05
Circular Economy

According to the 2022 Circularity Gap Report, as the world's population grows and use of virgin materials surges, only 8.6% make it back into our economy. ASUS has adopted the circular economy approach for sustainable development to transition from passive pollution prevention to active prevention and regeneration. We refuse to use toxic chemical substances that cannot be reused, and extend the life cycle of products from "cradle to grave" to "cradle to cradle" by redesigning materials, products, processes, and business models. Through the cycle of make-use-return, we maximize the efficiency of resource use and create new business models, which will gradually evolve into the core strategy for operations.

Actions

Environmentally Friendly Materials
Increase the use of environmentally friendly materials to reduce carbon emissions over the product life cycle

Eco-labels
Increase the number of international eco labels to expand green competitiveness

Innovative Service
Creating innovative service of carbon-neutral to achieve the target on emissions cuts

Performance

Carbon Neutrality
The world's first commercial laptop (B94) has obtained product carbon footprint and carbon neutrality Verification

87.2%
Eco Friendly Product revenue exceeded 87.2%

89.6%
Halogen-free components accounted for 89.6%

11.2%
Achieved global product recycling rate of 11.2%

IFRS Sustainability Disclosure Standards : Core Content

Governance

Sustainability and Green Quality Management Center : Analyzes global sustainability tendency and promotes green product projects, and regularly reports project status and results to the Board of Directors

ESG Committee : Members are from business operations, design center, certification, marketing, and sales department focusing on the Company's overall sustainability issues on products, marketing, and design

* For the corporate sustainable management organization chart, please refer to CH01 Sustainability Management

Strategy

We use ISO 14040 and 14044 Life Cycle Assessment (LCA) methods to quantify potential environmental impacts from extraction, manufacturing, transportation, use, and final disposal of raw materials in accordance with LCA standards to assess their risk level and potential improvement opportunities. Based on the LCA assessment results, it has been identified that the environmental impact is from the stages of raw material extraction and product use. To reduce various impacts generated by products during their lifecycle, we apply circular economy to our product design and services. By managing harmful substances, using eco-friendly materials, improving energy efficiency and extending the lifecycle of the product, we develop our products for "3 Low" goals: "low-carbon", "low energy consumption", and "low pollution".

Identify major risk/opportunity issues, including product carbon tax, competitiveness of green products, and product carbon neutrality services. Major risk/opportunity issues and potential operational impacts are explained as follows :

Risks/Opportunities	Risks/Opportunities Description	Potential Operational Impact
Imposed carbon tax on products	In response to the upcoming the "EU Carbon Border Adjustment Mechanism" and the "US Clean Competition Act", the higher the carbon emissions are, the greater the impact it will have on business operating costs.	Considering the gradual expansion of the regulatory scope of international carbon tax regulations, we will independently assess the financial impact from product carbon costs in advance
Competitiveness of green products	As the awareness of international green procurement has been raised, and the green procurement requirements of governments or businesses around the world are becoming stricter, consumers are more prone to buy eco-friendly products.	Failure to meet green design requirements will affects the competitiveness of governments and businesses in winning bids and the willingness of consumers to buy sustainable products.
Product carbon neutrality services	In response to the global vision of net zero, businesses, public sectors, and schools in Taiwan has began to set their carbon reduction goals and buy green products as part of their efforts to promote sustainability.	Take advantage of potential green business opportunities by developing product carbon offset services to assist our customers in achieving their ESG performance and carbon reduction goals

Risk Management

Risk Identification

- Assess major impacts the whole product lifecycle will have on the environment
- Identify the impact level of risk events

Risk Control/Mitigation

- Identify potential operational impacts from prioritized risks
- Develop risk prevention plans for major risk issues

Risk Control/Reporting

- Monitored environmental risks regularly by ESG Committee to demonstrate our green competitiveness through design innovation
- Quarterly review risk management performance

Prevention plan for major risk issues :

Imposed carbon tax on products :

- Establish a product carbon footprint data platform to evaluate carbon costs
- Establish a product energy consumption management platform to dynamically monitor product energy consumption trends, and enhance competitiveness of our green products

Have a plan to phase in green products into the projects :

- Set annual goals for producing Eco Label products and ENERGY STAR® products, and keep track of their progress on a regular basis

Metrics and Targets

2025 Sustainability

- Promote sustainable procurement and increase the use of environmentally friendly materials in products and packaging by 100%
- Ensure that each year's key products demonstrate energy efficiency that's 30% above the ENERGY STAR® standard
- Encourage a circular economy by achieving a global recycling rate of 20% for ASUS products

Please refer to CH04 2025 Sustainability Goals for their progress.

IFRS S2 Industry-based disclosure requirements

- Percentage of products by revenue that contain IEC 62474 declarable substances
- Percentage of eligible products, by revenue, meeting the requirements for EPEAT registration or equivalent
- Percentage of eligible products, by revenue, meeting ENERGY STAR® criteria
- Weight of end-of-life products and e-waste recovered, percentage recycled

Please refer to Appendix B : SASB Index

Circular Economy Model

The circular economy model helps reduce the excessive waste of resources and environmental pollution and supports an environmentally friendly business model. To attain this goal, we incorporated the circular economy concept into the design of products and services. We use the four following procedures to support the five business models proposed by the international consulting firm Accenture: Circular Supply chain, Product Life Extension, Products as a Service (PaaS), sharing Platform, and Recovery and Recycling. We incorporated the circular economy strategy into our basic economic framework :

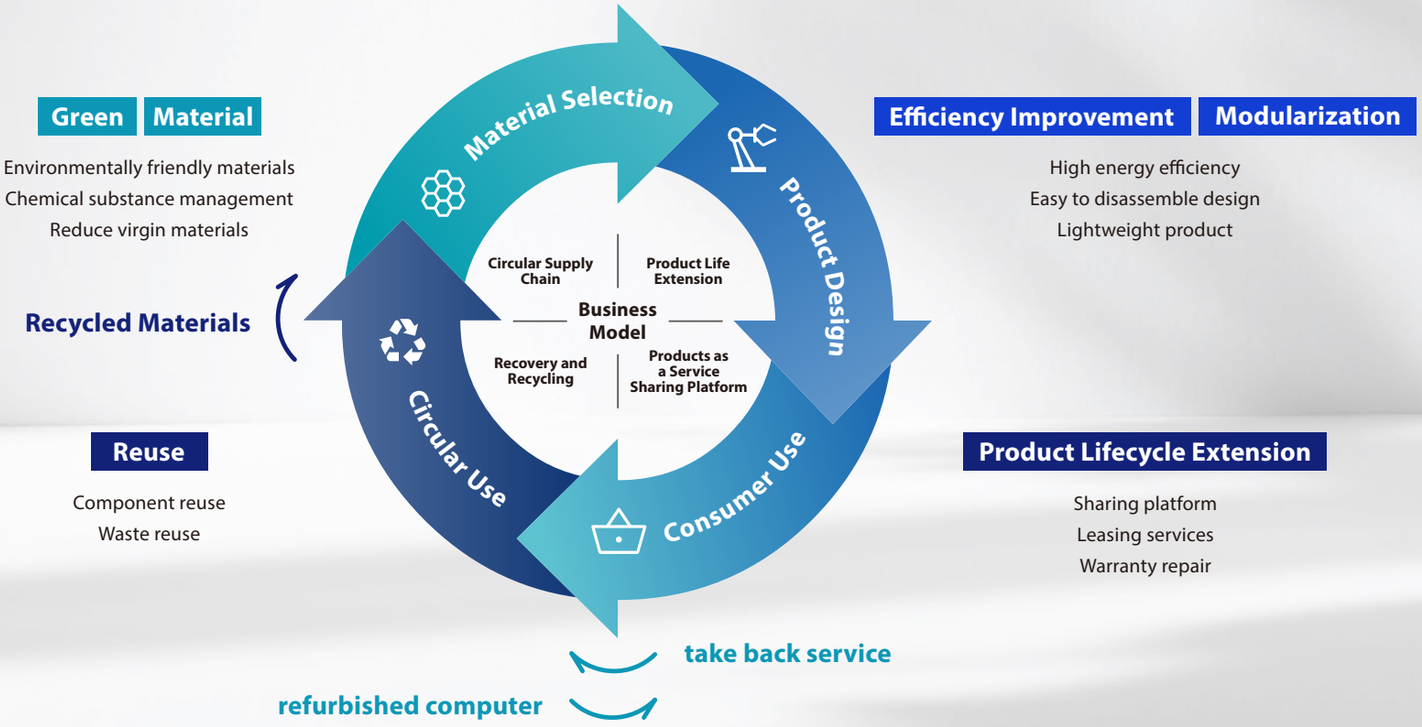
Circular Supply Chain : Use environmental friendly materials to reduce the percentage of virgin materials used in the products and adequately manage the chemical substances in the raw materials

Product Life Extension : Use modular design that facilitates easy disassembly to extend the product life

Products as a Service (PaaS) : Provide products for shared use and replace ownership with leases

Sharing platform : Promote waste computer take back service and create a sharing platform to promote digital education. For more information on the plan, please refer to 09 Society

Recovery and Recycling : Provide global and diverse take back services based on the sales service model of each country



Product Carbon Footprint and Carbon Neutrality

ASUS follows ISO 14040 : 2016 to conduct a Life Cycle Assessment (LCA) on our products, which involves the extraction, manufacturing, use, and ultimate disposal of raw materials. The raw materials, manufacturing and supply chain operations across the whole product lifecycle can all affect the product's carbon footprint. Through ISO 14067 : 2018 product carbon footprint verification, we can identify the hot spots of carbon emission throughout the product lifecycle to improve product design principles, and set up both plans and goals for carbon reduction.

DESIGN THINKING

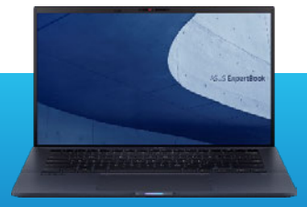
Exploit raw materials	Use green friendly materials, including Post-consumer recycling plastic, recycled paper, FSC pulp
Manufacturing	Supply chain management, including renewable energy use ,low carbon process
Packaging & Transportation	Lightweight design of packaging materials to reduce volume and enhance transportation efficiency
Use	Energy-saving design to comply with ENERGY STAR® and enhance product energy efficiency
Disposal	Establish take back services and recyclers that meet internationally recognized electronic recycling standards to avoid wasting resources

In order to reduce the carbon footprint of our products, we introduce a variety of environmentally friendly materials in our products whose packaging uses FSC forest sustainable certification materials and the final assembly plant increases the proportion of renewable energy. The parts that cannot be reduced by feasible technologies will be replaced by carbon credits with international credibility. In 2022, ASUS ExpertBook B9 (B9400CE) became the world's first commercial laptop verified with ISO 14067 on Product Carbon Footprint.

ASUS ExpertBook B9 (B9400CB) is the world's first commercial laptop verified with ISO 14067 : 2018 Product Carbon Footprint and PAS2060 : 2014 Product Carbon Neutrality by the third party. For product carbon neutrality and actions, please refer to : CH02 Focus Case.

In the future, ASUS will provide Carbon Partner Service for our customers to purchase additional Carbon credit to offset the remaining carbon emissions of the products, so that they can achieve their ESG performance and carbon reduction goals.

ASUS low-Carbon Product Innovation Path



B9400CE

The World First Carbon-footprint Verified Commercial Laptop

UX5304

B9400CB

ASUS Commercial and Consumer Laptops Achieve Carbon Neutral Verification

B9403

D900MDR
D900SDR

Products Carbon Neutral Service

Case Study

UX5304 ASUS Consumer Laptops Receives Carbon Neutrality Verification

Carbon Neutrality

Products Energy Efficiency

- Energy efficiency performance better than ENERGY STAR® standard by 43%
- External power supply exceeds the EEI VI specification set by US DOE by 1%
- Retains more than 65% of original battery capacity after 1,000 cycles of charging

Low-carbon Products

- ISO 14067 : 2018 Product Carbon Footprint Verification
- PAS 2060 : 2014 Product Carbon Neutral Verification

Zenbook UX5304
Carbon Footprint Report

Recycled Materials

Case
Post-industrial recycled aluminum

Keyboard case
Post-industrial recycled Magnesium Aluminum Alloy

Keycaps
Post-consumer recycled plastics

Speaker case
Sea waste plastic + Recycled plastic

Motherboards
Halogen-free material

Sustainable Packaging Materials

Zero plastic packaging materials de-sign-We used FSC Mix, paper handles and paper tape for the outer case.

Safer Chemicals

More than 80% of environmental impacts in the product life cycle is determined in the design phase. We believe that integrating the concept of circular economy into the product design phase, introducing environmentally friendly design, and more active management on the use of chemicals in the production process can improve the recycling and reuse of products and substances.

Chemical substance Management in Products

Numerous chemicals would be added to the product to ensure quality and safety. Along with advancing analysis on scientific hazards and risks, however, some chemicals that are currently approved or use may be determined as necessary to control in the future, which could interrupt the circularity of the products or components. The use of safer chemicals will help the circulation of resources and reduce environmental pollutions at the end of the product's life cycle, and create a safer disposal process to protect the personnel.

ASUS has introduced ISO 9001 Quality Management System since 1999, supplemented by IECQ QC 080000 Hazardous Substance Process Management System Requirements for chemical management. Through the third-party testing laboratory, the onsite audit performed by ASUS personnel, the audit and re-audit of the management system and else, the development of the entire product starts from a truly environmentally friendly design, and we are able to provide consumers with products that are safe for both the human body and the environment.

Full material Disclosure, FMD

FMD (Full Material Disclosure) is a method to enhance the transparency of the chemicals supply chain in the production process. By investigating all materials used from the extraction to the assembly facilities, we can analyze the data and evaluate the risks of using those materials. We must work more closely with suppliers and upstream parts of the supply chain to implement FMD. ASUS helps suppliers create operating procedures for material flow. We also use ASUS's current material management system with FMD inventory operations. The FMD response rate from our EPEAT Gold products is over 90%.

Identification

We conduct verification for material risk assessment and check with professional chemical regulatory platforms (such as those from the European Chemical Agency, ECHA) and follow global environmental standards to identify substances with potential hazards to human health and the environment.

Alternation

We talked with our upstream suppliers or manufacturers who use high-risk substances about the composition, purpose of use, safety, economy, and technical feasibility of alternative substances.

Assessment

We use risk assessment tools such as GreenScreen® For Safer Chemicals, The Quick Chemical Assessment Tool to assess the hazards and risks of using candidates for substitution to ensure that they are safety's alternatives.

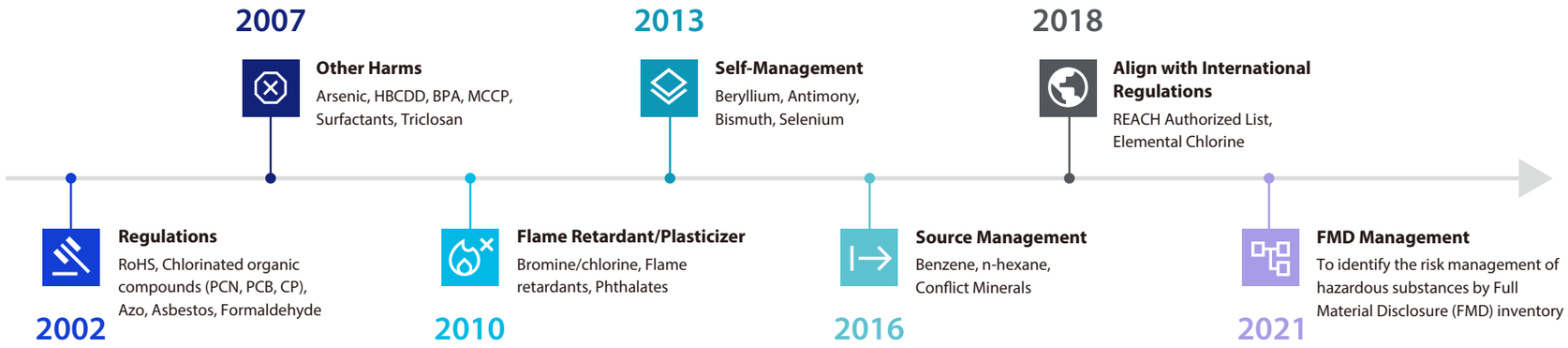
Testing

We conduct small batch testing on alternative substances to ensure that they do not cause any adverse effects and still have the same functions.

Standardization

We have introduced the Asus HSF technical standard (S-AT2-001) and made known to our supply chain on the SCM platform.

Electronic products are complex products that require the addition of various chemical substances to achieve product functionality, quality, or safety in use. To ensure the safety of Asus products to the environment and users during various stages of manufacturing, transportation, use, and disposal, Asus has established Hazardous Substances Free (HSF) standards. Since 2002, all products have been in compliance with the Restriction of Hazardous Substances Directive (RoHS) of the European Union. In addition to controlling substances that are prohibited by laws and regulations, we have also follow the requirements of international environmental standards and the electronic industry standard IEC 62474[1]. The substances used in our products have been disclosed and declared in accordance with IEC and legal requirements. We even respond to the increasingly stringent laws and regulations by controlling substances with potential hazards to human health and the environment to the extent that exceeds international mandatory regulations. By 2022, the number of controlled chemical substances has exceeded 450.



Case Study

Analysis of Critical Minerals and Rare Earth Metals : Taking laptops as an Example

Rare earth metals and critical minerals are used in IT products such as permanent magnet materials, fluorescent materials, precision ceramics, optical materials, semiconductors, and batteries, which are crucial for the electronics industry. According to the "Role of Critical Minerals in Clean Energy Transitions" analysis report released by the International Energy Agency (IEA) in early May 2021, the demand for rare earth metals and critical minerals will significantly increase by 2040 under the net zero policy announced by governments.

It is foreseeable that if the supply, recovery, and investment of rare earth metals and critical minerals are not planned early, the cost and risk of acquiring these substances will increase in the future. In order to obtain information on the substances contained in the products, ASUS further analyzes the current status of rare earth metals and critical minerals in the products through full material disclosure to seek recycling sources and achieve a circular economy model of recycling and utilization.

[1] IEC 62474 : With the electrical and electronic standards set by IEC (International Electrotechnical Commission), we use the supply chain material declaration to track and declare information of material composition for lectrical and electronic products to enhance the efficiency of data exchange in the world and the supply chain.

Halogen-Free

The issue of plastic pollution continues to receive attention from all industries. In order to maintain user safety, improve fire resistance characteristics, and achieve recyclability of plastics, Asus uses flame retardants in plastic components of product appearance structures that are safer for the human body and less harmful to the environment through scientific evaluation methods (such as GreenScreen) to enhance the feasibility of material recycling.

Since 2010, ASUS has been spontaneously promoting halogen-free policies, by prohibiting halogenated flame retardants in plastic shells of our products in 2017, even earlier than relevant laws and regulations. In the process of promotion, we need to balance both quality and cost to maximize the integration and effective utilization of resources. 89.6% of the parts in our products delivered in 2022 met the "Asus Halogen Free Control Regulations".

2018	2019	2020	2021
Elemental chlorine bleaching agent is prohibited in manufacturing paper packaging materials	Halogen free hard drives, batteries	PVC was removed from Type-C charging lines for mobile communication products	Use halogen-free PCB substrate

Chemical substance Management in Packaging

The trend of international hazardous substance regulations is constantly changing. For packaging materials that consumers will come into contact with, in addition to complying with the EU Directive of Packaging and Packaging Waste (94/62/EC, PPWD), we have also taken the following actions over the years to actively respond to future international hazardous substance standards to prevent the environmental hazards from direct human contact :

2020	2021	2023
Gradually applying raw materials with low VOCs (Volatile Organic Compounds) into coatings and inks on packaging materials	We required our suppliers not to use mineral oil as printing materials, and further control the use of plasticizers (phthalates, Phthalates) and ban PVC materials	We will begin to phase out polycyclic aromatic hydrocarbons (PFAs)

Chemical substance management in manufacturing

In addition to controlling harmful substances in products, Asus is also concerned about whether the materials or auxiliary solvents used in the product manufacturing process pose hidden hazards to production line personnel and the environment. ASUS not only controls the use of benzene and n-hexane as solvents for cleaning and decontamination in the manufacturing process, but also refers to the Responsible Business Alliance (RBA) to create a list of managed process chemical substances. Through appropriate management measures and regular on-site audits, ASUS can control process chemicals that might be harmful to human health or the environment to fulfill corporate responsibility.

Environmentally Friendly Materials

The UN Environment Programme (UNEP) made a resolution at its fifth Environment Assembly to put an end to plastic pollution and emphasize the importance of promoting sustainable design of products and materials by using new or improved technologies for material reuse and recycling. To improve the reusability and recyclability of resources, we will gradually use multiple eco-friendly materials in our products.

Product Application

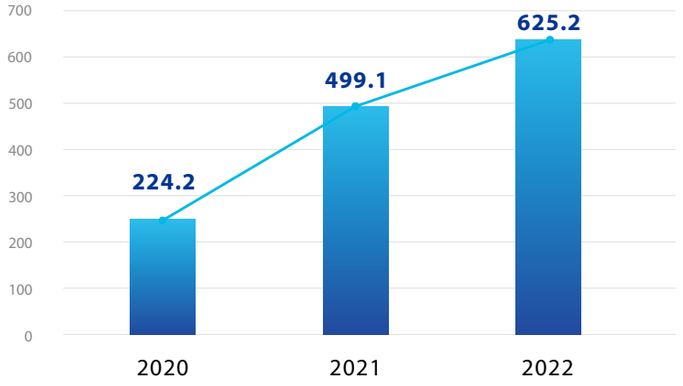
Among ASUS products, mainstream products contain more than 30% plastic of total weight, which accounts for the largest amount of materials used. Therefore, we cooperate with the suppliers to explore the opportunities that increase the use of post-consumer recycled (PCR) plastic as much as possible without compromising quality, function, and durability. The average PCR plastic content of ASUS' business laptops is 5%. Moreover, ASUS developed PCR plastic with antibacterial functions by applying our innovative R&D skills. Since 2017, we have used more than 1,689 tonnes of PCR plastic and reduced carbon emissions by 1,915 tonnes $CO2e^{2}$. In the future, ASUS will continue to expand the use of sustainable materials in products and take real actions to support the circular economy and sustainability in the future.

In 2022, we began to try a more diverse range of eco-friendly materials. For example, we used 30% post-industrial recycled metal in the metal casing of our business laptop ExpertBook B9 for its lightweight design. Our consumer laptops UX5304 is made from sea waste plastic, while the entire shell of our ROG gaming mouse is produced using biological matrix resin made from castor oil.

In the future, ASUS will continue to explore a wider variety of eco-friendly materials in our products by taking actions to support the circular economy and fulfill ESG.

Products : Annual quantity of post-consumer recycled (PCR) plastic

Unit : Tonnes

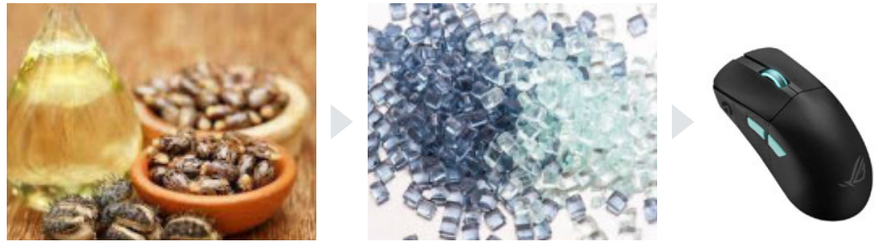


Case Study

Eco-Friendly Materials

- Asus Ethernet adapter MA-25 uses 70% PCR and 69% eco-friendly materials in the product.

- The shell of ASUS ROG gaming mouse P713 uses biological base resin made from castor oil.



[2] Refer to the data from Ecoinvent ver.3.8 (2021/11) in Simapro.

Packaging Material Application

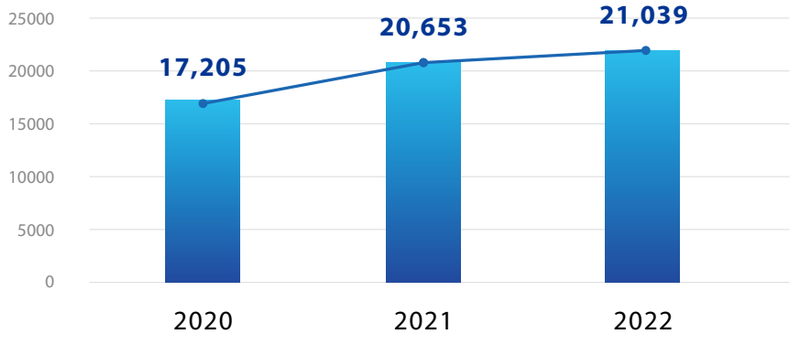
According to the WEF and research report from Ellen MacArthur Foundation in 2016, most of the packaging was only used once; where the massive plastic junk produced after use was only recycled effectively at a mere 5%. Therefore, countries around the world have been imposing plastic reduction policies since 2018 to realize the vision of plastic circulation.

Starting from 2019, ASUS has replaced PE bags with PET non-woven fabric. We increased the use of recycled pulp for the paper packaging of certain products to 90%. Approximately 21,039 tonnes of recycled paper was used for main products in 2022. In terms of resource protection and the ecology, ASUS has started to use paper materials from Forest Stewardship Council (FSC), and use a total of 71.7 tonnes in 2022.

ASUS has not only been innovative in materials, but also recognized by an international NGO, Forest Stewardship Council (FSC), for our efforts in designing packaging materials with longer lifecycle. In November 2022, Asus was invited to the FSC Asia Pacific Business Forum to share our views on sustainability. In the future, we not only improve our design of FSC packaging, but only greatly reduce the use of virgin plastics.

In addition to using eco-friendly materials, under the premise of maintaining safe transportation, we reduce the waste of the internal space of the packaging and the packaging volume to decrease the use of materials. We also consider the way of stacking. It not only could improve transportation efficiency, but also could prevent damage caused by transporting products of different sizes.

Packaging : Annual quantity of Recycled Paper Unit : Tonnes



Case Study

Green packaging material design

01 Zero plastic and adhesive free design

ROG Xbox Controller

Our Packaging is designed through modularization to be used in both high and low end computers, and designed with 100% recyclable wet molded pulp that are zero plastic and adhesive free.

ROG Level Mouse

The ingenuity design of the packaging structure for this mouse is achieved by adopting adhesive free production processes and using 100% recyclable paper to achieve a zero plastic and adhesive free design.
The overall volume is also 6% smaller than the previous generation packaging, effectively improving product transportation efficiency.

02 Circular use : the packaging box of B9 series laptops

With simple design of packaging structure, a laptop holder can be easily and quickly assembled to provide protection, support, and cord holding purposes to achieve our goal of reuse packaging materials.

03 Innovative green and eco-friendly materials : ROG and BATMAN co-branded phones

Its packaging uses EPP material (high crystalline polypropylene), which is a green and eco-friendly material that can be recycled and reused without causing plasticization pollution. It lightweight design can achieve less packaging weight and carbon emissions during transportation.

04 Moca Adapter

The stylish zipper packaging box uses 95% FSC forest certified paper material, along with a non-adhesive structure design and eco-friendly non-toxic ink printing to demonstrate our core value of sustainability.

05 Lightweight packaging materials

The new generation display has an average reduction of 12% in packaging volume compared to the previous generations, and thus can improve the space utilization during transportation which is 19% more efficient.

Product Energy Efficiency

The energy efficiency of IT products determines the greenhouse gas emissions of products in their use. To effectively reduce carbon emissions when using the product, ASUS has set standards for product energy efficiency and limitation standard and have been putting more R&D resources into green design to make our products more energy efficient through innovative software and hardware.

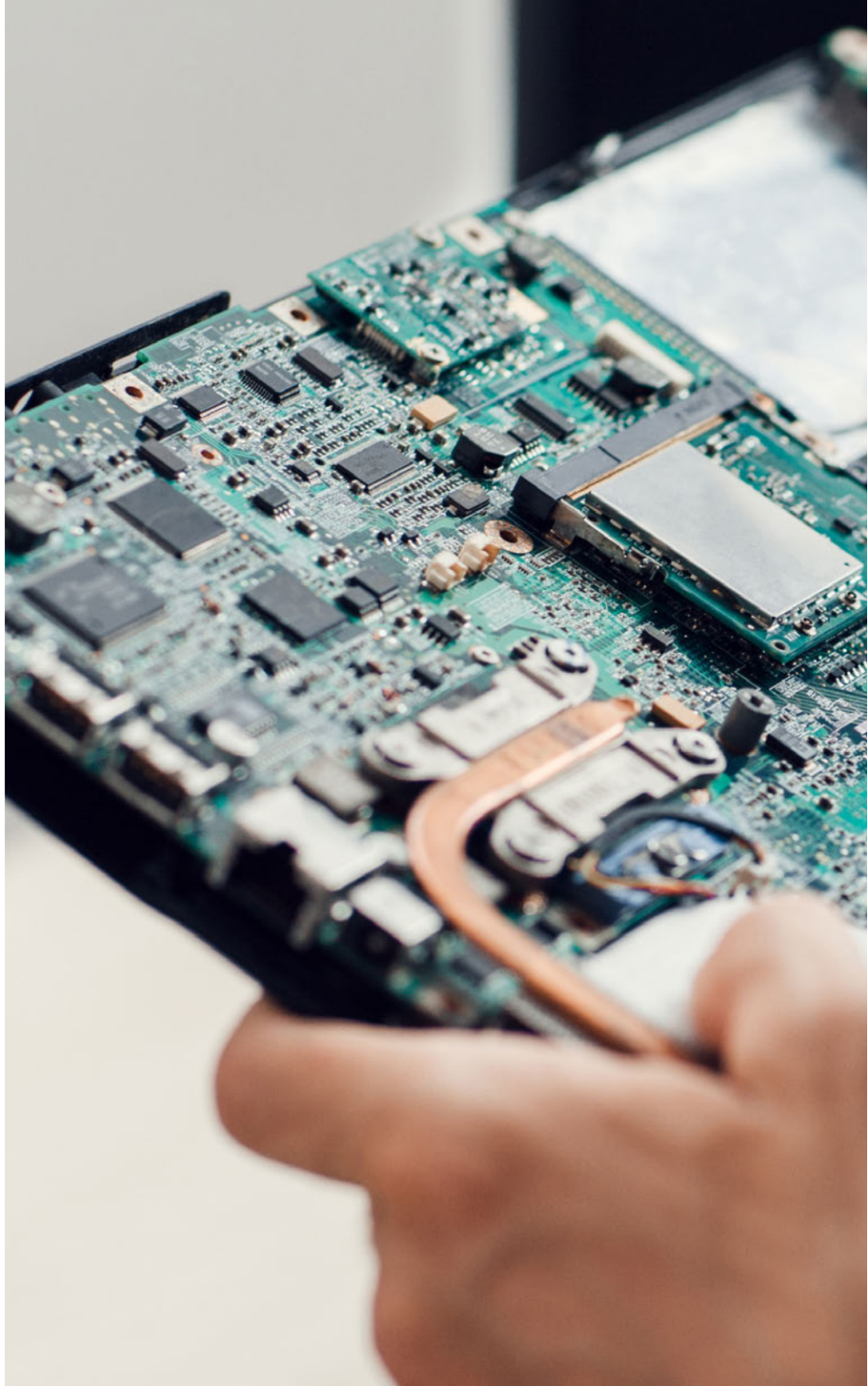
We have taken proactive action to set our 2025 sustainability goal of “making our major products 30% more energy efficient than the ENERGY STAR® standard", which is a goal way more transparent and easy to be tracked and measured.

Superior to the ENERGY STAR® standard

The U.S. ENERGY STAR® Program is the most rigorous energy efficiency program in the world. As compared to meeting basic regulations, products that meet ENERGY STAR® standard offer competitive advantages for high energy efficiency and reduces the cost of energy in each stage of product usage. ASUS has adopted many optimized designs to attain higher targets, such as external power supplies with the highest energy efficiency level on the market, Level VI. We also set the internal specifications of 10% stricter than legal requirements when the product is in the power off status to reduce power consumption.

The commercial and consumer laptops launched by ASUS in 2022 exceed the ENERGY STAR® standard by an average of 34.6%. Products that meet ENERGY STAR® standard account for 65%[3]. According to the 2022 “Most Efficient” criteria proposed by the US Environmental Protection Agency, all display products should be able to save 15kWh a year. Only 10% of the products from NERGY STAR® meet this criteria. Products rated as the Most Efficient can reduce energy consumption by more than 27% on average compared with NERGY STAR® products. In 2022, 16 of our display products are rated as “2023 ENERGY STAR® Most Efficient Product”.

[3] For information on the percentage of revenue of the products that meet ENERGY STAR® certification standards, please refer to the note : The Calculation Base of Environmental Indicators. (Appendix, A-12)



Product Lifecycle Extension

Easy to Disassemble and Repair

The recycling and reuse are considered during the design phase in order to improve the efficiency of resource usage and to facilitate circular economy. Through the easy disassembly for recycling, the consumer can update spare parts to accommodate with the usage when the product needs to upgrade for improving the computing performance, thus there is no need to replace the entire product. When the product failure occurs, it can be repaired and replaced with new components easily, extending the life of the product. When the product has to be eliminated, it can be classified by the recycling industry and thus reducing the processing costs for recycling and increasing the recycling value of waste electronic products.

ASUS products are superior to other competing products on the market in terms of availability of information related to maintenance, ease of product disassembly, availability of spare parts on the market, price difference between spare parts and finished products, and the subsequent maintenance and upgrade of products. ASUS's Repairability Index rated by the Ministry of Ecological Transition (MTES) in 2021 was 7.3 points.

Introduction to Product Modular Design

Product as a Service

The market research think tank Euromonitor International recently published the "Top 10 Global Consumer Trends" report, which states that products or services for the circular economy such as shared use or lease in lieu of ownership are attractive to consumers. They can also be used to ensure good use of resources and expand new business opportunities for sustainability. The Device as a Service (DaaS) by ASUS uses a flexible payment scheme to help corporate customers reduce expenditures on hardware, cost of deployment, and cost of technical support and services. It offers comprehensive lease options for the use of IT hardware and services. Advantages of Asus Device as a Service:

- Mitigate costs of ownership, deployment, support and maintenance
- Flexible and easy to scale up or down
- Increase productivity with the innovative hardware and software solutions
- Enhance employees' mobility to work anywhere
- Longer product lifecycle and less waste
- Return IT assets at the end of the lease without having to dispose of them

Learn more Device as a Service (DaaS) by ASUS

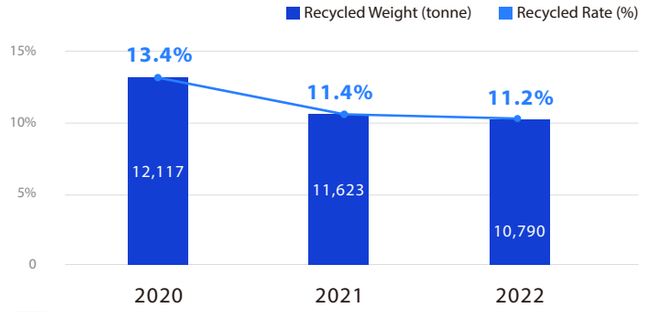
Resource Regeneration

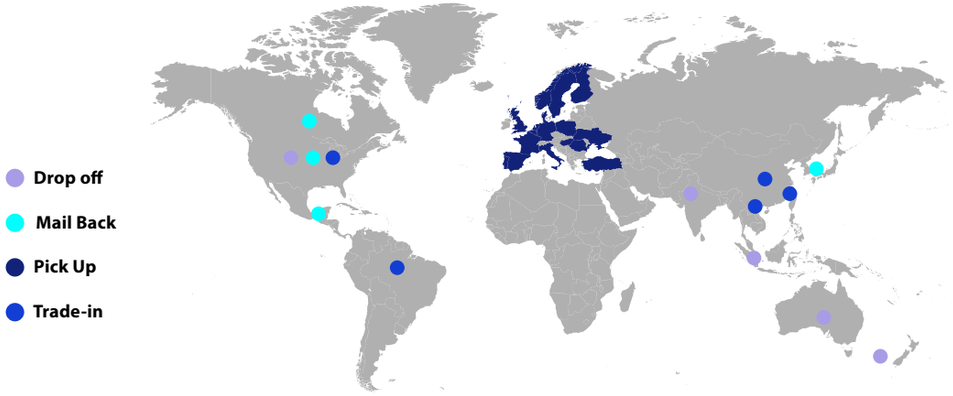
According to the third edition of "The Global E-Waste Monitor 2020"[4], 53.6 million metric tonnes of e-waste were generated worldwide in 2019, with only 17.4% recycling rate. It also estimated that e-waste will increase to 74 million tonne by 2030. On the other hand, e-waste contains valuable substances or critical raw materials[5]. After regeneration, these raw materials can form a green circulation industry, which provides substantial support for economic development, human rights, and environmental protection. E-waste should also be properly recycled to minimize the impact to the environment from hazardous substances contained in waste electronic products.

Global Take Back Service

ASUS supports the circular economy based on its producer responsibility. We meet the waste recycling regulations in each country, and have created free product recycling services in major sales markets including Greater China, Europe, the Americas, India, and Oceania. We established the ASUS Hardware Recycling Guidelines with stricter requirements than laws and regulations. We use this to ensure that waste can be disassembled into resources with value for reuse and prevent inappropriate disposal or illegal processing.

ASUS provided recycling services in 30 countries in 2022, which covered 75% of the sales market. We provided diverse recycling services based on the sales model in each country, including setting up drop off, mail back, trade-in, and pick up services. In 2022, we recycled more than 10,790 tonnes of e-waste and 11.2% total weight of ASUS products sold worldwide was recycled products. Among them 98% e-waste can be reused or recycled.





Case Study

Waste Electronic Product Recycling Plan

The ASUS customer service team takes advantage of after-sales service opportunities to fulfill social and environmental responsibilities. The frontline Royal Club service center provides flexible recycling mechanisms, including recycling 3C products regardless of the brand, and disposing of waste materials generated during the after-sales service process. In order to encourage consumers to recycle unused defective products, ASUS Store has provided incentives such as discounts on ASUS store online, trade-in, and donations after product recovery. The total amount of waste products recycled by Asus Royal Club Taiwan in 2022 has increased by 120% compared to the previous year.

With the rise of IT and Telecommunication products, the recycling rate of mobile phone in Taiwan is not as high as 15% internationally according to the Environmental Protection Administration (EPA). Asus has also joined the Mobile Phone Recycling Monthly Event organized by the EPA and participate in the meetings to promote mobile phone recycling in Taiwan for many years. In 2022, the EPA had information security equipment in place to reduce public concerns about personal data leakage in recycling mobile phones and tablets, and to raise their willingness to recycle those devices. To be in line with the "ASUS Privacy Policy" and " Handling & Controlling Customer Property SOP", we use EPA's information security equipment in our Royal Clubs across the country.

For details of recycling services, please visit ASUS CSR official website

[4] The report was published by the Global E-waste Statistics Partnership (GESP); GESP is a joint project of the United Nations University (UNU), the International Telecommunication Union (ITU), the International Solid Waste Association (ISWA) and the United Nations Environment Programme (UNEP).

[5] Raw materials that are economically important, have high import dependence, and incur high-risk associated with their supply and uniqueness in application, but are lack viable alternatives.

Recycling Company Management Regulations

The recycling and disposal phase at the end of the product life cycle is regarded as a part of ASUS's sustainability value chain management. To prevent the severe impact on human health and environmental pollution caused by inappropriate disposal, the company established the " ASUS Hardware Recycling Guidelines " based on international recycling standards. We also established three recycling company management procedures that include new supplier approval, continuous risk management, and performance evaluation. Recycling companies in collaboration with ASUS must comply with the Basel Convention and meet the qualifications recognized by the local government or internationally recognized electronic waste recycling standards.

We implement regular second-party and third-party audits on recycling companies in continuous collaboration. Any company that fails to pass the audit or improvement requirements will be eliminated and replaced.

Step1.
Certified Partners

Certicate requirements: ISO 14001 Recycler qualifications: international recycler standards such as e-Stewards/ Responsible Recycling (R2)/ WEELABEX, or proof of compliance with local governments

Step2.
Continue to Monitor

Annual audit: conduct on-site or document audits in accordance with international recycler standards

Step3.
Evaluation

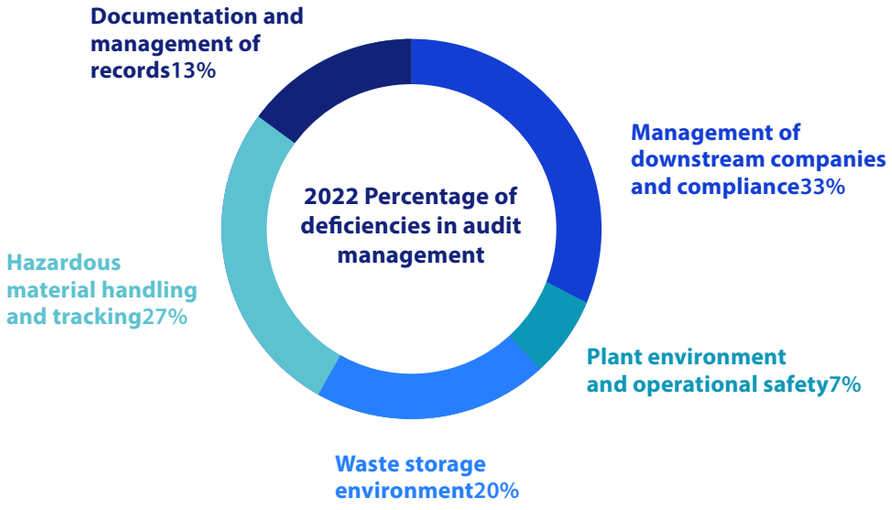
Manufacturers that do not pass the audit will be replaced

The key points for the audit and management of recycling company are as follows :

- **Management of downstream companies and compliance :**
  Verify that first-tier recycling companies have contractual relationships with downstream companies to ensure compliance with local and international regulations
- **Plant environment and operational safety :**
  They must have work environment protection systems to ensure the safety of employees
- **Management system :**
  They must have environmental, health, and safety management plans Waste storage environment: Ensure the appropriate storage of e-waste and materials with substances of very high concern
- **Waste storage environment :**
  Ensure the appropriate storage of e-waste and materials with substances of very high concern
- **Hazardous material handling and tracking :**
  Ensure that hazardous materials are appropriately handled and tracked to their final destination
- **Documentation and management of records :**
  Ensure that recycling companies retain all necessary documentation and records to prove their compliance status
- **Labor rights :**
  Ensure that employees are not forced laborers, prisoners, or children, and that employees are treated equally and provided with due benefits

In 2022, ASUS conducted a total of 16 annual audits on our recycling centers, and there were no significant deficiencies and improvements have been made.

Deficiencies	Improvement rate
Critical : 0 Major : 4 Minor : 11	100%



Eco Labels

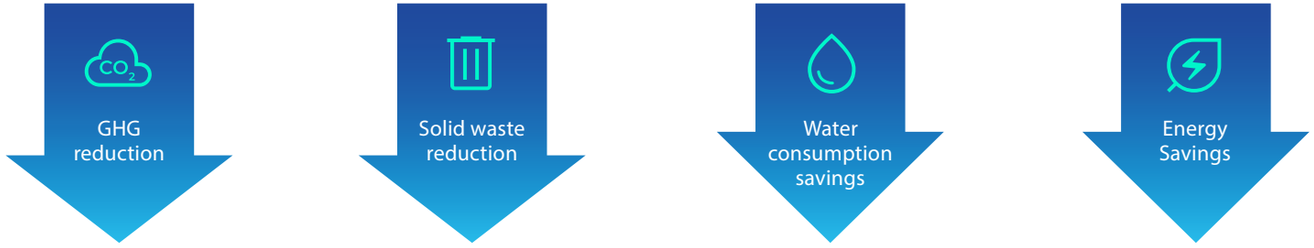
ASUS has been long investing in the R&D of green products. Through the use of safer chemicals, environmentally friendly and recycled materials, lightweight packaging, and outstandingly energy-efficient excellent products energy efficiency, and along with the design of products that are easy to disassemble and repair, the revenue from ASUS Eco Friendly Products was now account for 87.2%[6] of revenue. Furthermore, we demonstrate our green competitiveness by obtaining strict certification of international environmental eco-labels.

We also adopt the method of Sustainability Accounting Standards Board (SASB) to calculate the proportion of sales on eco-label products over corporate revenue as one of the reference indicators for investors and an important part for demonstrating ASUS's green competitiveness. Annual revenue from sold products compliant with EPEAT or equivalent standard was 15%[7] of the total revenue.

EPEAT Environmental Performance

ASUS has been committing to R&D of green products and obtained green product certification after undergoing strict review by international environmental standards. Taking the EPEAT[8] ecolabel as an example, this standard is one of the most rigorous product environmental protection standards in the world. It is divided into ten categories : substance management, materials selection, product design, energy use, product and corporate footprint. Its focus is to minimize environmental impact throughout the entire lifecycle of the product.

After the revision of the EPEAT 2.0 standard in 2018, its requirements became more stringent. Asus continues to register products for certification, such as obtaining EPEAT certification, TCO environmental protection label from Sweden and Eco Mark from Japan for our laptops, desktop computers, LCD displays, etc. The environmental benefits brought by our products with an EPEAT ecolabel in 2022 are shown below through the Green Electronics Council (GEC) assessment tool. This is to show how the EPEAT certification has done a great job in reducing carbon emission and to demonstrate our determination to reduce the environment load. In response to the upcoming revision in EPEAT where more requirements will be imposed on corporate ESG performance, climate change mitigation, sustainable use of resources, and reduction of chemicals of concern, Asus will conduct relevant evaluations and work with our supply chain to address new challenges.



[6] For information on the revenue of Eco Friendly Products please refer to the Remark : The calculation base of environmental indicators. (Appendix, A-12)

[7] For information on the revenue of EPEAT certification or equivalent standards, please refer to the Remark : The calculation base of environmental indicators. (Appendix, A-12)

[8] The EPEAT (Electronic Product Environmental Assessment Tool) was jointly initiated by the US Environmental Protection Agency (EPA) and Institute of Electrical and Electronics Engineers (IEEE). The Tool follows ISO 14024 structure and serves as a symbolic of global eco-label for the IT industry.