular physical health examinations at clinics, hospitals or health check-up centres. Many facilities have fully-equipped gyms, and some also have massage centers to help employees relieve stress and fatigue.

Insurance Care
All of ASE's employees are covered by national labor insurance and group insurance policies, including life insurance, accidental injury insurance, medical insurance, cancer insurance and other types of insurance. We also provide business travel insurance to cover employees who travel for business and offer free group insurance for employees' spouses and children.

Retirement Care
ASE established the Labor Pension Fund Committee to distribute retirement pensions in accordance with labor law. We engage senior executives to become consultants after their retirement. ASE's Kaohsiung facility also provides free annual physical examinations for retired employees, while the Shanghai, Kunshan and Japan facilities offer medical treatment and health insurance subsidies to retired employees.

Female Employee Care
We cater to the unique needs of our female employees and offer reserved parking spaces for pregnant employees, as well as private nursing rooms at ASE. At ASE Chungli and Korea, we have on-site kindergartens to provide child care services to employees. If employees need to stay at home to focus on child care, employees can apply for paid parental leave. In 2018, we will build a "Kindergarten specific for ASE employees" of green building at the Kaohsiung facility.

ASE Kaohsiung Facility Kindergarten
To support our employees with young children, ASE's Kaohsiung facility spent NT$100 million to build an on-site kindergarten which will begin enrolment in 2019. The three storey kindergarten will have an area of 6,406 square meters, and is located at the Kaohsiung Oil Refinery Elementary School's historic site. It will be a green building with a wide outdoor space planted with trees and include animal habitats and aquaponics pond systems. These features will serve as green classrooms where students can learn about nature.

Transportation and Accommodations Care
Our Kaohsiung, Shanghai, Kunshan and Weihai facilities have employee dormitories for non-local employees. A new dormitory at the Kaohsiung facility opened in 2017 and houses 3,000 non-local female employees in comfortable surroundings. We also provide shuttle buses between dormitories and facilities.

ASE Kaohsiung Facility's New Female Dormitory
ASE invested NT$1 billion in constructing a large-scale dormitory for female employees. The dormitory is equipped with the latest solar heating technology which allows hot water to be maintained at a constant 42 degrees Celsius year-round. It also has a rainwater recycling system, saving 5,100 tons of water a year. The dormitory has all types of amenities, including convenience stores; a variety of healthy and tasty food options; 24-hour multilingual professional service and an elegant prayer room. Multimedia classrooms offer regular language courses and screen movies to enrich the lives of employees.

Diverse Community Activities

The company's Employee Welfare Committee organizes interesting and diverse annual employee activities. In addition to social activities, there are also body and mind strengthening sports events, arts and networking activities for employees to relax during their spare time as well as achieve a healthy work-life balance. Through involvement in these activities, the employees are able to enjoy better interactions with their colleagues, family and the community.

Green Bamboo Lantern Festival, ASE Japan

Table Tennis Game, ASE Shanghai

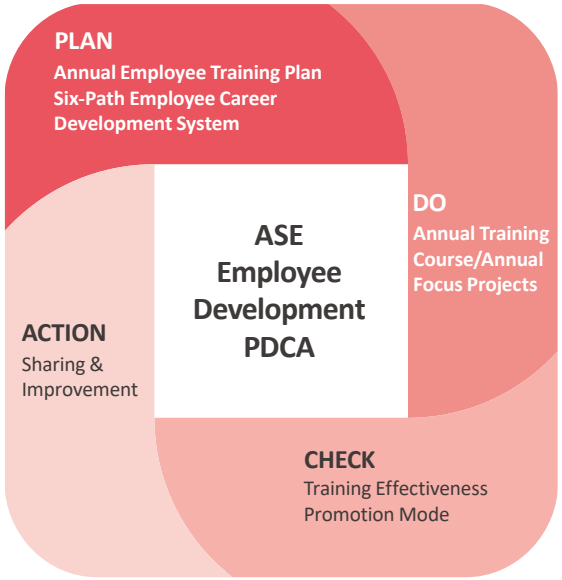
Chef Competition, USI Kunshan

Peace Run, ASE Malaysia

Talent Show, ASE Chungli

6.3 Employee Development

Talent cultivation is the core element in maintaining competitiveness and sustainable development for an enterprise. ASE Group has established the talent management training system since 2007. In addition to training outstanding managerial personnel to boost company sales, we also hope the courses can allow our staff members to develop their potential, make further progress and achieve self-development.

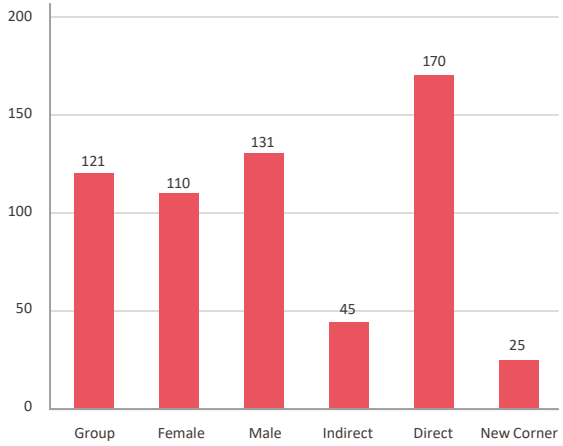


Mid-Level Managers Leadership Development	Directors & Above Talent Development
Team Leader Foundation Skills	Supervisor Management Skills
New Employee Orientation	Engineer Technical & Professional Skills

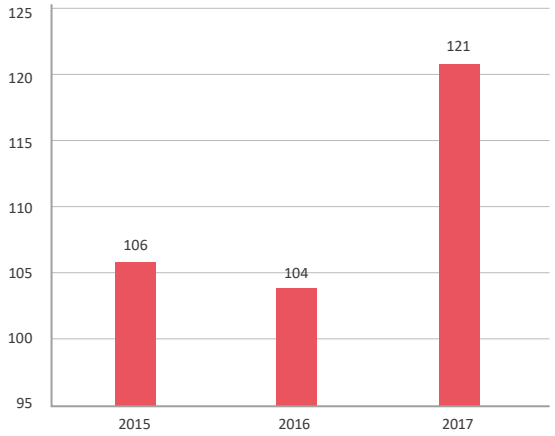
Plan—Six-Path Employee Career Development System

In ASE, all facilities need to formulate the following year's annual training and course program, according to their own business and organizational needs and adapting to the framework of ASE's Six-Path Employee Career Development System through four approaches – classroom training, online courses, on the job practice and external training.
In 2017, we invested around US$2.07 million in employee development programs, averaging about US$112 per employee. We also provide reimbursements for tuition expenses for employees pursuing an advanced degree in their field of work; in 2017, 132 degrees were sponsored by the tuition reimbursement program. We specially pay attention to the cultivation of internal lecturers, and continue to run the TTT (Train The Trainer) program year by year. By the end of 2017, the group had 3,909 internal lecturers. A total of 8,315,240 training hours were completed at ASE Group in year 2017. The average hours of training and development courses offered was 121 hours per employee.

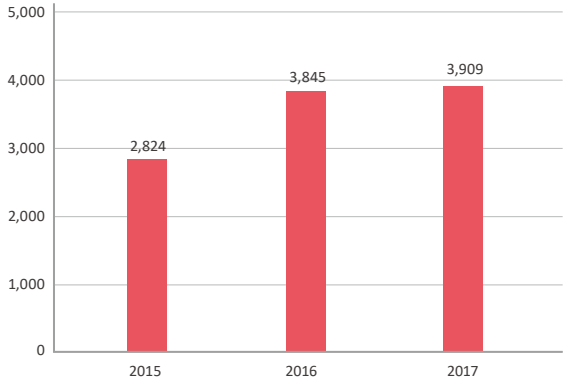
Average Hours of Training per Person (By Type)



Average Hours of Training per Person (By Year)



Group Internal Trainers(Unit: Number of People)



Do—the Annual Key Project: V-Model Training and Improvement of Competencies and Communication Skills

To enhance the effectiveness of training, we launched the V-model training (a training to begin with the end in mind) in 2017 in our China factories. A variety of approaches and teaching strategies were designed to achieve optimal results. The Kirkpatrick Model was taken into consideration in every step of the design planning, execution and measurement. Most importantly, training results were defined with measurable indicators to make it possible for trainees to understand the objectives of the training programs. Once the objectives were ascertained, it was possible to put together available resources to accomplish the training purpose.

2017 ASE Group Annual Major Execution Courses

Course Item	Executive Key Points	Business Benefit
Leadership Training Program	• To cultivate high-level management talents, responsible for the company's new business products/new technology development projects • To establish the common conscious of management and corporate accountability culture • A total of 1,480 managers to participate in this program	The revenue generated by new products, new customers, and new technology services in 2017, which is increased by 1%[1] compared to 2016
Engineering Capability Enhancement Program	• To enhance the technical capability and obtain the professional certification for product engineers/ equipment engineers/quality assurance engineers • To enhance engineers'effective technology for solving yield issues, quick catching case study and meeting customers' requirement • We have 15,113 engineers to join this program	The profit gain by rapidly acquired technical capability to service customers in 2017, which is increased 5%[2] compared to 2016

Improvement of Competencies and Communication Ability

To improve employees' communication skills, ASE Kaohsiung introduced Dale Carnegie Courses in 2012 to help increase enthusiasm and boost positive attitudes at work, as well as teach employees mutual respect and compassion for others. Each year, trainees and their supervisors share the changes in their thinking and behavior as a result of the courses.

In 2017, Jason Chang, ASE Chairman received from Joe Hart, CEO, Dale Carnegie & Associates the prestigious Dale Carnegie Leadership Award for Jason's continuous efforts in the investment in training and development of personnel and his unyielding commitment to building a sustainable enterprise in ASE .

[1] [(2017 New Business Revenue - 2016 New Business Revenue)/2016 New Business Revenue]*100%
[2] [(2017 Profit of Engineering Efficiency - 2016 Profit of Engineering Efficiency)/2016 Profit of Engineering Efficiency]*100%

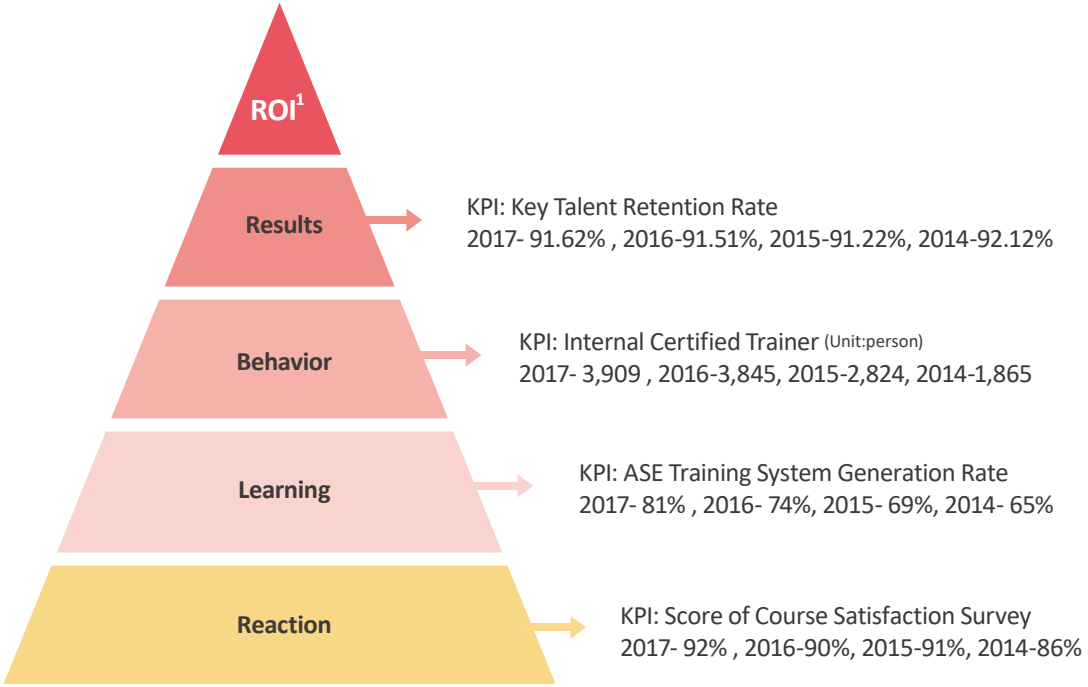
Check—Effectiveness of Training: Assessment Enhancement with the Kirkpatrick Model

To ensure the continuous improvement of the Group's overall competitiveness, we have established the "Employee Development Dashboard" since 2015 and used the Kirkpatrick Model to measure the effectiveness of training indicators.

1) Reaction evaluation—to confirm course quality and the indicator we set for this level is: Score of courses satisfaction survey
2) Learning evaluation—to confirm the employee development mode and the indicator we set for this level is: Training system generation status
3) Behavior evaluation—to confirm employees' application of what they have learned and the indicator we set for this level is: Internal certified trainer
4) Result evaluation—to confirm the contributions of trained employees to the organization and the indicator we set for this level is: The key talent retention rate and the training investment cost

The "Employee Care & Development Taskforce Team" of the ASE Corporate Sustainability Committee annually reviews the dashboard indicators at each site. Based on the dashboard performance, each site is required to establish improvement activities for employee training and development.

Assessment Indicators of Employee Training Effectiveness



The Kirkpatrick Training Evaluation Model

[1] ROI Formula:(Benefits of Talent Creation-Training Cost) /Training Costx100%

Action—Sharing & Improvement: Sharing of the Best Practices Among Sites

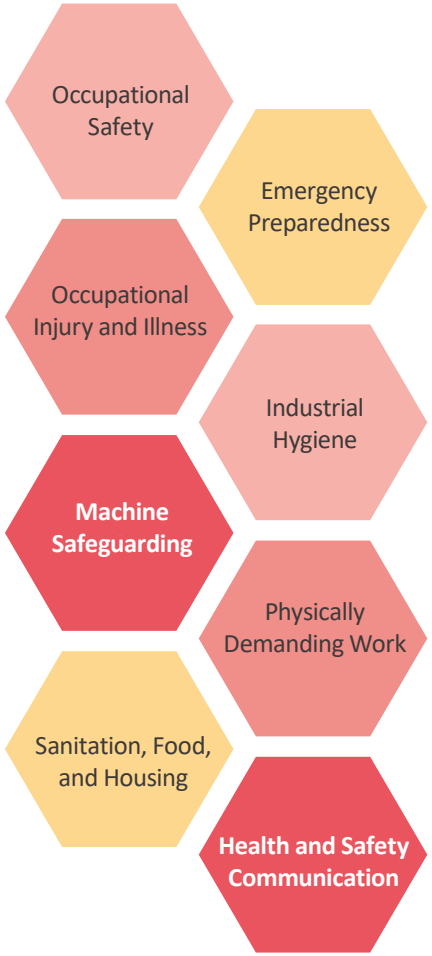
Employees' innovative spirits, talent and passion are the driving force of ASE's success. Our HR development training begins with the basic 'Six-Path Employee Career Development System' and our training results are assessed through the "Training Effectiveness Promotion Mode". We also hold internal HR seminars by inviting university professors to speak at these events. At these seminars, participants contribute ideas and engage in discussions on plans and actions to help the company's sustainable development.

In 2017, we conducted two seminars on corporate sustainability and human resource improvement practices in Taiwan and also held a V-Model training workshop in China.

6.4 Occupational Health and Safety

ASE Group is committed to providing workers with a safe, healthy and conducive work environment. We formulate occupational health and safety ("OHS") management principles to effectively prevent occupational accidents and to ensure the health and safety of our employees at the workplace. The main focuses of ASE's OHS management include OHS management system and health and medical care.

OHS Management Aspects



OHS management system

In accordance with the "OHSAS 18001", "Responsible Business Alliance Code of Conduct", and local laws and regulations, we target "zero accidents" at all of ASE's manufacturing facilities. We have established OHS management organizations, formulated management measures and procedures, and designed regular audit processes to ensure that the OHS management system is implemented properly to prevent all types of accidents and ensure employees' health and safety. ASE facilities across the globe review OHS management systems regularly and have each passed the OHSAS 18001 management system certification[1], plan is already in place to adopt ISO 45001[2], the new international standard for occupational health and safety management systems, in the near future.

ASE's global facilities observe occupational safety, emergency response, work injury and occupational disease prevention, industrial hygiene, physical labor work, machinery protection, public health and accommodation, health and safety information covered under the OHS management system. Our facilities are also certified OHSAS 18001 and compliant with local health and safety regulations. On an annual basis, we assess and identify risks for all new or modified manufacturing processes ascertain risks and establish control procedures where needed.

We identify specific high-risk manufacturing processes that could expose our employees to hazards such as ionizing radiation, noise, dangerous chemicals and dust. These employees are provided with high quality protective equipment and undergo routine medical screenings to ensure that their health is in check.

[1] We have obtained OHSAS 18001 certification for ASE-Kaohsiung, Chungli, Shanghai (A&T), Shanghai (Material), Kunshan, Suzhou, Weihai, Wuxi, Korea, and Singapore, USI-Taiwan, Zhangjiang, Shenzhen, Kunshan, and Mexico.

[2] ISO 45001, the International Standard for Occupational Health and Safety Management Systems will replace OHSAS 18001. Facilitiess that have passed the OHSAS 18001 certification will complete the changes and adopt the new standard within three years.

OHS Management Processes

Safety Requirement	Develop OHS management systems in compliance with OHSAS 18001, RBA Code of Conduct and local laws and regulations.
Risk Assessment	Develop hazard identification and risk assessment management procedure handbook, implement annual facility safety risk identification regularly, and propose high risk factor improvement measures to reduce it down to low risk. The risk rating determined is based on severity, probability of occurrence and exposure ratio.
Validation	Develop occupational health and safety management inspection regulation and procedure handbook for facility security personnel to follow and inspect facility operations and fire-fighting equipment on a regular basis. Coordinate safety and disaster prevention drills with local government's fire-fighting and disaster prevention units.
Improvement	Organize occupational health and safety education and training in employees' local mother tongue and post and promote health and safety related information in conspicuous workplace areas.

Major Occupational Injuries and Preventive Measures

In 2017, no major occupational injury involving casualties happened at ASE Group. The total number of occupational injuries was 73, a 42% reduction compared to 127 injuries in 2016. The statistics are: Injury Rate (I.R.) 0.099, Lost Day Rate (L.D.R.) 2.163, Absence Rate (A.R.) 2.67%, Occupational Disease Rate (O.D.R.) 0, disabling Frequency Rate (F.R.) 0.496 and disabling Severity Rate (S.R.) 9.243. Details are as shown in Appendix "2017 Occupational Health and Safety Statistics Data".

The F.R. and S.R. of the ATM and EMS facilities are lower than the Taiwan semiconductor industry's average.

Types of ASE's Occupational injuries include physical, chemical, ergonomic and biological injuries. In 2017, physical injury was 73 cases, a 33% reduction compared to 109 physical injuries in 2016, and no chemical, ergonomic or biological injuries occurred. Most of the physical injuries were results of falls and cuts. Improvement actions included the installation of more anti-slip strips and railings in staircases and the training of correct methods to wear protective equipment.

Occupational Injury Statistics

	2016	2017
No. of occupational injury accidents	127	73
Occupational injury rate	0.181	0.099
Lost day rate	10.27	2.163
Occupational disease rate	0	0

Disabling Injury Statistics

ATM facility	Disabling Frequency rate (F.R.)	Disabling Severity Rate (S.R.)
2016	1.141	61.919
2017	0.564	10.485
Semiconductor industry in Taiwan Three year average	0.590	12.000

EMS facility	Disabling Frequency rate (F.R.)	Disabling Severity Rate (S.R.)
2016	0.095	8.674
2017	0.267	5.058
Electronic components industry in Taiwan Three year average	0.840	26.000

Occupational Injury Incident Handling and Reporting System

ASE facilities have established occupational accident and incident reporting and investigation procedures and management procedures. When an occupational injury incident occurs, the standard handling procedure is carried out and the incident is reported to the competent local authority according to management regulations and local laws and regulations. Injury incidents and improvement of preventive measures are reviewed each quarter to ensure the plant is moving forward to the goal of zero injuries.

Occupational Injury Incident Reporting Procedures

Reporting the injury incident to the occupational safety unit in the facility (who/what/when/where)

↓

Performing initial medical treatment before taking the injured to the hospital

↓

The occupational safety unit reporting the injury incident to the local competent authority

↓

Cordoning off the site of an accident until the occupational safety unit and the competent local authority have completed the investigation and given permission for cordon removal to assure the same injury accident does not reoccur

↓

Analyzing the causes of injury accident and working out measures for long-lasting improvement; filing the accident report for record

Contractor Operation Safety Management

ASE facilities have established contractor management plans to assure safety management mechanisms can be carried out when contractors work inside the facilities and the goal of zero occupational injuries for contractors can be achieved. In 2017, no contractor casualties occurred while working in ASE facilities. There are eight types of operations entailing high risks in ASE facilities, including pipeline, hot work, confined space, live-line work, cranes operation, elevated operation, chemical filling work and working on the roof. Guidelines for high-risk operations have been instituted to serve as the basis for construction control. ASE will continue to request contractors for high-risk operations to present proof that they meet the requirements specified in OHSAS 18001.

Contractors in-plant Construction Procedures

Contractors presenting operation safety management proposals

↓

Training personnel who enter the plant and informing them of likely hazards

↓

Performing periodic patrol inspection according to the safety checklists for before, during and after construction

↓

Filing the project closure report for record

Disaster Response and Emergency Drills

All of our manufacturing facilities develop disaster response and recovery plan and conduct full-scale emergency drills annually in cooperation with the local authorities. Various scenarios are simulated at these drills to improve our disaster response plans. In 2017, we completed 1,086 drills for earthquakes, fire and chemical disasters.

Fire Drill in USI Kunshan Facility

Fire Drill in ASE Kaohsiung Facility

Health and Medical Care

ASE provides employees with comprehensive medical and health care, ranging from preventative care, statutory infectious disease emergency response procedures to emergency rescue response procedures. Through monitoring and analyzing our employees' health records, ASE is able to determine areas of risks and concerns affecting the employees' health and to actively improve their physical well-being. Employees with potential medical high risks are invited to participate in health improvement activities.

ASE continues to organize activities to help employees quit smoking and reduce weight, as well as promote healthy diets and regular exercise. ASE Kaohsiung facility also offers counseling clinics to help employees quit smoking and lose weight.

Employees' Health Examination

- Physical checkups for regular personnel
- Physical checkups for personnel working in special operations (involving ionizing radiation, dust hazard, noise over 85dB, high temperature, abnormal atmospheric pressure or special chemicals)

Health Risk Rating Management (Level 1 to 4)

- First level: Employees with results of all checkup items indicated as normal and also evaluated by physicians as having nothing abnormal
- Second level: Employees with some checkup items indicated as abnormal and the abnormalities evaluated as unrelated to work will receive health-improvement guidance before another checkup or treatment is arranged.
- Third level: Employees with some checkup items indicated as abnormal and the abnormalities initially evaluated as related to work will be scheduled to see occupational medicine specialists and reevaluated and reclassified.
- Fourth level: Employees with some checkup items indicated as abnormal and the abnormalities evaluated by physicians as related to work will be scheduled to undergo occupational disease assessment and examination procedures and receive treatment.

Employee Health Care and Intervention

- Whene employees are classified as belonging to the second level or higher, physicians will specify inappropriate kinds of work(e.g. working shifts, night time work, long hours, moving heavy objects, precision work, etc.) and the HR unit will evaluate and arrange for working-hour adjustments and flexible sick leave.
- Continue to track the cases until closing of the case, and record the details in the employee care system.

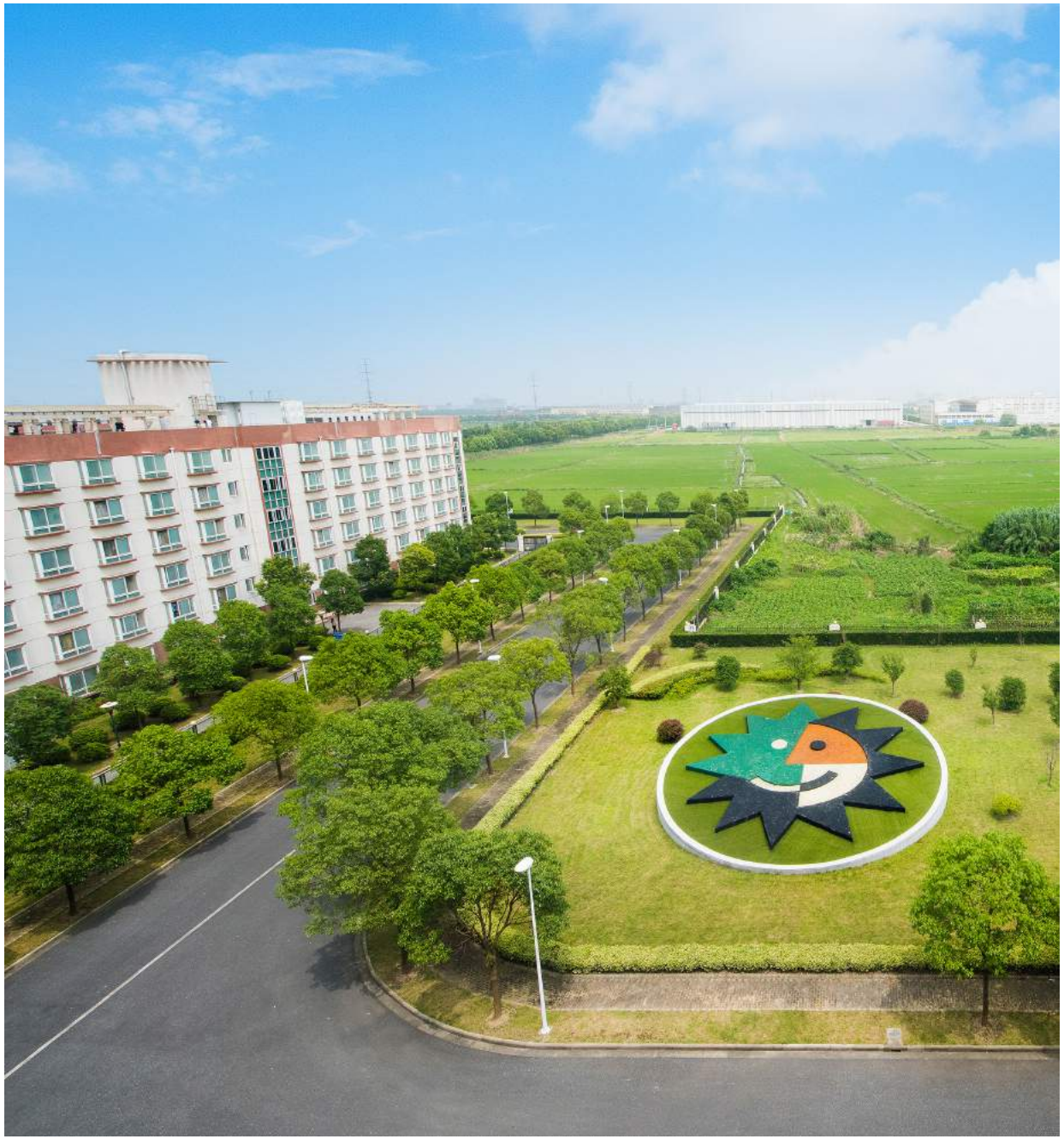
6.5 Future Plan

We are committed to developing a high-performance global team that is passionate, motivated and respectful of one another. We will continue to benchmark best practices for employee recruitment, inclusion, diversity, engagement and retention, as well as to invest in our current and prospective global workforce.

In 2018, we will focus on :

- ASE's education for sustainable development with e-learning
- Execution of employee engagement improvements in facilities of the greater China region

This is the first time that we have included TIMM sustainable value assessment results, and the results show that the sustainable value generated by ASE for its employees lies primarily increasing their competitiveness in the job market. In the future, we will continue to refine our talent cultivation system and attempt to include assessments of the sustainability value of safeguarding the health and safety of employees in the workplace. In this way, there will be a more complete picture of the sustainable value ASE generates for its employees.

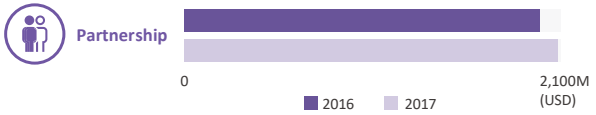


SUPPLY CHAIN DEVELOPMENT

ASE Group is committed to partnering with our suppliers to ensure that working conditions in ASE's supply chain are safe, their workers are treated with respect and dignity, and that business operations are environmentally responsible and conducted ethically.

The supply chain is a critical extension of the ASE value chain. We are actively involved in the sustainable development of our supply chain to ensure that our tier 1 suppliers and contractors provide high-quality products and services to ASE in a sustainable, ethical and responsible fashion.

Sustainable Value Assessment – Social Aspect (Suppliers)



[Link to SDGs]

2017 Key Performance:

Target Achievement Status

2017 Material Aspects	KPI	2017 Target	Status	2017 Performance	2018 Target	2020 Target
Sustainable Supply Chain	% of DRC Conflict-Free product lines of Packaging and material services	100% of product lines	Achieved	All products lines (100%) are DRC Conflict-Free	All products lines (100%) are DRC Conflict-Free	All products lines (100%) are DRC Conflict-Free
	% of DRC Conflict-Free product lines of Electronic manufacturing services	100% of product lines	Achieved	All products lines (100%) are DRC Conflict-Free	All products lines (100%) are DRC Conflict-Free	All products lines (100%) are DRC Conflict-Free
	# of supplier sustainability audits for tier 1 suppliers	100 audits	Achieved	138 supplier audits were completed covering labor, health and safety, environment and ethic indicators	Completed 100 suppliers sustainability audits	Completed 125 suppliers sustainability audits
	% of critical direct material suppliers completing RBA Self-Assessment Questionnaire (SAQ)	70%	Not Achieved	67% of critical direct material suppliers completed RBA SAQ	80% of critical direct material suppliers completed RBA SAQ	100% of critical direct material suppliers completed RBA SAQ 100%
	% of raw material suppliers with 80% of purchasing amount obtaining Greenhouse Gas verification	30%	Achieved	Raw material suppliers with 31% of purchasing amount obtaining Greenhouse Gas verification	Raw material suppliers with 50% of purchasing amount obtain Greenhouse Gas verification	Raw material suppliers with 80% of purchasing amount obtaining Greenhouse Gas verification
	% of critical direct material suppliers of our packaging and material service that complete workers' human rights risk assessment and improvement[1]	-	-	-	60% of critical direct material suppliers of our packaging and material service completed foreign workers' human rights risk assessment and improvement	100% of critical direct material suppliers of our packaging and material service completed foreign workers' human rights risk assessment and improvement
	% of purchasing amount of non-tier 1 suppliers that conduct risk assessment[2]	-	-	Non- tier 1 suppliers conducted risk assessment with 35% of purchasing amount	Non- tier 1 suppliers conducted risk assessment with 40% of purchasing amount	Non- tier 1 suppliers conducted risk assessment with 50% of purchasing amount

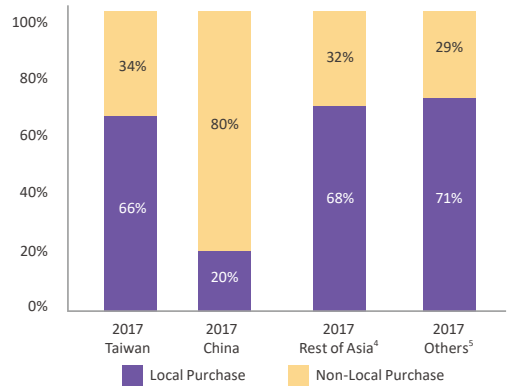
[1] This KPI is newly added in 2017.
[2] This KPI is newly added in 2017.

7.1 Supply Chain Overview

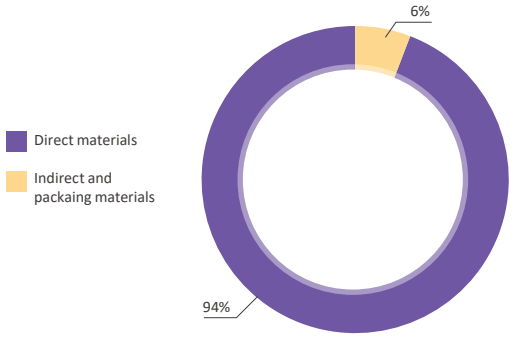
ASE Group's major manufacturing facilities for Packaging, Testing and Materials (ATM) manufacturing services and Electronic Manufacturing Services (EMS) are located in Taiwan, China, Japan, Korea, Malaysia, Singapore, USA, and Mexico. Our supply chain is divided into the following categories according to the procurement type: raw materials, equipment, facility/engineering contractors, waste treatment contractors, transport and logistics as well as service-oriented outsourcers. Among the supply type, the raw material suppliers have more significant impacts on our daily operations and manufacturing. We cooperate with more than 2,000 raw material suppliers from all over the world in the face of an increasingly complex electronic industry supply chain and global customer demand. According to the material attributes, there are two types of suppliers: direct material suppliers that provide directly manufacturing-related materials, and indirect and packaging material suppliers that provide non-manufacturing related materials. For more effective management of raw material suppliers and resources allocation, we have established a threshold system and incorporated it into the tier 1 supplier management based on the annual procurement amount, and have also implemented the management for regular and critical raw material suppliers[1].

To understand the overall status of the supply chain and the possible risks entailed, and to reduce the risk of supply disruptions, we began assessing non-tier 1 suppliers in 2017. So far, we have gathered data of more than 500 non-tier 1 suppliers (accounting for 35% of our total purchases) and classified 140 suppliers as the critical non-tier 1[2]. We conducted risk assessment with regard to their locations and supplies. In the future, we will continue to keep track of supplier risk status and execute further risk control measures.
We support sourcing from local suppliers[3] to promote the growth of the local economy. In 2017, our localized procurement spending on raw materials accounted for around 39% of our total procurement spending and the localized procurement spending increased 5% compared with 2016. Through active collaboration and technological capacity building with local suppliers, we are able to reduce carbon emissions in the overall supply chain and create local job opportunities.

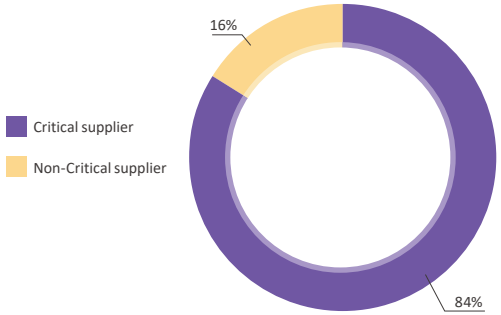
Raw Material Local Purchasing Spends



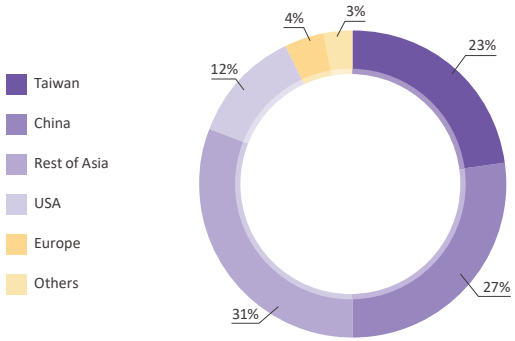
2017 Raw materials supplier category
(by annual procurement amount)



2017 Critical and Non-Critical supplier Distribution
(by annual procurement amount)



2017 Raw Material Supplier Distribution Area
(by annual procurement amount)



[1] The definition of critical raw material supplier as follow : (1) Top 85% of direct material purchasing amount, (2) Indirect material suppliers refer to those with a purchasing spending over 2 million USD with ATM; purchasing spending over 1 million USD with EMS, (3) Single source or non-substitutable suppliers
[2] The definition of critical non-tier 1 suppliers as follow : (1) Supply to critical tier 1 suppliers, (2) Supply to tier 1 direct materials suppliers who ASE spend over 10 million USD/year, (3) Supply to more than two tier 1 suppliers
[3] Local supplier refers to the supplier's manufacturing facility is located at the same country where ASE manufacturing facility is located.
[4] Rest of Asia：Japan, Korea, Malaysia and Singapore
[5] Others：USA and Mexico

7.2 Supply Chain Management Framework

ASE Group Purchasing and Supply Chain Development Policy

To communicate ASE's supplier management requirements, the ASE Group Purchasing and Supply Chain Development Policy is posted on our company website, please visit: http://ase.aseglobal.com/en/CSR/Supply_Chain_Development/Supply_Chain_Development_Policy

ASE Group Supplier Code of Conduct

Sustainable supply chains are critical to ASE's long term success. To ensure that our suppliers understand our requirements and establish sound and robust business operations, we have formulated the "ASE Group Supplier Code of Conduct (Code)" in accordance with the "ASE Group Code of Business Conduct and Ethics" and international standards.

We not only require suppliers' business conducts to strictly comply with the Code but also with the local laws and regulations where the suppliers operate, with respect to labor, health and safety, environment, business ethics and the management system. We also encourage our suppliers to require their upstream suppliers to adopt and comply with the Code.

The full copy of the Code is posted on our website, please visit: http://www.aseglobal.com/en/csr_supplier_coc.html

Supply Chain Management Strategy

As one of the leading companies in the semiconductor industry, we are conscious that we control a significant resource through our purchasing power. In order to pursue sustainable growth while meeting customers' needs, the company evaluates overall sustainable value of the supply chain in addition to cost and quality considerations in our daily procurement operations. We aim to grow together with our suppliers through developing stable partnerships, strengthening supply chain resilience and practicing responsible procurement.

ASE Group Supply Chain Management Strategy:

1. Value Oriented: To obtain a competitive overall value in the supply chain
2. Diversified Sources: To maintain at least two suppliers for the same material to ensure continuous supply
3. Quality First: To obtain the best quality products and services from suppliers
4. Strategic Cooperation: To integrate suppliers' resources and capabilities for greater innovation
5. Sustainable Sourcing: To raise suppliers' economic, environmental and social performance in sustainability
6. Responsible Minerals Sourcing: To ensure that suppliers are using only responsibly sourced, conflict-free minerals in their products

Through various projects, ASE implements the supply chain management strategy and continues to strengthen the sustainability of the supply chain.

Project Name	Objective	Project Description
Conflict Minerals Management	Sourcing of Minerals from Conflict-Free Countries	Since 2011, we have identified and survey the source of smelters and minerals in the supply chain annually. According to our supplier survey, we believe that the identified SoRs used for all of our packaging and materials services products are DRC Conflict-Free since 2015 and the electronic manufacturing services products are DRC Conflict-Free in 2017. For detailed information, please refer to the "Conflict Minerals Compliance."
Diversified Supply Chain System	Reduce the Risk of a Single Material Supply	To reduce the risk of single source procurement, ASE Chungli plant launched a 3-year project in 2014 to support capable suppliers in the development of technological capabilities compatible with ASE's quality requirements. Mass production of the products resulting from this strategic collaboration began in 2017 and the purchasing amount increased to almost 100% compared with 2016, thereby successfully achieving risk reduction targets.
Supplier Financial Risk Monitoring	Reduce the Risk of the Supply Interruption	To manage our suppliers' financial risk, USI's Procurement Department works closely with the Finance Department to monitor a supplier company's financial health so as to prevent any disruption resulting from the company's financial problems. Through preliminary risk analysis, suppliers with potential risks are identified and monitored. For the suppliers that are identified to be high-risk, the Procurement Department immediately looks for a second source supplier, and continues to monitor the high-risk suppliers' financial condition regularly every six months, to ensure effective control and to reduce the supply interruption.
End of life components active pre-monitoring	Reduce the Risk of Supply Interruption	To prevent risk of supply interruptions due to discontinued materials, USI has carried out material procurement source controls based on product life cycles and future market trends since 2015, as well as front-end risk analyses and product exit strategies for supply materials to prevent impacts on customers due to end-of-life (EOL) supply parts. USI's procurement department, in collaboration with the R&D, manufacturing, engineering and other departments, negotiates with customers in advance about introducing alternative materials for parts that may be discontinued or not sold in the future and recommends materials for new products. The project's advance evaluations and follow-ups reduce the risk of supply chain disruptions from future product discontinuations.

7.3 Supplier Sustainability Management

We consider suppliers our important partners and expect our suppliers to offer fair terms and safe working conditions to their employees. ASE does not condone the employment of child labor or forced labor by our suppliers. Any supplier found non-compliant will be removed from our supplier list. No contracts were terminated due to the use of child labor or forced labor in 2017.

To promote a higher standard of sustainability within our supply chain, ASE joined the Responsible Business Alliance ("RBA") in 2015. We actively participated in RBA annual meetings and share these experiences and discussions with all our ASE sites to strengthen our supply chain management and achieve a sustainable business operation.

Supplier Sustainability Management Approach

To fulfill ASE Group Purchasing and Supply Chain Development Policy and Commitment, we conduct a four-stage approach to promote suppliers' sustainability performance.

- Supplier Code of Conduct Commitment Letter
- Sustainability Risk Assessment Questionnaire

- Risk Assessment 1：Active Risk Assessment
- Risk Assessment 2：Sustainability Risk Assessment Questionnaire
- Risk Assessment 3：High-Risk Supplier Risk Assessment/Audit

- On-site/Off-site Audits
- Corrective Action Verification

- Trainings

Supplier Sustainability Requirement

To ensure all suppliers comply with the "ASE Group Supplier Code of Conduct", we require our new suppliers to sign the "ASE Group Supplier Code of Conduct Commitment Letter" and complete our sustainability risk assessment questionnaire covering regulatory compliance, sustainable management, conflict minerals management, environmental protection, health and safety, labor rights, human rights, etc., to assess sustainability risks associated with new suppliers or conduct the on-site audit to make sure their risk. We also encourage all suppliers to obtain international certification standards such as ISO 9001, ISO/TS 16949, ISO 14001, OHSAS 18001, ISO 14064-1, etc.

Supplier Sustainability Risk Assessment

ASE conducts a supplier sustainability risk assessment via a three-stage approach annually.

Risk Assessment 1 (RA1)：Active Risk Assessment

We conduct an initial risk assessment of suppliers based on the manufacturing location, manufacturing processes, and procurement amount.

Risk Assessment 2 (RA2)：Sustainability Risk Assessment Questionnaire

We also conduct sustainability risk assessment questionnaire on all tier 1 suppliers. However, in light of the complexities associated with the management and operations of different suppliers, we designed separate sustainability risk assessment questionnaires for critical suppliers and non-critical suppliers in 2017 to ensure the validity of the risk assessments and to protect the interests of small and medium suppliers. The questionnaire for non-critical suppliers focuses on management system requirements; the purpose is to minimize the sustainability risk to the supply chain. With critical suppliers, higher standards were applied. In addition to management system requirements, sustainable management practices and performance were also included as assessment items. In adopting a tiered system of requirements for our suppliers, we anticipate gradual reductions to sustainability risks, improvements in supply chain sustainability, and a more resilient supply system.

Risk Assessment 3 (RA3)：On-site audit/RBA VAP/RBA SAQ

After the questionnaire assessment is completed, high-risk suppliers will be subjected to further risk assessment through on-site audits and through the Validated Audit Process (VAP) of RBA. High-risk tier 1 non-critical suppliers are requested to complete RBA SAQ to validate their risk conditions and to continue to lower the risks.

In 2017, we investigated the sustainable risk status of more than 1000 suppliers and we have 70% of tier 1 suppliers complete sustainability risk assessment questionnaire. ASE conducts a supplier sustainability risk assessment via a three-stage approach annually to identify potential high-risk suppliers in the three aspects (economic, environmental and social). In the next year, we will conduct the audits of suppliers with higher potential risk and assistance will be provided to ensure that risks could be effectively controlled and reduced.

Supplier Sustainability Risk Assessment Targets and Procedures

Risk Assessment 1：

We conduct an initial risk assessment of suppliers based on the manufacturing location, manufacturing processes, and procurement amount.

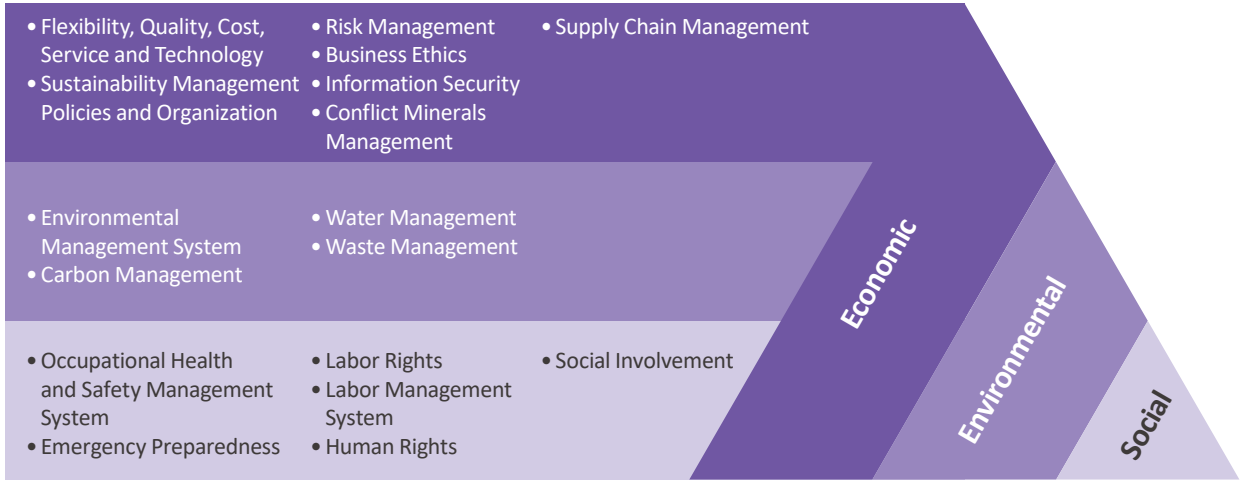
Risk Assessment 2：

Critical Suppliers:
ASE Sustainability Risk Assessment Questionnaire/ RBA SAQ
Non-Critical Suppliers:
ASE Sustainability Risk Assessment

Risk Assessment 3：

High-risk Critical Suppliers:
On-site audit/RBA VAP
High-risk Non-Critical Suppliers:
RBA SAQ

Sustainability Risk Assessment Factors



Supplier Major Sustainability Risk Factors

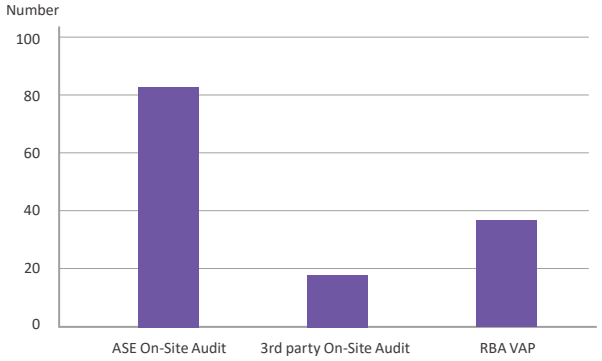
Category	Risk Factors	Description
Economic	Risk and Business Continuity Management	Lack of emergency response plan for operational continuity/Improvement plan
	Supplier Sustainability Management	Lack of specifications that outline sustainability requirements for suppliers to comply with
Environmental	Environmental Management	Lack of a process to identify compliance with Environmental rules & regulations
		Environmental risk assessment procedures have are not been implemented
Social	Occupational Health and Safety	Lack of a process to identify compliance with Occupational Health and Safety rules & regulations
	Labor Rights	Lack of a process to identify compliance with Labor rules & regulations
		Labor risk assessment procedures have not been implemented

Suppier Sustainability Audit Mechanism

To ensure effective management of our suppliers' sustainability performance, ASE regularly or non-regularly carries out on-site, off-site audits, RBA VAP and appoints third-party agencies to conduct audits on some of our critical suppliers on supplier sustainability. Based on these audit findings, suppliers are requested to respond with improvement plan within a given time frame and re-audit the results of their corrective actions in the following year. In 2017, we completed sustainability audits on 138 of our raw material suppliers and 22 of Human Resource and Service Contractors. Among them, we conducted the audit for 100% of high-risk critical suppliers and the corrective action completion ratio reached 100%. No contracts were terminated due to non-compliance in 2017.

To further enhance the resilience of our supply chain sustainability, we started to conduct questionnaire assessment/audits on non-tier 1 suppliers. In 2017, we completed 30% of non-tier 1 suppliers' sustainability questionnaire survey and 6% of non-tier 1 suppliers conducting on-site audits/RBA VAP and third-party audits. In the future, we will continue to conduct non-tier suppliers'sustainability risk assessment to maintain control of and enhance our supply chain managrment.

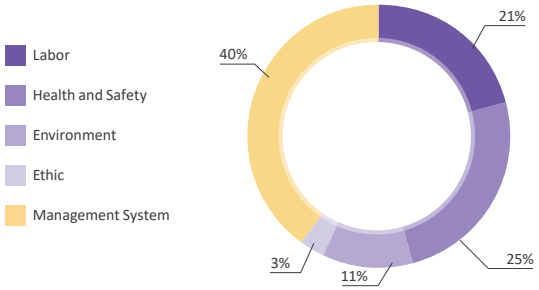
Type of Raw Material Suppliers Audits



Raw Material Supplier Audit Results and Corrective Actions

Category	RBA Classification	Key Findings	Corrective Actions
Labor	Working Hours	• Working hours exceeded 60 hours • Working seven days continuously without a one day off	• To recruit sufficient employees in response to surge production and to avoid excessive overtime due to manpower shortage • To develop standards and a monitoring mechanism for working seven days continuously with one compulsory off day
	Wages and Benefits	• Wages are deducted as a disciplinary action	• Formulate a company policy to prohibit wage deduction as a disciplinary action
	Non-Discrimination	• Failure to disclose within the recruitment contract that no discriminatory checks will be conducted	• To include the disclosure in recruitment contracts that no discriminatory checks will be conducted
Health and Safety	Emergency Preparedness	• Fire-fighting equipment are blocked • Lack of complete fire escape route plans	• Regular inspection to ensure that fire-fighting systems are functioning and escape routes are kept clear • Review and update the emergency evacuation maps in the factory area and establish a regular inspection mechanism
	Health and Safety Communication	• Lack of Health and safety information at chemical operation facility	• Safety information should be posted in all chemical work areas, marked in a language understandable by foreign employees and a regular inspection mechanism should be established
Environmental	Water Management	• Lack of storm water management program	• To establish storm water management program to prevent pollution
	Hazardous Substances	• Failure to establish a management of hazardous substance classification system	• Conduct regular inspection to ensure proper classification and storage of hazardous substances
Ethics	Protection of Identity and Non-Retaliation	• Lack of an anonymous reporting mechanism	• Establish a channel for anonymous complaints and a follow-up mechanism to protect the identities of informants
	No Improper Advantage	• Lack of the establishment of a gift giving policy	• Establish a corporate-wide gift giving policy
Management system	Supplier Responsibility	• Lack of the establishment of supplier risk assessment procedures and audits	• Establish supplier risk assessment procedures and audit guidelines
	Legal and Customer Requirements	• Lack of a complete regulatory identification program	• Establish procedures for the periodic identification of laws and regulations and customer requirements, including laws and regulations related to labor, environment, health and safety
	Risk Assessment and Risk Management	• Lack of the establishment of complete risk assessment procedures and programs	• Establish procedures for the periodic identification of risks related to labor, environment, health and safety

Supplier Sustainability Audit Findings by Category



Sustainable Supply Chain Development Program

ASE believes proactively engaging in supplier development is the key to ensure the sustainable development of our supply chain. We provide trainings, workshops, seminars and face-to face consultation to strengthen suppliers' capabilities to face the ever-changing sustainable trends and to help build up suppliers' awareness and capabilities for enhancement of their sustainable practices.

Supply Chain Greenhouse Gas Inventory Assistance Project

In response to impacts and risks resulting from global climate change, we have carried out inventory of Scope 3 emissions on our value chain. ASE's main operation facilities are in Taiwan. Enhancing the capabilities of local suppliers and assisting them in expediting the establishment of greenhouse gas management systems that comply with the regulations set forth in the "Greenhouse Gas Reduction and Management Act" of Taiwan is an important element of ASE's sustainable supply chain. Recognizing that most suppliers have not yet established greenhouse gas inventory mechanisms, ASE plans to work with external consulting groups to launch a 2-year (2018-2019) supply chain greenhouse gas inventory consultancy project to provide onsite assistance and help at least 20 suppliers adopt greenhouse gas management systems that comply with the ISO 14064-1 management standard. This will help suppliers keep track of their greenhouse gas emissions, enable them to obtain ISO 14064-1 certification, and facilitate carbon disclosure capabilities.

Supply Chain Foreign Worker Debt Bondage/Forced Labor Risk Improvement Project

Foreign labor in the supply chains are potentially subjected to forced labor or debt bondage. Such inhumane treatment may occur due to insufficient legal protections and complicated recruitment processes in the countries where they work. ASE is committed to safeguarding human rights. Starting in 2018, ASE will work with suppliers to examine their foreign worker recruitment processes, conduct due diligence and work together to make improvements. Our goal is to eliminate foreign workers being trapped in forced labor or debt bondage at our suppliers' workplace and to ensure that the foreign workers are treated with respect and dignity.

Supplier Sustainability Education and Training

To strengthen suppliers' ability to respond to global sustainability trends and risks, ASE organizes education and training on various sustainability issues and at multiple facilities to convey our requirements for supply chain management. In 2017, we conducted seven seminars/workshops in different parts of the world. 335 people from 243 suppliers attended.

Sustainability Seminar

ASE Korea held a seminar to convey ASE's management requirements and increase supplier awareness of RBA and ASE's conflict minerals management regulations to ensure that suppliers would be able to put ASE's requirements and regulations into practice. 22 people from 12 suppliers attended the seminar.

A total of 198 people from 149 suppliers participated in three Supplier Sustainability Seminars held by USI in Shanghai, Shenzhen and Taiwan facilities. In these seminars, USI's requirements toward suppliers were introduced to ensure suppliers' understanding of and compliance with USI's sustainability strategy, RBA Code and VAP implementation, ASE Conflict Minerals management requirement, and the latest international Green product regulation.

Health and Safety Family Program

ASE Chungli facility helps assist and guide the suppliers and contractors to improve their working environment and enhance their concept of safety and health, through education and training. In 2017, ASE Chungli facility conducted a two-day training for suppliers and contractors, including: ASE Chungli supplier management requirement and targets, advocacy of safety and health laws and regulations, advocacy of occupational disaster related legal responsibility. 110 people from 30 suppliers and 47 contractors attended. Future management requirements and priorities were made clear during the workshop and external lecturers were invited to give lectures on health and safety concepts and related laws and regulations.

Case-by-case Sustainability Consulting

ASE Kaohsiung conducted workshops for 5 people from 5 service contractors. High-risk sustainability items and improvement actions were explained and discussed to help the service contractors establish risk control mechanisms.

Sustainability Education and Training for Procurement Employees

To enhance the sustainability awareness of procurement personnel at all facilities, and to implement ASE Group Purchasing and Supply Chain Development Policy, the Supply Chain Task Force Team under the Corporate Sustainability Committee held several sessions of cross-facility educational and training for procurement personnel and also communicates Group management targets and key projects. The education and training covered facilities in Taiwan, China, Korea, Japan, Singapore and Malaysia, and more than 86% of our procurement employees completed the training.

The education and training topics included:

- ASE Group supply chain sustainability management policies, strategies and objectives
- ASE Group Code of Business Conduct and Ethics
- Supplier sustainability audit
- ASE Group Conflict Minerals management
- Experience sharing of RBA management and VAP implementation at facilities

Annual Global Procurement Meeting

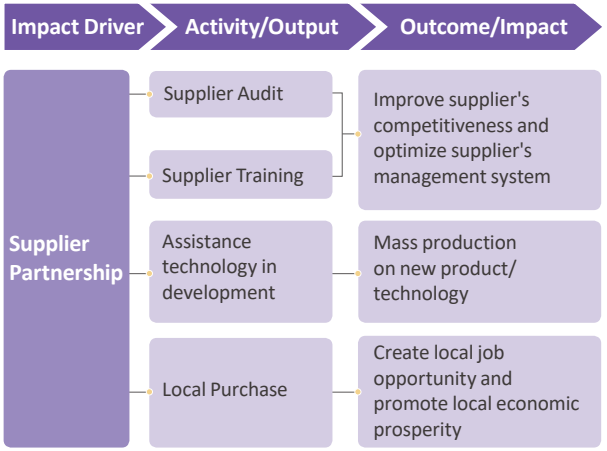

Education and training for procurement personnel in ASE Chungli


Education and training for procurement personnel in China facilities

Sustainable Value Assessment – Social Aspect (Suppliers)

ASE's social impact sustainable value assessment for suppliers shows that the primary impacts and influence paths generated by the activities under ASE's current agreements with suppliers are: 1. Enhancing supplier competitiveness by making it easier for suppliers to conform to sustainability standards and auditing during collaborations with other international customers, pinpoint key sustainability risks, and reduce importation and certification costs and time. 2. Increasing supplier revenues as a result of technology transfers and assistance in new product development from ASE. 3. Promoting the growth of the local economy and job opportunity creation through sourcing from local supplier.

In 2017, the most important sustainable value created by ASE for its suppliers was the support of local procurement. Local procurement facilitates faster service and shorter lead times as well as lower unnecessary costs, while reducing environmental impact. ASE supports sourcing from local suppliers, and we use local procurement to directly promote the growth of the local economy, create local job opportunities and economic prosperity. In 2017, the sustainable value generated by ASE for its suppliers increased relative to 2016. The primary reason was an increase in local procurement as ASE's operations grew.



ASE Best Supplier Awards Ceremony

The ASE Group hosted its annual "Best Supplier Awards 2017" event in March, with the theme "Gear towards a Sustainable World". The event serves to recognize and honor suppliers for their efforts in 2017. The awards given included "Best supplier" in the different supply categories and "Best in sustainability" for overall sustainability achievement. The "Best supplier" award recognizes outstanding suppliers in their efforts on sustainability, supply chain, environmental protection, health and safety, labor rights management and corporate sustainability culture. We also invited a speaker to share with participants on the impact of climate change in supply chain management and the opportunities that the industry can create to mitigate climate change.

7.4 Conflict Minerals Compliance

To communicate ASE's conflict minerals management requirements, the ASE Group Corporate Policy for Sourcing Conflict Minerals is posted on our company website, please visit:http://www.aseglobal.com/en/csr_conflict_minerals_compliance.html

Conflict Minerals Management

The minerals (referred to as 3TG), including tantalum (Ta), tin (Sn), tungsten (W), gold (Au), etc. are essential in the raw materials for our manufacturing process. In 2015, ASE became a member of the Responsible Minerals Initiative (RMI) and we also joined the CMRT and Due Diligence (DD) work team. Through our RMI membership, we worked with other members in addressing conflict minerals issues and discussing concrete measures to improve supply chain management.

Conflict Minerals Management Approach

- Comply with ASE Conflict Mineral Policy

- Conflict Minerals Reporting Template (CMRT)
- Conflict Minerals Representation Letters
- On-site audit

- Comply with the OECD Guidance

- Conduct IPSA

- Public Conflict Minerals Report on company website annually

Conflict Mineral Requirement

Each year, ASE communicates conflict mineral policies and requirements to our suppliers through written communication and publishing its contents on our website. The suppliers are required to comply with ASE Group conflict minerals policy and establish their own conflict minerals policies and to their own suppliers.
We also require our suppliers to actively assess and validate their supply chain, and encourage them to source minerals from Smelters or Refiners ("SoRs") that have received "conflict-free" designations by the Responsible Minerals Assurance Process ("RMAP"), or other independent third party audit program.

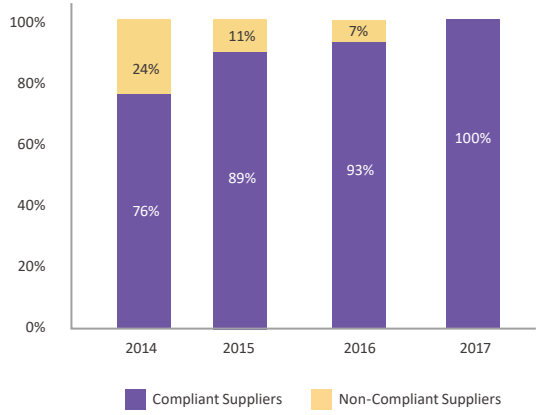
Reasonable Country of Origin Inquiry (RCOI)
Each year, ASE performs Reasonable Country of Origin Inquiry ("RCOI"), to identify and validate the sources of 3TG in our packaging and material services and electronic manufacturing services and products, and whether they come from conflict-affected regions.
Our RCOI includes two steps:

1. Identify sources of 3TG SoRs through CMRT by conducting supplier survey.
2. Suppliers are asked to sign the Representation Letters of compliance with ASE Conflict Minerals Policy and to fully reveal the source of the SoRs they sourced from.

Since 2011, we have conducted the supply chain survey to identify the source of SoRs that are used in the processes of our packaging and material services, electronic manufacturing services and products. We identified the minerals and the source of smelters through CMRT.

In 2017, we have extended the scope of supplier survey and identified 256 SoRs from more than 450 suppliers. According to the supplier survey we conducted in 2017, 100% of our suppliers are compliant with ASE's requirement for sourcing DRC conflict-free minerals.

Conflict Minerals Compliant Suppliers



Due Diligence(DD)
ASE designed its due diligence measures to conform to the Organization for Economic Co-operation and Development Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (the "OECD Guidance") and we also adopted the OECD Guidance to not only identify / assess supplier risks and mitigate these identified risks, but also to design a conflict minerals audit form for ASE suppliers. We were therefore able to provide guidance through both on-site/off-site audits to help suppliers set up management mechanisms that complied with OECD DD Guidance.

Independent Private- Sector Audit (IPSA) and Public Disclosure
ASE undertakes an Independent Private- Sector Audit ("IPSA") on our Conflict Minerals Report and DD procedure to ensure they are in compliance with the requirements set forth by the U.S. Securities and Exchange Commission ("SEC"). Each year, the Conflict Minerals Report is also disclosed publicly.

Based on our RCOI analysis and DD measures in 2017, we reasonably believe that the identified SoRs used for all of our packaging and materials services products are DRC Conflict-Free. Given the large number of suppliers for our electronic manufacturing services, we developed a sampling program to select material suppliers for the purpose of identifying SoRs. We believe that our due diligence performed based on the sampling program is sufficient and appropriate to provide a reasonable basis for our determination. Therefore, we reasonably believe that such SoRs used for all of our electronic manufacturing services products are DRC Conflict-Free.

ASE SEC Conflict Minerals Filing
We disclose the Conflict Minerals report on our company website annually. For complete file of ASE SEC Conflict Minerals Filing, please visit: http://ase.aseglobal.com/en/csr/supply_chain_development/conflict_minerals_compliance

7.5 Future Plan

We believe that ASE's long-term operation and success shall rely on the sustainable supply chain development. Therefore, ASE is committed to working with our suppliers to uphold global standards for a sustainable, innovative and ethical supply chain network. We will continue to encourage and work closely with our suppliers through our supply chain management framework to steer and strengthen our supply chain.

The focuses of our plan are:

- As the Group expands the scope of its operations, we will continue to ensure that all of our products are DRC Conflict-Free.
- Achieve 100% for raw material suppliers with 80% of purchasing amount to obtain Greenhouse Gas Emission verification by 2020.
- Achieve 100% for critical direct materials' suppliers of packaging and materials to complete their foreign employee human rights assessments and improvements by 2020.

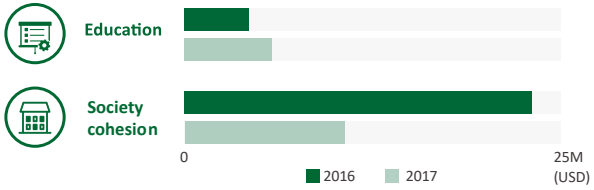
This is the first time that we have included TIMM sustainable value assessment results, and the social aspect on suppliers showed that education, training, and auditing had a significant impact on the competitiveness of suppliers. In the future, ASE will continue to educate, train, and audit suppliers to sure a mutually beneficial, win-win supply chain relationship.

CORPORATE CITIZENSHIP & SOCIAL INVOLVEMENT

ASE Group is committed to devote ourselves to the community through charity, education and social work which optimize resource allocation and maximize social influences.

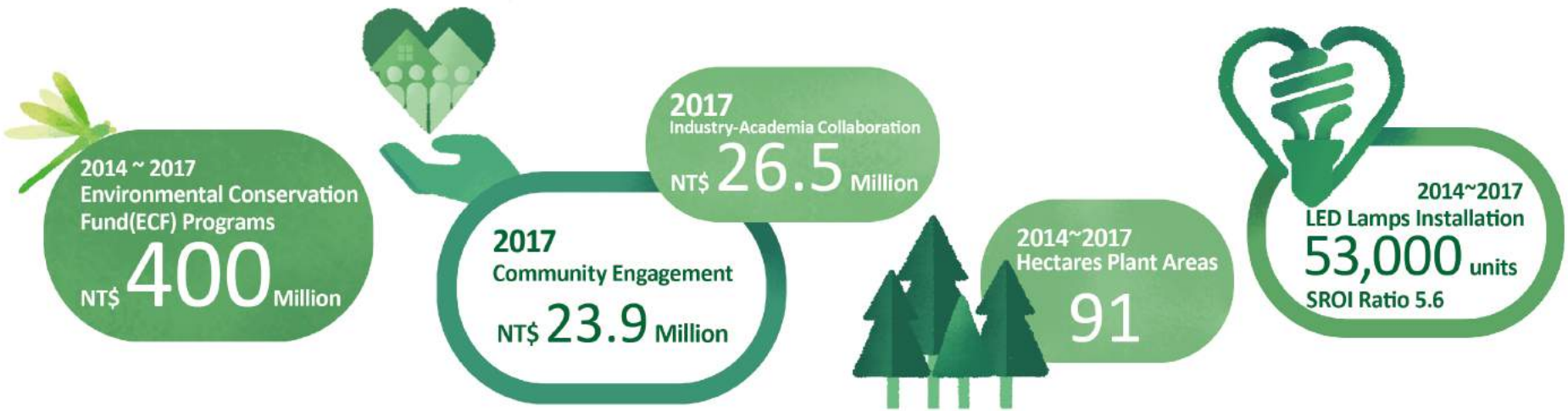
ASE continuously engages with local communities, NGOs, government, industry, academic and other stakeholders in strategic ways to establish trust and obtain direct input to support social development, while achieving corporate and societal value. At the same time, we strive to facilitate public advocacy related to our core business and sustainable development to promote a positive corporate image and create a meaningful influence to society.

Sustainable Value Assessment – Social Aspect (Social Involvement)



[Link to SDGs]

2017 Key Performance:



Social Involvement Focus & Benefits/KPIs

Focus	Link to SDGs	Business Drivers	Business Benefits & KPIs	Social/Environmental Benefits & KPIs
Environmental Conservation • Environmental Education Promotion • Environmental Quality Enhancement • Environmental Impact Minimization • Environmental Arts Promotion	4 QUALITY EDUCATION 13 CLIMATE ACTION 17 PARTNERSHIPS FOR THE GOALS	One of the ASE Group's priorities is the lowering of our impact on the environment. We are committed to promoting the research and development of eco-friendly technologies, upgrading our manufacturing efficiency, and applying the knowledge thus gained to electronic products for end users. We use activities and promotional strategies to further environmental education, improve the quality of the environment, and spread environmentally-conscious arts and culture in an effort to educate end users and change their consumption habits while creating greater business value. Education and activities on how to mitigate and adapt to climate change can increase the semiconductor industry's supply chain value while integrating the internal and external resources of local communities, NGOs, the government, schools, and other stakeholders. We hope these activities will have a positive influence on stakeholders' awareness and green consumption.	**Promotion of eco-friendly technologies; improvements to manufacturing efficiency** **2017:** Participated in 11 joint eco-friendly technology projects with schools and research institutions • High-concentration dimethyl sulfoxide (DMSO) waste liquid removal rate of 100 percent • Volume of outsourced high-concentration waste liquid treatment was reduced by 667 tons, leading to annual cost savings of US$ 563,000 **2015-2017:** • Participated in 32 joint eco-friendly technology projects with schools or research institutes	**Environmental impact reductions and quality of life improvements** **2017:** • Installed 13,176 LED light tubes at 14 schools resulting in annual energy savings of 527,000 kWh and carbon emissions reduction of 280 tons CO_2e • Conducted 10 environmental education courses with 1,225 participants; produced 10 environmental education videos and 2 sets of plans in environmental education lesson **2015-2017:** • Installed 53,267 LED light tubes at 46 schools resulting in annual energy savings of 2 million kWh and carbon emissions reduction of 1,120 tons CO_2e

Focus	Link to SDGs	Business Drivers	Business Benefits & KPIs	Social/Environmental Benefits & KPIs
Industry-Academia Collaborations • Cooperative Education & Internship • Acadrmic Research & Collaboration • Scholarships	17 PARTNERSHIPS FOR THE GOALS 8 DECENT WORK AND ECONOMIC GROWTH 4 QUALITY EDUCATION	The semiconductor industry is a high-tech industry driven heavily by research and development. ASE engages in research collaborations with academia to develop next-generation semiconductor technology and materials in order to enhance its competitiveness. We also offer semiconductor courses in collaboration with local schools, scholarships, and internships to attract and recruit people into the industry and provide skill development for the workforce.	**Cultivation of human capital and promotion of technological innovation and development for the semiconductor industry** **2017:** • Participated in 16 industry-academia collaborations involving semiconductor assembly, advanced materials, automation technology • 122 students participated in semiconductor academic courses **2015~2017:** • Participated in 41 industry-academia collaborations involving semiconductor assembly, advanced materials, automation technology, and more • 457 students participated in academic courses	**Increasing youth employability and filling the gap in educational resources2017:** • Recruited 390 interns • Collaborated with over 40 schools **2015~2017:** • Recruited 1,983 interns
Community Engagement • Community Development • Charity Care • Emergency Care and Assistance	11 SUSTAINABLE CITIES AND COMMUNITIES 1 NO POVERTY	ASE is fully engaged in the support and development of the local communities where we operate. Our main objectives are to upgrade and develop the economic, social, and environmental links between cities and rural areas, and to develop a participatory, integrated, and sustainable living environment. We also try to make a positive difference in the lives of the disadvantaged by providing assistance to them according to their unique circumstances.	**Promotion of joint development of the company and local community through corporate citizenship activities** **2017:** • 8,800 hours volunteering • 2,380 volunteers **2015~2017:** • 23,200 hours volunteering • 4,930 volunteers	**Improvements to the quality of life and strengthening of emergency care and disaster response in our communities** **2017:** • 122 students after-school care from disadvantaged households • 40 charitable institutions donation • 578 students from low-income family received donations **2015~2017:** • 410 students after-school care from disadvantaged households • 1,990 low-income family students donation
Public Advocacy • Core Business • Sustainable Development	17 PARTNERSHIPS FOR THE GOALS 8 DECENT WORK AND ECONOMIC GROWTH	Public advocacy promotes sustainable global partnerships and the sharing of knowledge, expertise and technological capacity with stakeholders to co-develop next generation technology capabilities and to participate in initiatives in the fields of sustainable development (economic, environmental and social). The main focuses include "core business" initiatives and "sustainable development" initiatives.	**To promote technological innovation and development** • Participated in the Taiwan Alliance for Sustainable Supply's chemical materials safety cloud platform project; drafted the "Sustainable Materials Standardization" • Collaborated with 94 semiconductor and electric manufacturing institutions	**Promotion of ESG(environmental, social, and corporate governance) compliant behavior, and the support for the formulation of semiconductor CSR initiatives** • Signed the Taiwan Semiconductor Industry Association's convention on waste disposal self-regulation • Collaborating with 42 sustainable institutions

8.1 Social Involvement Overview

Corporate citizenship and social involvement do not only include the provision of financial assistance but also involve the achievement of social regeneration. As the highest governance body of ASE's social involvement, the CSC coordinates and supervises the establishment and implementation of policies and specifications related to social involvement. The CSC periodically reviews the promotion and implementation of social involvement based on ASE's four strategies: "environment conservation", "industry-academia collaboration", "community engagement" and "public advocacy". The Social Involvement Taskforce under the CSC promotes relevant policies and specifications to our global manufacturing sites, assesses risks and opportunities in participating in public affairs, and plans and facilitates action plans. Global manufacturing sites are responsible for planning the internal organization, structure, and allocation of responsibilities, and formulating and implementing action plans and targets in accordance with corporate policies and specifications. The taskforce also reviews each development aspect's related inputs, benefits and impacts in accordance with the London Benchmark Group (LBG) standard. In 2017, our total spend in social involvement was about US$ 5.6 million, accounting for 0.5% of ASE Group's profit before income tax[1], involving nearly 2,380 employee volunteers with over 8,860 volunteer hours.

[1] The 2017 pre-tax net profit was NT$31,020,663K (for more information, please refer to ASE Group 20-F).

ASE Group Public Affairs Engagement Policy

As an international corporate citizen, ASE endeavours to advance public welfare while devoting ourselves to conducting stable business operations and managing shareholder returns. We seek to effect positive change and impact across the globe society.

Therefore, we are committed to ensuring that any contributions or spending regarding public affairs we make are:

1. for the purpose of supporting public affairs or promoting public policies;
2. in compliance with all applicable accounting principles and laws and regulations of countries in which we operate;
3. adequately disclosed in accordance with applicable laws and regulations and reporting requirements; and
4. in accordance with our relevant ethical policies and specifications.

And the organizations that ASE supports are limited to those:

1. have a consistent view with ASE on the core business and sustainable development relevant issues that ASE cares about; and
2. provide venues for discussion regarding public policy issues and advocate for common business interests.

Distribution by Four Aspects

Year	2015	2016	2017
Environmental Conservation	58.5%	43.8%	60.0%
Industry-Academic Collaborations	18.4%	13.7%	15.9%
Community Engagement	19.8%	36.5%	14.4%
Public Advocacy	3.3%	6.0%	9.7%
Contribution	NT$ 171 Million (US$ 5.2 Million)	NT$ 228 Million (US$ 7.2 Million)	NT$ 166 Million (US$ 5.6 Million)

Distribution by Application

Year	2015	2016	2017
Charitable Donations	21.0 %	9.7 %	6.7 %
Community Investments	27.7 %	34.0 %	41.8 %
Commercial Initiative	51.3 %	56.3 %	51.5 %

Type of Contribution

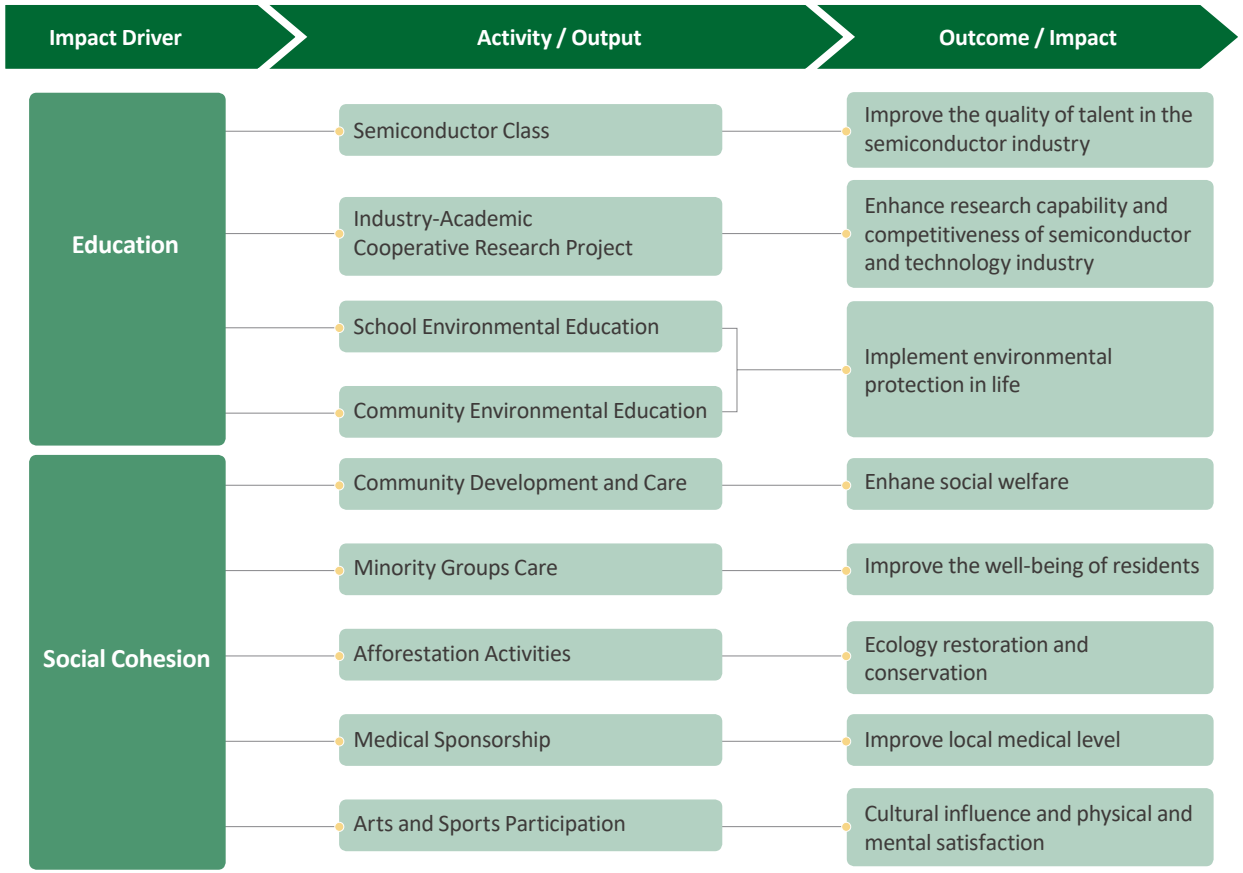
Year	2015	2016	2017
Cash	83.3 %	74 %	89.3 %
Volunteer Cost	1.4 %	1.1 %	1.9 %
In-kind Giving Cost	14.3 %	23.2 %	4.3 %
Management Overheads	1.0 %	1.7 %	4.5 %

Sustainable Value Assessment – Social Aspect (Social Involvement)

In 2017, ASE redefined its role as a corporate citizen by generating its most-ever social value. In the future, ASE's corporate citizenship and social involvement activities aim to create new milestones in social value management. We will closely examine our inputs, outputs, and measure the value of our social impact. In 2017, we completed the analysis on the social return on investment (SROI) of our Campus LED project. We also completed the TIMM social impact sustainable value assessment where we had focused on social involvement activities in the areas of environmental education and initiatives, industry-academia collaborations, reforestation, community care and care for disadvantaged groups, disaster relief and sponsorships of the arts, culture, and sports. All of these were summed up into the two aspects of education and social cohesion, and performance quantifications and monetization assessments were carried out to help us to understand the impacts of our social involvement activities, optimize the use of precious resources, and plan future sustainable social involvement activities.

On education, we are focusing on talent development for the semiconductor industry and environmental education. We are working closely with academia by providing resources and practical experience to improve the quality of capable personnel, as well as the research capabilities and competitiveness of the semiconductor and technology industries. In addition, we hope to use environmental education to promote environmental protection and encourage people to incorporate eco-friendly practices into their everyday lives. The sustainable value generated through our educational efforts was higher in 2017 compared to 2016, due to the proportional increase in the investment of more resources in environmental education in 2017.

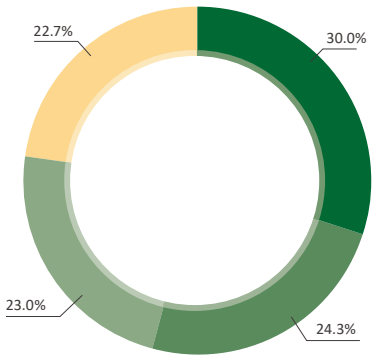
On social cohesion relations, we continue to communicate and engage with neighboring communities in our facilities. We use appropriate social cohesion relations activities to bolster our relationships with these local communities. In 2017, the ASE Group began using a strategic and value-maximizing thinking model to carry out our social cohesion relations activities. The sustainable value generated in 2017 through social cohesion relations was lower than in 2016, due mainly to the adjustments in the direction and scale of our reforestation projects. We will continue to communicate and engage with the communities where we operate and develop our relationships through appropriate social cohesion activities.



8.2 Environmental Conservation

Since 2014, ASE has committed to donating at least NT$100 million per year for at least 30 years, to environmental protection in Taiwan. In 2017, NT$100 million was allocated for the ASE Cultural and Educational Foundation to implement "Environmental Conservation Fund (ECF)" programs. The focused aspects of the environmental conservation programs include "Environmental Education Promotion", "Environmental Quality Enhancement", "Environmental Impact Minimization" and "Environmental Arts Promotion".

Distribution by 2017 ECF Programs



- Environmental Education Promotion
- Environmental Quality Enhancement
- Environmental Impact Minimization
- Environmental Arts Promotion

Campus LED SROI

The ASE Cultural and Educational Foundation launched the Campus LED project in 2014. Since then, it has helped many schools to replace old, inefficient lighting which provided students a brightly lit learning environment and protection for their eyesight. We started off in Kaohsiung and Nantou to replace old lighting with energy-efficient T8 LED and backend tube lighting. This project is one of the ASE Group's long-term environmental conservation programs.

In order to determine the social benefits and impact on stakeholders from the Campus LED project, we conducted a Social Return on Investment (SROI) assessment of this project in 2017. We interviewed teachers and the colleagues who helped to carry out the project to gain a better understanding of the degree of change for stakeholders and to collect the most direct feedback. We were able to corroborate the benefits incurred by the project, which included improving overall education quality, strengthening corporate identity, improving the company's public image, promoting energy efficiency, maintaining good community relations, protecting students' vision, and promoting local employment. The "improvements to overall education quality" showed the highest return. It was followed by "promoting energy efficiency," "improving the company's public image" and "protecting students' vision." We also used financial indicators to perform monetization calculations, and discovered that the project brought an average of NT$5.6 in social benefits to the schools involved for every NT$1 invested (calculated for a period of five years beginning in 2014).

2017 Accomplishments of ECF Programs

Programs	Major Projects	Programs	Major Projects
Environmental Education Promotion	• Environmental Thesis/Dissertation Awards • Environmental Technology Research Projects • Southern Taiwan Environmental Education Projects • Environmental Issues Debate Competition • "CommonWealth" Magazine in Taiwan - Creative Teaching Material Competition • River Water Resource Documentary Films • Environmental and Ecological Courses for School Students • Environmental Education Films Projects	Environmental Impact Minimization	• Campus LED Donation Projects • Water Recycling Model Plant Operation Sponsorship in NEPZ • Cuora Flavomarginata (yellow-margined box turtle) Conservation and Restoration • Green Supply Chain Projects • Sustainable Circular Economy Forum
Environmental Quality Enhancement	• Afforestation projects • Reef conservation projects • EcoMobility World Festival and Congress 2017 • Beach cleanup activities	Environmental Arts Promotion	• Environmental Arts Projects • Lantern Festival in Kaohsiung • Spring Arts Festival in Kaohsiung • Public Social Welfare Sponsorships

Major Projects

Afforestation Projects

Algal Reef Conservation

Environmental Issues Debate Competition

Sustainable Circular Economy Forum

Campus LED Donation Projects

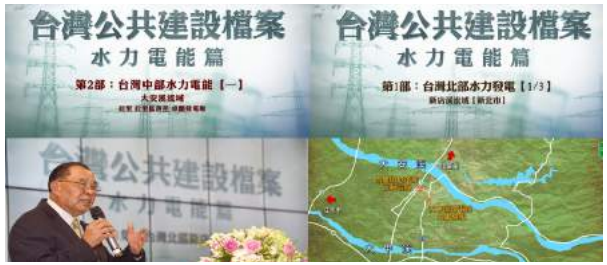
Environmental Thesis/Dissertation Awards

Cuora Flavomarginata (yellow-margined box turtle) Conservation and Restoration

Creative Teaching Material Competition

Environmental Technology Research with University

EcoMobility World Festival and Congress



River Documentary Video

Environmental Exploration Films

Community River Conservation

Earth Day Beach Cleanup Activity

ASE Everywhere

In 2017, the ASE Cultural and Educational Foundation published ASE Everywhere for the second consecutive year. This publication describes ASE's efforts to conserve mountain and forest areas, provide care for children, protect the environment, and promote arts and culture from rural areas to urban centers with the aim of spreading the ideals of caring and service to every corner of the country. It also summarizes ASE's achievements in environmental education promotion, environmental quality enhancement, environmental impact minimization, and environmental arts promotion in recent years. For more information, please visit www.asefund.org.tw

8.3 Industry-Academia Collaborations

Industry-academia collaboration helps ASE to continue its innovative leadership within the semiconductor industry. For many years, we have worked with top universities to create job opportunities for the graduates and increase the country's competitiveness and improve social and economic environment. The ASE Group invests large resources as well as research to maintain its leading position in semiconductor technology. Moreover, the talent cultivation and enhanced academic capabilities that emerge from industry-academia collaborations not only benefit ASE, but also allow the entire semiconductor industry to thrive.

ASE has created key programs like "cooperative education and internship", "academic research collaboration", and "scholarships" to leverage on the expertise from these academic resources.In 2017, ASE continued its collaborations with local schools, contributing over US$ 0.89 million, including US$ 0.67 million towards 16 technology research collaborations and US$ 0.18 million for scholarships. We also recruited 390 interns and enrolled 122 students in the semiconductor master's degree program. Nearly 40 schools and research institutions in Taiwan, China, Singapore, Malaysia, South Korea, Japan, etc. were involved in these collaborations.

2017 Accomplishments of Industry-Academia Collaboration Programs

Programs	Projects	Stakeholders	Achievements
• Cooperative education and internships • Academic research collaborations • Scholarships	• ASE Industry-Academia Career Development Project / Employment Orientation Project • Semiconductor Assembly and Manufacturing Education Program • ASE Internship • Company visits • Semiconductor Assembly Technology Research Projects • Manufacturing Automation Research Projects • Advanced Semiconductor Materials R&D Projects • Environmental Field Building Project • Scholarship for students in Remote Areas	• University Students • Academic Institutions and Research Institutes • Semiconductor Industry	• Improving Career Prospects and Competitiveness of Students • Improving Academic R&D Capabilities • Cultivating Talented Personnel for the Semiconductor Industry

Smart Manufacturing at ASE's Kaohsiung Facility

As the leader in outsourced semiconductor assembly and test, ASE is taking steps towards smart manufacturing. In 2015, the Kaohsiung facility began collaborating with top universities on automation technology research. Since then, 14 joint projects have been proposed to strengthen automated manufacturing capabilities, establish technological leadership and build competitiveness. This collaboration resulted in a system that analyzes the movements of smart robots and uses modeling and simulations to determine optimal pathways, thereby maximizing each robot's productivity. Big data analytics are used to detect and predict machine anomalies, and health indicators are used for self-management to maintain stable production. More importantly, the introduction of technology can help to improve employee productivity and set up more creative and challenging tasks. Upgrading the role of management can also create per capita value growth and help to achieve ASE's goal of establishing unmanned factories.

ASE Korea (academic scholarships)

ASE Malaysia (interns taking a CSR course)

ASE Kaohsiung (industry-academia collaboration on assembly technology)

ASE Chungli (interns from OP, ME, IT departments)

ASE Singapore (student tours)

ASE Japan (interns)

8.4 Community Engagement

ASE Group seeks not only to create economic value but also to develop alongside local communities. We hope community engagement activities will lead to value system and idea exchanges with local communities and people, allowing them to better understand the ASE Group's philosophy in sustainable operations and for ASE to achieve the goal of maximizing positive benefits of our operations.

As part of our effort to continuously create economic value and simultaneously extend the company's values, we are committed to incorporating community resources and grow together with local communities. We focus on "Community Development", "Charity Care", and "Emergency Care and Assistance" programs with the ASE Charitable Foundation[1]. In 2017, we contributed over US$0.8 million for community engagement activities. We provided afterschool care for 122 students from disadvantaged households, offered financial assistance to 638 students from disadvantaged families and made donations to 40 charities. In addition, ASE Group Chairman Jason Chang and his siblings have established the Social Welfare Charity Foundation[2] to commemorate their mother and actively promote charitable activities.

ASE Chungli
Community Clean-up

ASE Kaohsiung
Beach Clean-Up

ASE Japan
Community Thanksgiven Festival

ASE Korea
Donate to Low-Income Family Care

ASE Singapore
Community Care, Yellow Ribbon Prison Run

ASE Malaysia
Underprivileged Care and Charity Donation

ASE Kunshan
Community arts Activity

ASE Wuxi
Community Clean-Up

ASE Charitable Foundation, Chungli
Underprivileged Care and Charity Donation

ASE Charitable Foundation, Kaohsiung
Underprivileged Care

[1] Please visit www.warmer.com.tw for details about ASE Charitable Foundation.
[2] The enterprising efforts and astude business leadership of Madam Chang-Yao Hung-yin, one of the founders of the ASE Group, has helped the company to become a global conglomerate today. Madam Chang was also affectionately known as 'Mama Chang' for her compassion to the employees and the community, which was reflected in her many charitable contributions and personal involvement. To continue the efforts of Madam Chang, Chairman Jason Chang and his siblings have contributed NT$300 million to establish the Chang-Yao Hung-yin Social Welfare Charity Foundation after her passing.

USI Taiwan
Reading Culture and Parental Involvement

USI Zhangjiang
Charitable Road Running

USI Mexico
Community Charity

USI Shenzhen
Community care, Charity Donation

USI
Tree Planting at Inner Mongolia

USI Kunshan
Donate to Low-Income Family Care

USI Jinqiao
Community Care, Charity Donation

8.5 Public Advocacy

As the global leader in semiconductor assembly and test, ASE seeks to extend a positive influence across the industry, the environment, the society and the economy.

We recognize that ASE needs to play a more visible role as an advocate of important industry issues. In line with the United Nations' commitment to improving the welfare of humanity, ASE is committed to various initiatives related to its core business as well as to environmental, social and economic aspects of sustainable development. We participate in initiatives related to issues that we are knowledgeable about and that matter to us. These issues include corporate sustainability and economic development; technological innovation and development; environmental projects; climate change; human rights; and supply chains.

In 2017, ASE contributed US$0.54 million to external initiatives and was active in over 136 external organizations, allowing the ASE Group to exert a broader social impact through the sharing of our sustainable development value system with the industry and with value chain partners.

2017 key advocacy, initiatives and industry associations supported by ASE:

Taiwan Alliance for Sustainable Supply (TASS)

ASE initiated the Taiwan Alliance for Sustainable Supply in 2016, and launched it with other semiconductor suppliers in January 2017. The alliance actively and continuously promotes the overall supply management capabilities of every industry. The Sustainable Materials Standardization Information and Specifications were formulated to implement environmental safety and health management, and to enhance sustainable development in Taiwan's semiconductor assembly and testing industry and in the environment. The standards are in line with the U.N. Globally Harmonized System of Classification and Labelling of Chemicals (GHS), and also incorporate managerial requirements for green products, environmental protection, safety, and sustainability. They allow for upstream and downstream linkage and integration into the semiconductor industry's day-to-day management and contingency plans for R&D, production, transport, storage, usage, and waste. They also help to educate workers about proper chemical use, thereby strengthening chemical safety and supervisory mechanisms.

TASS, SEMI Taiwan and TPCA Cooperation MOU

Global Semiconductor Alliance (GSA)
Since 2000, ASE has been a member of the Global Semiconductor Alliance, an organization that represents nearly 350 member companies throughout 35 countries and over 75% of industry revenues. The GSA provides a unique platform for ASE to interact with many players from across the entire semiconductor ecosystem to the broader electronics ecosystem. ASE staunchly participates at GSA events throughout the US, Europe, and Asia, where we can present knowledge leadership and technology impact, and engage in thought exchange on all important topics affecting our industry. Alongside ASE executive positions on the Board of Directors and frontline GSA committees, ASE also actively contributes within specialized GSA Working Groups, tailored towards disciplines including IoT Security and Automotive.

Semiconductor Equipment and Materials International Taiwan Branch (SEMI Taiwan)
SEMI is the global industry association serving the manufacturing supply chain for the electronics industry. The association represents the collective interests of members and advocates for the industry on many public policy issues--ranging from export control to tax policy to environmental issues. SEMI works with many international and professional trade organizations to inform, educate and advocate responsible policies on a variety of industry issues. SEMI membership provides ASE with many valuable opportunities to share technology value propositions and initiate business collaborations. ASE holds leadership positions at SEMI including a seat on the International Board of Directors, member of the CTO Council and chair of the advanced packaging committee, all of which provide solid platforms for ASE to share perspective on market evolution, ecosystem expansion, heterogeneous integration trends, packaging advancements, and much more. ASE is highly active in the participation of highly-regarded SEMI global events focused on diverse topics including education, business, technology and sustainability.

Taiwan Semiconductor Industry Association (TSIA)
The Environment, Safety and Health (ESH) committee was an initiative formed by ASE and its peers in the OSAT industry to find solutions to address Taiwan's workplace safety and environmental issues. The committee also submits proposals on environmental regulations to the government through the ITRI (Industrial Technology Research Institute), which include Waste Disposal Act, Regulations Governing Collection of Soil and Groundwater Pollution Remediation Fees, Air Pollution Control Fee Collection Regulations, and GHG reduction and performance standards, etc. ASE has signed the Taiwan Semiconductor Industry Association's convention on waste disposal self-regulation and commissioned an independent third party to assist the company in auditing its compliance in accordance with commonly accepted evaluation and auditing standards for waste disposal and reuse by high-tech industries. ASE is committed to making continued improvements to the common evaluation and auditing standards, supporting compliant manufacturers, and strictly supervising underperforming companies while helping them to improve their management capabilities.

2017 Semicon Taiwan Opening

2017 SEMI Taiwan Leadship Froum

Taiwan Semiconductor Industry Association Convention

Industry Organizations in which ASE Actively Participated

Corporate Sustainability and Economic Development	• Global Semiconductor Alliance (GSA) • Semiconductor Equipment and Materials International (SEMI Taiwan) • International Electronics Manufacturing Initiative (iNEMI) • China Quality Management Association For Electronics Industry (CQAE) • SHANGHAI INTEGRATED CIRCUIT INDUSTRY ASSOCIATION (SICA) • Shanghai Integrated Circuit Industry Association (CSIA) • Taiwan Semiconductor Industry Association (TSIA) • Taiwan Printed Circuit Association (TPCA) • Chinese National Association of Industry and Commerce, Taiwan (CNAIC) • Taiwan Business Council for Sustainable Development (BCSD-Taiwan) • Taiwan Institute for Sustainable Energy (TAISE)
Technological Innovation and Development	• MicroElectronics Packaging and Test Engineering Council (MEPTEC) • PCI-SIG Association • Universal Serial Bus Association • Taiwan IC Industry & Academia Research Alliance (TIARA) • Taiwan IOT Technology and Industry Association (TwIoTA) • International Microelectronics Assembly and Packaging Society (IMAPS) • Microfluidics Technology Consortium (MFTC)
Environmental Engineering and Climate Change	• Carbon Disclosure Project (CDP) • The Chiness Institute of Environmental Engineering (CIEnvE)
Human Rights and Supply Chains	• Responsible Business Alliance (RBA) • Responsible Minerals Initiative (RMI) • Taiwan Alliance for Sustainable Supply (TASS) • Industrial Safety and Health Association, Taiwan (ISHA-Taiwan)

8.5 Future Plan

The core concept behind the ASE Group's sustainable operations is to maximize its positive social value. In the future, we will continue invest resources and strategically carrying out social engagement activities.

ASE carried out its first-ever social impact assessment in 2017. In the future, we will gradually introduce a system for social impact assessment while referencing the methodology for Social and Logic Model analysis of the SROI guidelines to determine and measure the impacts of our use of resources on stakeholders. We will also use the Social and Logic Model analysis and the TIMM methodology to better calculate the social investment and return of every activity. We will use this as one of our guidelines when determining resource investment in social activities.

APPENDIX

Corporate Milestones

Please see ASE's website at http://ase.aseglobal.com/en/About/milestones

Awards and Recognition from Government and National/International Authoritative Bodies

2017	ASE Group	Chairman Jason Chang received the Dale Carnegie Leadership Award
	ASE Group	Named for 2 years in a row, "Industry Leader" and included as a constituent stock in "DJSI World" index and "DJSI Emerging Markets" index of "The Dow Jones Sustainability Indices (DJSI)"
	ASE Group	Attained A- level Leadership in the CDP (formerly known as the Carbon Disclosure Project)
	ASE Group	Included in FTSE4Good Emerging Index
	ASE Group	Top 20% Listed and OTC Companies by Corporate Governance Evaluation System
	ASE Group	Selected as constituent stock of "TWSE CG 100 Index"
	ASE Group	Selected as "Common Wealth Magazine –Excellence in Corporate Social Responsibility TOP 50 Large Enterprises"
	ASE Group	"Taiwan Top 50 Corporate Sustainability Report" - Gold Medal Award, "Innovation and Growth Awards", "Climate Leadership Awards", and "Supply Chain Management Awards" from Taiwan Institute for Sustainable Energy (TAISE)
	ASE Group	Included in the "CSR 50 Index by Asian Correspondent"
	ASE Kaohsiung	Received BSI's Sustainable Innovation Award
	ASE Kaohsiung	Received "Industrial GHG Voluntary Reduction Excellent Manufacturer" by Industrial Development Bureau, Ministry of Economic Affairs (K11)
	ASE Kaohsiung	Received "Green Procurement Award" by Environmental Protection Bureau of Kaohsiung City
	ASE Kaohsiung	Received Nanzih Export Processing Zone's Gold Award for Excellence in Water Saving (K7) and Silver Awards for Excellence in Water Saving (K8, K9)
	ASE Kaohsiung	Received Nanzih Export Processing Zone's Gold Award for Excellence in Energy Saving (K5) and Silver Awards for Excellence in Energy Saving (K8, K9)
	ASE Kaohsiung	Received Ministry of Education Sports Administration's Exercise Enterprise Certification
	ASE Kaohsiung	Recognized by Kaohsiung City Government Labor Affairs Bureau as an Excellent Employer of Foreign Migrant Workers
	ASE Shanghai	Named a Work Safety Standardization Tier 2 Enterprise by State Administration of Work Safety
	ASE Shanghai	Named a Water Conservation Model Enterprise by Shanghai Municipality
	ASE Suzhou	Named provincial-level Water Conserving Enterprise
	ASE Suzhou	Named a Top 10 Enterprise in Employee Care by Suzhou Industrial Park Union
	ASE Japan	Recognized for "Excellence in Energy-saving Campaign in Winter"
	USI Shanghai	"The 3rd China (Shanghai) Listed Company Corporate Social Responsibility Summit - Outstanding Enterprise Award"
	USI Shanghai	Received the Shanghai Harmonious Labor Relations Compliant Enterprise award
	USI Shanghai	Included in "Shanghai Top 100 Enterprises", "Shanghai TOP 100 Manufacturing Enterprises", and "China TOP 500 Enterprises"
	USI Shanghai	Named Top 10 IC Companies with Top Economic Benefits
	USI Shanghai	Received the "Outstanding Technology Pioneer Award" and the "Outstanding Supply Chain Innovation Award" for Chinese Listed Companies at the Jinzhi Awards
	USI Shenzhen	Included in Shenzhen Top 100 Enterprises
	USI Kunshan	Commended by Qiandeng Town Government for Eco-friendly Advanced Enterprise, 10 Best Safe Manufacturers, 10 Best Environmental Development Enterprises and Top 10 Tax-paying Domestic Enterprises
	USI Kunshan	Received Kunshan City's Model Enterprise for Dust Hazard Control
	USI Taiwan	Received Sports Administration's Exercise Enterprise Certification

Environmental Data

A. The environmental data (waste, water, energy, GHG & air pollutant) of our manufacturing facilities around the world over the past four years are presented in the table below:

Category	Environmental performance index	Unit	2014	2015	2016	2017
Waste	Total produced	metric ton	46,300	51,319	54,464	53,638
	Total recycled and reuse	metric ton	25,669	32,981	38,243	38,115
	Non recycled and reuse	metric ton	20,631	18,338	16,221	15,523
	Recycling and reuse rate	%	55	64	70	71
Water	Water withdrawal[1]	metric ton	18,551,477	16,007,827	15,147,097	16,034,472
	Water withdrawal intensity	metric ton/thousand USD revenue	2.285	1.853	1.811	1.639
	Ultra-pure water usage	metric ton	16,950,253	15,830,028	17,034,405	17,890,269
	Water recycled and reuse	metric ton	9,968,002	13,133,452	15,096,545	15,175,519
	Recycle rate	%	54	82	100	95
	Wastewater discharge	metric ton	15,417,764	14,858,116	12,615,460	11,742,595
Energy	Electricity consumption	MWh	1,996,392	2,143,438	2,229,426	2,300,523
	Renewable electricity	MWh	3,488	4,492	5,658	195,595
	Non-renewable electricity	MWh	1,992,904	2,138,946	2,223,768	2,104,928
	Electricity intensity	MWh/ thousand USD revenue	0.246	0.248	0.267	0.235
	Liquefied Petroleum Gas (LPG)	GJ	2,316	10,958	11,407	8,374
	Liquefied Natural Gas (LNG)	GJ	229,497	290,743	332,126	381,022
	Motor gasoline[2]	GJ	17,389	21,740	10,196	8,843
	Diesel[3]	GJ	78,285	51,777	78,824	16,637
GHG	SCOPE 1	tCO_2e	39,008	51,794	56,764	60,675
	SCOPE 2	tCO_2e	1,178,779	1,273,570	1,328,044	1,215,698
	SCOPE 1 + SCOPE 2	tCO_2e	1,217,787	1,325,364	1,384,808	1,276,373
	GHG intensity	tCO_2e / thousand USD revenue	0.150	0.153	0.166	0.130
	PFC emissions/ number package output	kg CO_2e/kPCs	0.00025	0.00055	0.00060	0.00045
Air emission	VOC (Volatile organic compounds)	metric ton	250	330	269	281

[1] In response to the revision of GRI Standards, "rainwater collected directly and stored by the organization" is added in the reporting requirement in Disclosure 303-1, 2014~2016 water withdrawal data is updated.
[2] As facility data were revised, 2014-2016 values have been updated.
[3] As facility data were revised, 2014-2016 values have been updated.

B. Effluent quality of our facilities with on-site wastewater treatment[1]

		Taiwan_ to land		Taiwan_ to ocean		China		Japan[2]		Korea		Malaysia	
Item	Unit	Effluent standard	Min.~Max.	Effluent standard	Min.~Max.	Effluent standard	Min.~Max.	Effluent standard	Min.~Max.	Effluent standard	Min.~Max.	Effluent standard	Min.~Max.
pH	pH	6~9	7~8	6~9	7~8	6~9	6~9	5.8~8.5	7~8	5.8~8.6	7~8	5.5~9.0	6~8
COD concentration	mg/L	<100	0~36	<300	6~112	<500	10~440	-	-	<90	2~15	<200	4~103
BOD concentration	mg/L	-	0~17.4	<150	0~65.4	<300	0~135	<25	0.1~6	<80	0~14	<50	3~29
Suspended Solid(SS) concentration	mg/L	<30	1~24.7	<150	1.9~9.2	<400	8~125	<60	0.1~45	<80	0~2	<100	1~6
Cu^{2+} concentration	mg/L	<3	0~0.6	<2	0~0.4	<1	0~0.1	<1	<0.1	<3	0~0.1	<1	0~.0.1
Ni^{2+} concentration	mg/L	<1	0~0.1	<1	0~0.1	<0.5	0~0.1	-	-	-	-	<1	0~0.1

[1] ISE Labs, ASE Singapore and three electronic manufacturing service facilities (Kunshan, Shenzhen and Mexico) do not have on-site wastewater treatment, thus not included in the statistics.
[2] ASE Japan complies with Yamagata Prefecture's effluent standard.

Social Data

A. ASE Global Workforce Structure

ASE Global Workforce Structure			Taiwan		China		Rest of Asia		Other		Sub-total		Total	
Type		Gender	Number	Ratio	Number	Ratio	Number	Ratio	Number	Ratio	Number	Ratio	Number	Ratio
Overall Employee Gender Ratio		Male	17,797	25.87%	13,582	19.74%	2,787	4.05%	421	0.61%	34,587	50.28%	68,789	100%
		Female	17,878	25.99%	10,983	15.97%	4,540	6.60%	801	1.16%	34,202	49.72%		
Employee Category Ratio	Management	Male	1,651	41.50%	879	22.10%	257	6.46%	53	1.33%	2,840	71.39%	3,978	5.78%
		Female	630	15.84%	431	10.83%	54	1.36%	23	0.58%	1,138	28.61%		
	Engineering	Male	10,636	57.52%	3,421	18.50%	1,903	10.29%	90	0.49%	16,050	86.80%	18,490	26.88%
		Female	1,417	7.66%	670	3.62%	340	1.84%	13	0.07%	2,440	13.20%		
	Administration	Male	477	10.25%	709	15.24%	266	5.72%	54	1.16%	1,506	32.37%	4,652	6.76%
		Female	1,404	30.18%	1,103	23.71%	552	11.87%	87	1.87%	3,146	67.63%		
	Direct Labor	Male	5,033	12.08%	8,572	20.57%	361	0.87%	224	0.54%	14,190	34.05%	41,669	60.58%
		Female	14,427	34.62%	8,780	21.07%	3,594	8.63%	678	1.63%	27,479	65.95%		
Regular/ Non-Regular Employee Ratio	Regular Employee	Male	17,669	27.70%	10,853	17.02%	2,774	4.35%	421	0.66%	31,717	49.73%	63,781	92.72%
		Female	17,817	27.93%	8,915	13.98%	4,531	7.10%	801	1.26%	32,064	50.27%		
	Non-Regular Employee	Male	128	2.56%	2,729	54.49%	13	0.26%	0	0.00%	2,870	57.31%	5,008	7.28%
		Female	61	1.22%	2,068	41.29%	9	0.18%	0	0.00%	2,138	42.69%		
Senior Management	Local Hired	Male	1,098	57.16%	212	11.04%	177	9.21%	38	1.98%	1,525	79.39%	1,921	90.27%
		Female	263	13.69%	86	4.48%	40	2.08%	7	0.36%	396	20.61%		
	Non-Native Hired	Male	13	6.28%	152	73.43%	13	6.28%	2	0.97%	180	86.96%	207	9.73%
		Female	2	0.97%	18	8.70%	6	2.90%	1	0.48%	27	13.04%		
Employee Age Distribution	16 ~ 30		10,421	15.15%	18,223	26.49%	2,782	4.04%	574	0.83%	32,000	46.52%	68,789	100%
	31~ 49		23,732	34.50%	6,239	9.07%	3,723	5.41%	468	0.68%	34,162	49.66%		
	above 50		1,522	2.21%	103	0.15%	822	1.19%	180	0.26%	2,627	3.82%		
New Employee Age Distribution	16 ~ 30		3,184	11.49%	18,341	65.25%	977	3.48%	583	2.07%	23,085	83.31%	27,710	100%
	31 ~ 49		1,781	6.43%	2,266	8.06%	257	0.91%	224	0.80%	4,528	16.34%		
	above 50		32	0.12%	7	0.02%	15	0.05%	43	0.15%	97	0.35%		

B.Statistics Regarding Parental Leave

Item	Gender	Taiwan	China[1]	Rest of Asia	Total
Number of Employee Entitled to Parental Leave	Male	2,263	0	1,365	3,628
	Female	1,563	0	2,380	3,943
Number of Employee Applying for Parental Leave	Male	93	0	74	167
	Female	427	0	131	558
Number of Reinstatement of Employee's Parental Leave	Male	55	NA	74	129
	Female	304	NA	80	384
Rate of Reinstatement of Employee's Parental Leave	Male	77.46%	NA	100.00%	88.97%
	Female	86.12%	NA	61.07%	79.34%
Number of Retention of Employee's Parental Leave	Male	55	NA	72	127
	Female	280	NA	80	292
Rate of Retention of Employee's Parental Leave	Male	100.00%	NA	97.30%	98.45%
	Female	92.11%	NA	100.00%	76.04%

[1] In China, no regulation of parental leave and ASE has maternity leave & paternity leave.

C.Employees Occupational Health and Safety Statistics

Item		Gender	Taiwan	China	Rest of Asia	Americas
Category of Occupational Injury	Number of Physical Injury	Male	17	9	6	0
		Female	22	9	10	0
	Number of Chemical Injury	Male	0	0	0	0
		Female	0	0	0	0
	Number of Ergonomic Injury	Male	0	0	0	0
		Female	0	0	0	0
	Number of Biological Injury	Male	0	0	0	0
		Female	0	0	0	0
Injury Rate(I.R.)[1]		Male	0.094	0.080	0.159	0
		Female	0.114	0.082	0.174	0
Lost Day Rate (L.D.R.)[2]		Male	1.405	1.489	2.054	0
		Female	3.402	3.236	0.598	0
Absentee Rate (A.R.)[3]		Male	1.10%	4.03%	0.61%	0.01%
		Female	2.21%	6.41%	0.74%	0.03%
Occupational Diseases Rate (O.D.R.)[4]		Male	0	0	0	0
		Female	0	0	0	0

[1] I.R. = Total # of injuries x 200,000 / Total hours worked
[2] L.D.R. = Total # of lost days x 200,000 / Total hours worked
[3] A.R. = (Total # of missed (absentee) days over the period / Total # of workforce days worked for same period) * 100 %
[4] O.D.R. = Total # of occupational diseases cases x 200,000 / Total hours worked

D. Contractor Occupational Health and Safety Statistics

Item		Gender	Taiwan	China	Rest of Asia	Americas
Category of Occupational Injury	Number of Physical Injury	Male	0	0	0	0
		Female	0	0	0	0
	Number of Chemical Injury	Male	0	0	0	0
		Female	0	0	0	0
	Number of Ergonomic Injury	Male	0	0	0	0
		Female	0	0	0	0
	Number of Biological Injury	Male	0	0	0	0
		Female	0	0	0	0
Injury Rate(I.R.)		Male	0	0	0	0
		Female	0	0	0	0

Critical Supplier List (ATM) in 2017

3M	Haesung DS	LINTEC	Resound Technology
ADVANTEK	Henkel	Merck	Samsung Electro-Mechanics
Air Liquide	Heraeus	Mitsubishi Gas Chemical	SH Electronics Taiwan
ASM Pacific	Hitachi Chemical	Mitsui Chemicals	Shinko Electric
Ato Tech	Hon Hai Precision	Mitsui High-tec	Shinwon Tech
Chemleader Corporation	Hwa Shu Enterprise	MK Electron	Simmtech
Daewon	HWAYEON Plastic	Murata Manufacturing	Small Precision Tools
DAISHO Denshi	IBIDEN	NAMICS	Sumitomo Bakelite
DISCO	INNOX	Nan Ya Printed Circuit Board	Sun Surface
Dou Yee	ITW	Nippon Micrometal	Tai Hong Circuit Industrial
Dow Chemical	Kinsus Interconnect Technology	Nitto Denko	Tanaka
Fujifilm Electronic Materials	Kulicke&Soffa	Peak International	Tokyo Ohka Kogyo
Furukawa	Kyocera	PECO	Unimicron Technology Corporation
Fusheng Electronics	LG Innotek	Phoenix Pioneer Technology	Yantai Zhaoji Kanfort Precious Metal

Third Party Assurance Statement

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INDEPENDENT AUDITORS' LIMITED ASSURANCE REPORT

The Board of Directors and Shareholders
Advanced Semiconductor Engineering, Inc.

We have performed a limited assurance engagement on the Corporate Social Responsibility Report ("the Report") of Advanced Semiconductor Engineering, Inc. ("the Company") for the year ended December 31, 2017.

Responsibilities of Management for the Report

Management is responsible for the preparation of the Report in accordance with Taiwan Stock Exchange Corporation Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TWSE Listed Companies and GRI Standards for core option and other applicable rules according to its sector features, and for such internal control as management determines is necessary to enable the preparation of the Report that are free from material misstatement.

Auditor's Responsibilities for the Limited Assurance Engagement performed on the Report

Except as stated in the following paragraph, we conducted our work on the Report in accordance with the International Standard on Assurance Engagements 3000 (revised) (ISAE 3000 (revised)) to express our conclusion on whether the information in the Report was stated fairly, in all material respects, in accordance with the abovementioned reporting criteria. The nature, timing and extent of procedures performed in a limited assurance engagement are different from and more limited than a reasonable assurance engagement and, therefore, a lower assurance level is obtained than a reasonable assurance.

The information on greenhouse gas emission (scope 1, scope 2 and scope 3) and related energy and electricity consumption that is disclosed in the Report has been verified by other third party verification organization. Thus, the scope of this Independent Auditor's Limited Assurance Report does not include conclusion on the disclosure of information on greenhouse gas emission (scope 1, scope 2 and scope 3) and related energy and electricity consumption.

We applied professional judgment in the planning and conduct of our work to obtain evidence supporting the limited assurance. Because of the inherent limitations of any internal control, there is an unavoidable risk that even some material misstatements may remain undetected. The procedures we performed include, but not limited to:

- Obtaining and reading the Report.
- Inquiring management and personnel involved in the preparation of the Report to understand the policies and procedures for the preparation of the Report.
- Inquiring the personnel responsible for the preparation of the Report to understand the process, controls, and information systems in the preparation of the Report.

- Analyzing and examining, on a test basis, the documents and records supporting the Report.

Independence and Quality Controls

We have complied with the independence and other ethical requirements of The Norm of Professional Ethics for Certified Public Accountant in the Republic of China, which contains integrity, objectivity, professional competence and due care, confidentiality and professional behavior as the fundamental principles. In addition, the firm applies Statement of Auditing Standard No. 46 "Quality Control for Public Accounting Firms" issued by the Accounting Research and Development Foundation of the Republic of China and, accordingly, maintains a comprehensive system of quality controls, including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

Conclusion

Based on the procedures performed and evidence obtained, nothing has come to our attention that causes us to believe that the information in the Report is not stated fairly, in all material respects, in accordance with the abovementioned reporting criteria.

Deloitte & Touche

Deloitte & Touche
Taipei, Taiwan
Republic of China

June 20, 2018

Notice to Readers

For the convenience of readers, the independent auditor's limited assurance report has been translated into English from the original Chinese version prepared and used in the Republic of China. If there is any conflict between the English version and the original Chinese version or any difference in the interpretation of the two versions, the Chinese-language independent auditor's limited assurance report shall prevail.

GRI Content Index

GRI Standard	Disclosure	Related Section / Explanatory Notes	Page No.
GRI 102: General Disclosures 2016			
102-1	Name of the organization	1. ABOUT OUR COMPANY	11
102-2	Activities, brands, products, and services	1.3 Products and Services No products or services are banned in 2017.	12
102-3	Location of headquarters	1. ABOUT OUR COMPANY	11
102-4	Location of operations	1.2 Company Profile - Global Operation	11
102-5	Ownership and legal form	1. ABOUT OUR COMPANY	11
102-6	Markets served	1.5 Financial Performance	17
102-7	Scale of the organization	1.2 Company Profile - Global Operation 1.5 Financial Performance 6.1 Overview of ASE Employees	11, 17, 70
102-8	Information on employees and other workers	6.1 Overview of ASE Employees Appendix: Social Data	70~73, 118
102-9	Supply chain	1.2 Company Profile - ASE Turnkey Services 7.1 Supply Chain Overview	11, 88
102-10	Significant changes to the organization and its supply chain	No significant change	-
102-11	Precautionary Principle or approach	4.7 Risk Management	44, 45
102-12	External initiatives	8.5 Public advocacy	112
102-13	Membership of associations	8.5 Public advocacy	
102-14	Statement from senior decision-maker	Letter from the Chairman	8, 9
102-15	Key impacts, risks, and opportunities	4.7 Risk Management	44, 45
102-16	Values, principles, standards, and norms of behavior	4.3 Code of Business Conduct and Ethics	38, 39
102-17	Mechanisms for advice and concerns about ethics	4.3 Code of Business Conduct and Ethics	38, 39
102-18	Governance structure	2.1 Sustainability Management Organization 4.1 Board of Directors	19, 34
102-19	Delegating authority	2.1 Sustainability Management Organization	19
102-20	Executive-level responsibility for economic, environmental, and social topics	2.1 Sustainability Management Organization	19

GRI Standard	Disclosure	Related Section / Explanatory Notes	Page No.
GRI 102: General Disclosures 2016			
102-22	Composition of the highest governance body and its committees	4.1 Board of Directors	34
102-23	Chair of the highest governance body	4.1 Board of Directors	34
102-25	Conflicts of interest	4.1 Board of Directors	34
102-26	Role of highest governance body in setting purpose, values, and strategy	2.1 Sustainability Management Organization 4.1 Board of Directors	19, 34, 35
102-27	Collective knowledge of highest governance body	4.1 Board of Directors	35
102-29	Identifying and managing economic, environmental, and social impacts	2.1 Sustainability Management Organization 4.1 Board of Directors	19, 35
102-32	Highest governance body's role in sustainability reporting	This report was approved and authorized by the Chairman of Corporate Sustainability Committee.	-
102-33	Communicating critical concerns	2.1 Sustainability Management Organization 4.1 Board of Directors	19, 35
102-40	List of stakeholder groups	3.1 Identification and Communication with Stakeholders	27
102-41	Collective bargaining agreements	6.2 Employee Care - Labor Unions	74
102-42	Identifying and selecting stakeholders	3.1 Identification and Communication with Stakeholders	27
102-43	Approach to stakeholder engagement	3.1 Identification and Communication with Stakeholders	27
102-44	Key topics and concerns raised	3.2 Materiality Assessment - Results of Materiality Assessment	29
102-45	Entities included in the consolidated financial statements	ABOUT OUR REPORTING The scope of the Report encompasses our principal manufacturing subsidiaries but not wholly-owned intermediate holding companies, internal trading companies and those companies without active operations.	-
102-46	Defining report content and topic Boundaries	3.2 Materiality Assessment - Materiality Assessment Procedures	28
102-47	List of material topics	3.2 Materiality Assessment - Materiality Assessment Procedures	28
102-48	Restatements of information	There is no restatement of information from previous report.	-

GRI Standard	Disclosure	Related Section / Explanatory Notes	Page No.
GRI 102: General Disclosures 2016			
102-49	Changes in reporting	No significant change	-
102-50	Reporting period	ABOUT OUR REPORTING	6
102-51	Date of most recent report	The previous report was published in June 2017.	-
102-52	Reporting cycle	We publish CSR Report annually.	-
102-53	Contact point for questions regarding the report	ABOUT OUR REPORTING	6
102-54	Claims of reporting in accordance with the GRI Standards	ABOUT OUR REPORTING	6
102-55	GRI content index	Appendix-GRI Content Index	124
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GRI 201: Economic Performance 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	Letter from the Chairman 1.5 Financial Performance	8, 9, 17
103-3	Evaluation of the management approach	Letter from the Chairman 1.5 Financial Performance	8, 9, 17
201-1	Direct economic value generated and distributed	1.5 Financial Performance 2.4 Sustainable Value Assessment	17, 24, 25
201-2	Financial implications and other risks and opportunities due to climate change	5.1 Climate Change Management and Energy Efficiency	49
201-4	Financial assistance received from government	ASE is entitled to tax incentive. Please refer to page 74-75 of our English Annual Report or page 76 of our Chinese Annual Report.	-
GRI 204: Procurement Practices 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	7.3 Supplier Sustainability Management	90
103-3	Evaluation of the management approach	7 SUPPLY CHAIN DEVELOPMENT - 2017 Key Performance	87
204-1	Proportion of spending on local suppliers	7.1 Supply Chain Overview	88

GRI Standard	Disclosure	Related Section / Explanatory Notes	Page No.
GRI 205: Anti-corruption 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	4.3 Code of Business Conduct and Ethics	38, 39
103-3	Evaluation of the management approach	4.3 Code of Business Conduct and Ethics	38, 39
205-3	Confirmed incidents of corruption and actions taken	4.3 Code of Business Conduct and Ethics	38, 39
GRI 206: Anti-competitive Behavior 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	4.3 Code of Business Conduct and Ethics	38, 39
103-3	Evaluation of the management approach	4.3 Code of Business Conduct and Ethics	38, 39
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	In 2017, ASE was not subjected to any legal actions regarding anti-competitive behavior and violations of anti-trust and monopoly legislation.	-
GRI 302: Energy 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	5.1 Climate Change Management and Energy Efficiency	49
103-3	Evaluation of the management approach	5.1 Climate Change Management and Energy Efficiency	49
302-1	Energy consumption within the organization	5.1 Climate Change Management and Energy Efficiency-Energy Management and Conservation	54
302-3	Energy intensity	5.1 Climate Change Management and Energy Efficiency-Energy Management and Conservation	54
302-4	Reduction of energy consumption	5.1 Climate Change Management and Energy Efficiency-Energy Management and Conservation	56
GRI 303: Water 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	5.2 Water Resource Management	57

GRI Standard	Disclosure	Related Section / Explanatory Notes	Page No.
GRI 303: Water 2016 (GRI 103: Management Approach 2016)			
103-3	Evaluation of the management approach	5.2 Water Resource Management	57
303-1	Water withdrawal by source	5.2 Water Resource Management	57
303-3	Water recycled and reused	5.2 Water Resource Management	58
GRI 305: Emissions 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	5.1 Climate Change Management and Energy Efficiency	53
103-3	Evaluation of the management approach	5.1 Climate Change Management and Energy Efficiency	53
305-1	Direct (Scope 1) GHG emissions	5.1 Climate Change Management and Energy Efficiency-Greenhouse Gas Emissions	53
305-2	Energy indirect (Scope 2) GHG emissions	5.1 Climate Change Management and Energy Efficiency-Greenhouse Gas Emissions	53
305-3	Other indirect (Scope 3) GHG emissions	5.1 Climate Change Management and Energy Efficiency-Greenhouse Gas Emissions (partial disclosure)	53
305-4	GHG emissions intensity	5.1 Climate Change Management and Energy Efficiency-Greenhouse Gas Emissions	53
305-5	Reduction of GHG emissions	5.1 Climate Change Management and Energy Efficiency-Overall Energy Conservation Results	-
305-6	Emissions of ozone-depleting substances (ODS)	5.3 Pollution Prevention - Gas Emissions Control	60
305-7	Nitrogen oxides, sulfur oxides, and other significant air emissions	5.3 Pollution Prevention - Gas Emissions Control	60
GRI 306: Effluents and Waste 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	5.2 Water Resource Management 5.3 Pollution Prevention	59
103-3	Evaluation of the management approach	5.2 Water Resource Management 5.3 Pollution Prevention	59
306-1	Water discharge by quality and destination	5.2 Water Resource Management - Wastewater Management	58

GRI Standard	Disclosure	Related Section / Explanatory Notes	Page No.
GRI 306: Effluents and Waste 2016 (GRI 103: Management Approach 2016)			
306-2	Waste by type and disposal method	5.3 Pollution Prevention - Waste Management	59
306-3	Significant spills	No significant spill in 2017.	-
GRI 307: Environmental Compliance 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	4.6 Regulatory Compliance	43
103-3	Evaluation of the management approach	4.6 Regulatory Compliance 3.2 Materiality Assessment - Strategic goals of key issues	43, 30
307-1	Non-compliance with environmental laws and regulations	In 2017, we received 2 environmental-related Notices of Violation (NOVs), and the total fines was NT$114,095.	-
GRI 308: Supplier Environmental Assessment 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	7.3 Supplier Sustainability Management - Supplier Sustainability Risk Assessment	91, 92
103-3	Evaluation of the management approach	7 SUPPLY CHAIN DEVELOPMENT - 2017 Key Performance	87
308-1	New suppliers that were screened using environmental criteria	7.3 Supplier Sustainability Management - Supplier Sustainability Requirement/ Supplier Sustainability Risk Assessment	90~92
308-2	Negative environmental impacts in the supply chain and actions taken	7.3 Supplier Sustainability Management - Supplier Sustainability Requirement/ Supplier Sustainability Risk Assessment	90~92
GRI 401: Employment 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	6.1 Overview of ASE Employees - Global workforce diversity and inclusion	70~72
103-3	Evaluation of the management approach	6.1 Overview of ASE Employees	71
401-1	New employee hires and employee turnover	6.1 Overview of ASE Employees	72

GRI Standard	Disclosure	Related Section / Explanatory Notes	Page No.
GRI 401: Employment 2016 (GRI 103: Management Approach 2016)			
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	6.2 Employee Care - Compensation & Welfare	74
401-3	Parental leave	Appendix: Social Data - Statistics Regarding Parental Leave	119
GRI 402: Labor/Management Relations 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	6.2 Employee Care - Employee Communication	74~76
103-3	Evaluation of the management approach	6.2 Employee Care - Employee Communication	74~76
402-1	Minimum notice periods regarding operational changes	With regard to dismissal and disbursement, we provide reasonable advance notice to to the affected employees as required under applicable local regulations where we operate. Currently, there are no collective agreements in force.	-
GRI 403: Occupational Health and Safety 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	6.4 Occupational Health and Safety	81
103-3	Evaluation of the management approach	6. Employee Care - 2017 Key Performance	69
403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	Appendix: Social Data - Employee Occupational Health and Safety Statistics	120
403-3	Workers with high incidence or high risk of diseases related to their occupation	6.4 Occupational Health and Safety - OHS Management System	81
GRI 404: Training and Education 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	6.3 Employee Development	78~80
103-3	Evaluation of the management approach	6.3 Employee Development	78~80
404-1	Average hours of training per year per employee	6.3 Employee Development	78

GRI Standard	Disclosure	Related Section / Explanatory Notes	Page No.
GRI 404: Training and Education 2016 (GRI 103: Management Approach 2016)			
404-2	Programs for upgrading employee skills and transition assistance programs	6.3 Employee Development	79
404-3	Percentage of employees receiving regular performance and career development reviews	6.2 Employee Care - Compensation & Welfare	74
GRI 408: Child Labor 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	4.5 Human Rights Management 7.3 Supplier Sustainability Management	41, 90
103-3	Evaluation of the management approach	4.5 Human Rights Management 7.3 Supplier Sustainability Management	42, 90
408-1	Operations and suppliers at significant risk for incidents of child labor	4.5 Human Rights Management 7.3 Supplier Sustainability Management	42, 90
GRI 409: Forced or Compulsory Labor 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	4.5 Human Rights Management 7.3 Supplier Sustainability Management	41, 42, 90
103-3	Evaluation of the management approach	4.5 Human Rights Management 7.3 Supplier Sustainability Management	41, 42, 90
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	4.5 Human Rights Management 7.3 Supplier Sustainability Management	41, 42, 90
GRI 412: Human Rights Assessment 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	4.5 Human Rights Management	41
103-3	Evaluation of the management approach	4.5 Human Rights Management	42
412-2	Employee training on human rights policies or procedures	4.5 Human Rights Management	41, 42

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GRI 414: Supplier Social Assessment 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	7.3 Supplier Sustainability Management - Supplier Sustainability Risk Assessment	91, 92
103-3	Evaluation of the management approach	7 SUPPLY CHAIN DEVELOPMENT-2017 Key Performance	87
414-1	New suppliers that were screened using social criteria	7.3 Supplier Sustainability Management-Supplier Sustainability Requirement/ Supplier Sustainability Risk Assessment	90~92
414-2	Negative social impacts in the supply chain and actions taken	7.3 Supplier Sustainability Management - Supplier Sustainability Audit Mechanism	90~92
GRI 418: Customer Privacy 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	1.3 Products and Services - Customer Proprietary Information Protection	12
103-3	Evaluation of the management approach	1.3 Products and Services - Customer Proprietary Information Protection	12
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	We don't have any substantiated complaints regarding breaches of customer privacy and losses of customer data in 2017.	-
GRI 419: Socioeconomic Compliance 2016 (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	4.6 Regulatory Compliance	43
103-3	Evaluation of the management approach	4.6 Regulatory Compliance	43
419-1	Non-compliance with laws and regulations in the social and economic area	In 2017, we received 2 labor related Notice of Violations (total fine: NT$320,000), 2 tax-related Notice of Violations (total fine: NT$284,131), and 6 health and safety related Notice of Violations (total fine: NT$564,672).	-

GRI Standard	Disclosure	Related Section / Explanatory Notes	Page No.
Customer Relationship Management (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	1.3 Products and Services - Customer Service	12
103-3	Evaluation of the management approach	1.3 Products and Services - Customer Service	12
Innovation Management (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	1.4 R&D and Innovation	13
103-3	Evaluation of the management approach	1.4 R&D and Innovation	13
Green Solutions (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	5.5 Sustainable Manufacturing	62
103-3	Evaluation of the management approach	5.5 Sustainable Manufacturing	62
Environmental Conservation Charity (GRI 103: Management Approach 2016)			
103-1	Explanation of the material topic and its Boundary	3.2 Materiality Assessment	29
103-2	The management approach and its components	8 CORPORATE CITIZENSHIP AND SOCIAL INVOLVEMENT	103
103-3	Evaluation of the management approach	8 CORPORATE CITIZENSHIP AND SOCIAL INVOLVEMENT - 2017 Key Performance	101

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