

# 2021 ASUS TCFD Report

Task Force on Climate-related  
Financial Disclosures Report

**ASUS**<sup>®</sup>  
IN SEARCH OF INCREDIBLE

2021 ASUS Task Force on Climate-related  
Financial Disclosures (TCFD) Report

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# Climate Action



## Message from the Chairman

Climate change has severely impacted global development, spurring further realization that extreme weather not only affects our environment but also tests the operational resilience of businesses. According to the Sixth Assessment Report (AR6) issued by the Intergovernmental Panel on Climate Change (IPCC), greenhouse gas (GHG) caused by human activity have already caused a global temperature rise of 1.1°C. Reaching net zero CO<sub>2</sub> emissions globally will be a key turning point to achieving the objective set forth in the Paris Agreement of limiting global temperature rise to 1.5°C. Currently, 136 countries have committed to reaching net zero emissions by the middle of the century. In March 2022, Taiwan published “Pathway to Net-Zero Emissions in 2050,” a blueprint for using technology research and development along with climate governance as the basis for gradually completing strategies of energy transition, industrial transition, lifestyle transition, and social transition to reach its goal of net zero emissions by 2050.

As a leading brand in the information and communications technology (ICT) industry, ASUS advocates strategic sustainability to incorporate sustainability into our core operations and value creation. We use scientific and data-based evaluation, technological advantages, and continuous innovation to drive our constant evolution and pursuit of excellence. In 2021, ASUS officially joined the RE100 global initiative, and we are committed to using 100% renewable energy in all global operations centers by 2035. ASUS has set science-based targets to achieve net zero emissions throughout our value chain via a three-stage approach of enhancing energy efficiency, expanding the use of renewable energy, and investing in innovative technologies.

This year, ASUS published our first Climate-related Financial Disclosures report based on recommendations from the Financial Stability Board's (FSB) Task Force on Climate-related Financial Disclosures (TCFD). ASUS identified major climate risks and opportunities, and weighed operational and financial impacts under different scenarios in order to set management targets, formulate countermeasures and actions, and systematically disclose the progress and results of those countermeasures.

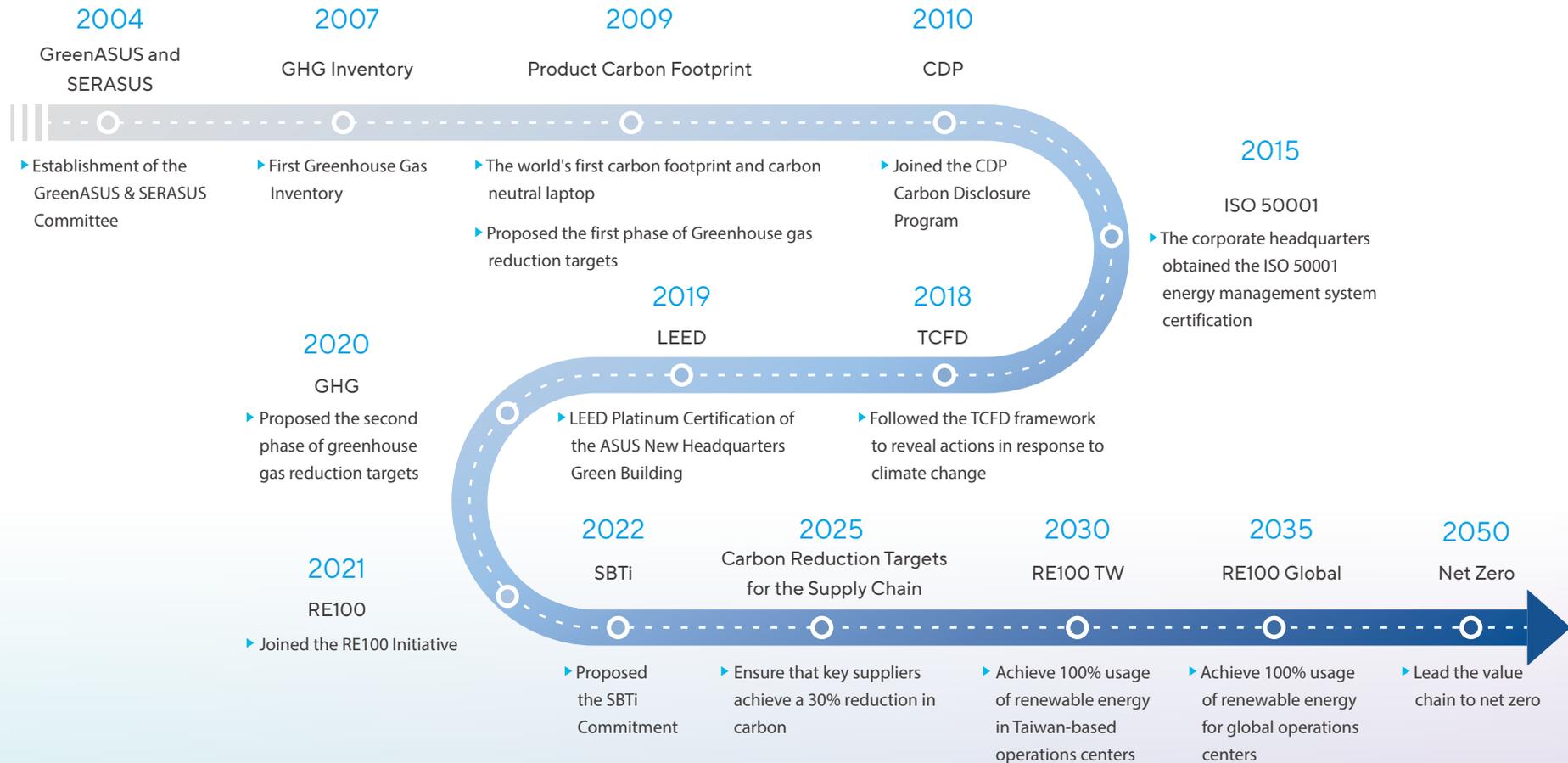
ASUS is a founding member of the Taiwan Climate Partnership, which was jointly established by eight of the leading technology companies in Taiwan. By leveraging the strengths of the Partnership's members, ASUS works with international climate advocacy organizations and uses data-driven and innovative management models to improve decision-making and management quality. We also aim to take practical actions to expand our influence on the supply chain, promote joint prosperity through industry development and environmental sustainability, and achieve more sustainable and inclusive growth.

Chairman

A handwritten signature in black ink, consisting of three stylized Chinese characters: 施 崇 文 (Shi Chongwen).

## Milestones for Climate Action

The "Global Risks 2021 Report" released by World Economic Forum (WEF) mentions that four of the top five most likely risks are environmental risks related to climate change, including Extreme Weather, Climate Action Failure, Human Environmental Damage, and Biodiversity Loss. Since 2004, ASUS has established the GreenASUS & SERASUS Committee, which integrates climate action into its operating strategy and creates response plans through discussions on organizations, products, supply chain projects, and external participation.



# 01 Governance

ASUS' climate change governance and management structure is under the direct supervision of the Board of Directors. The Chairman has instructed the CEO to be the highest responsible management representative for climate change and sustainable management. ASUS established a dedicated unit for sustainable development with the Chief Sustainability Officer as the unit's management representative in 2009. The committee was set up to help the ASUS Group understand global sustainable development trends, analyze sustainability issues such as governance, environment, and society, and define strategic sustainability goals and projects by integrating operational cores with product innovation and services. In order to communicate across departments on key issues such as products, supply chains, and organization operations that are highly influential to corporate sustainable operation, ASUS established the "GreenASUS & SERASUS Steering Committee" with the Chief Sustainability Officer (CSO) as the management representative authorized by the CEO. In addition, ASUS has also incorporated the sustainable development taskforce unit as one of the taskforce units of the Business Continuity Management Committee, which reports risk management indicators related to climate change each quarter.

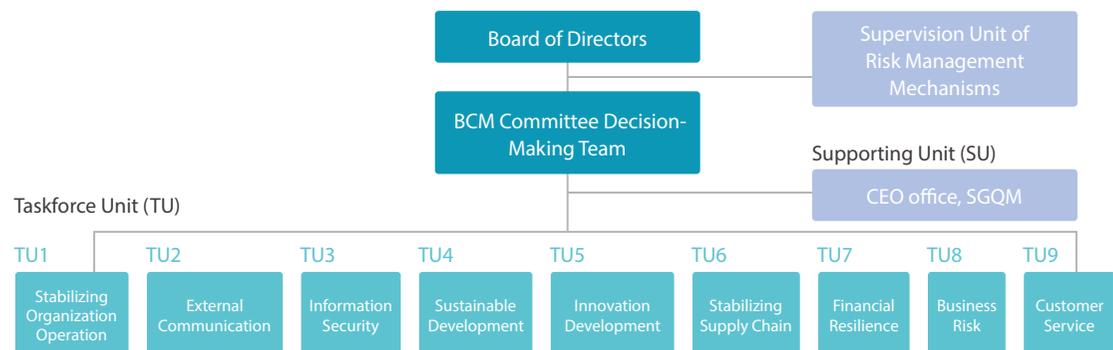
## Board of Directors

The Chairman is the leader of the Group's sustainability-related issues, and ASUS' sustainability policy and climate change response strategies have to be approved by the Chairman. Every year, reports are provided to the Board of Directors on a regular basis to promote climate action issues and target management. From 2022, climate action progress and achievements will be reported to the Board of Directors quarterly instead of annually.



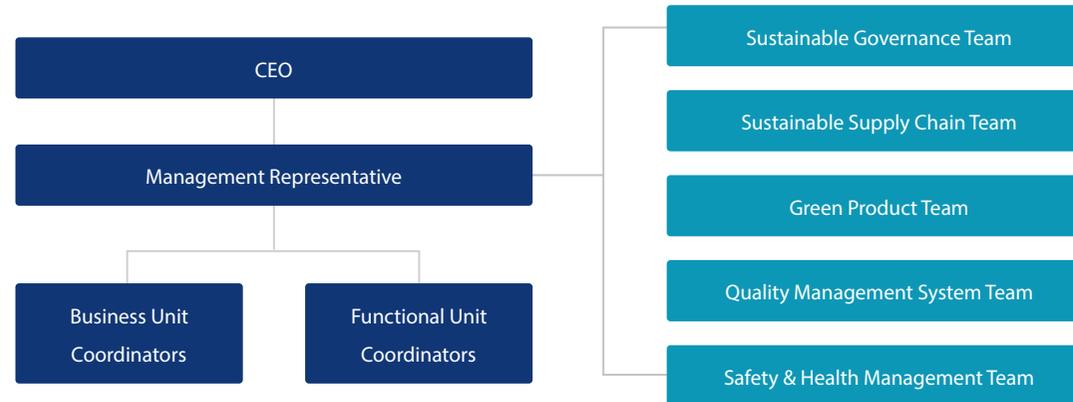
## Business Continuity Management Committee (BCM)

The Board of Directors oversees the strategic development of the Business Continuity Management (BCM) Committee and forms a decision-making team including the Co-Chief Executive Officers (co-CEOs), Chief Operating Officer (COO), and senior business executives. This team implements joint supervision, reviews, and establishes protection mechanisms for daily operations. The Taskforce Units (TUs) are responsible for monitoring risk trends and preventive risk management in all areas of the business, and are responsible for developing quantifiable KRI (Key Risk Indicator) and risk prevention plans. When a risk occurs, they must respond immediately and establish an emergency contingency plan to minimize the impact and disruption time. Each year, the BCM Committee presents an annual risk management report and the BCM performance review to the Board of Directors. Sustainability is also included in one of the BCM committee TU, which reports quarterly on the management of climate change risk indicators. In addition, an annual climate risk management report is also presented to the Board of Directors.



## GreenASUS & SERASUS Steering Committee

The GreenASUS and SERASUS Management Board performs cross-unit coordination within the enterprise on key issues that have a high impact on product, supply chain, and organizational operations. This committee is authorized by the CEO to act as a management representative, and reports to the CEO to implement sustainability strategies and climate action issues regarding product, operational, and value chain management.



## Sustainability & Green Quality Management Center(SGQM)

The Chairman instructs the CEO to serve as the highest responsible manager for climate change and sustainability management, and establishes the dedicated unit "Sustainability and Green Quality Management Center" (SGQM). ASUS appoints a Chief Sustainability Officer (CSO) to analyze global sustainability trends and execute sustainability projects.

The SGQM is responsible for promoting the strategic sustainability of "digitize data and adopt scientific management practices." It integrates ASUS' core competencies that focus on climate action, circular economy, responsible manufacturing, and value creation to build a vision, strategy, and goals for sustainability in the medium and long term. Furthermore, it helps integrate various action plans into corporate operations.

Digitize data, adopt scientific management practices and optimize core competencies to promote sustainable value creation.



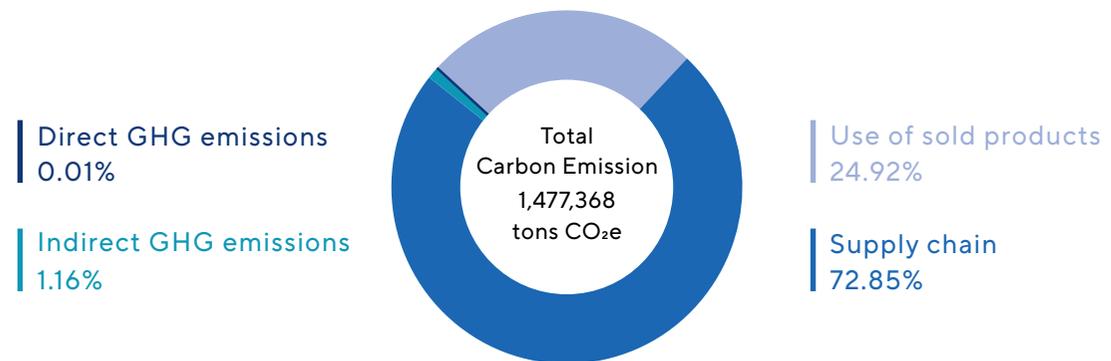
## 02

## Greenhouse Gas Inventory



Since 2007, ASUS has been conducting annual greenhouse gas (GHG) audits, including Scope 1: direct GHG emissions, Scope 2: indirect GHG emissions, and Scope 3: other indirect GHG emissions (supply chain, product use, business travel, product transportation, etc.). It has completed the third-party verification in accordance with ISO 14064:2018<sup>1</sup>.

ASUS conducted a greenhouse gas inventory of the parent company and 52 companies<sup>2</sup> under the Group in 2021, with total carbon emissions of 1,477,368 tons CO<sub>2</sub>e (Metric tons CO<sub>2</sub> equivalent). The largest source of carbon emissions was the supply chain, which accounted for 72.85%, followed by product use, which accounted for 24.92%.



<sup>1</sup>ASUS completed the third-party verification in accordance with ISO14064-1:2018 in 2021. For management and communication, TCFD presents the inventory data in Scopes 1 to 3.

<sup>2</sup>Including the parent company listed in the ASUS 2021 financial report, 52 have conducted greenhouse gas inventory, excluding subsidiaries in which ASUS does not have control or those established for investment or finance and taxation purposes.

### Scope 1 Direct GHG emissions

ASUS main direct emission sources are the use of fire-safety equipment, backup generators, and office vehicles.

Category	Type of Energy	Activity Data	Carbon Emissions (Tons of CO <sub>2</sub> e)	Total Carbon Emissions (Tons of CO <sub>2</sub> e)
Stationary Source	(Emergency generator) Diesel	7,500 L	19.61	93.98
	(Boiler) Natural Gas	20,874 M <sup>3</sup>	45.69	
Mobile Source	(Office vehicle) Diesel	823 L	2.18	
	(Office vehicle) Gasoline	11,253 L	26.50	

### Scope 2 Indirect GHG

ASUS Group's electricity consumption and carbon emission statistics are as follows:

According to the list in the financial report, after excluding subsidiary company we do not have control or those established for investment or finance and taxation purposes, the total carbon emissions fell by 15.8% from the previous year.

	Taiwan	China	Overseas	Total
Electricity Usage (MWh)	19,188	7,984	5,425	32,597
Carbon Emission (Tons of CO <sub>2</sub> e)	9,767	4,431	2,963	17,161

### Scope 3 Other Indirect GHG

 <p><b>Supply chain</b></p> <p>The total carbon emissions of nine types of key suppliers amounted to 1,076,291 tons of CO<sub>2</sub>e, and the emission intensity was 126.41 tons CO<sub>2</sub>e/million USD.</p>	 <p><b>Use of sold products</b></p> <p>The total carbon emissions from the use of sold products in countries/regions that account for 90% of global revenue amounted to 368,198 tons CO<sub>2</sub>e, and the emission intensity was 27.77 tons CO<sub>2</sub>e/million USD.</p>	 <p><b>Business travel</b></p> <p>The total carbon emissions from employees' business travel in 2021 amounted to 260 tons CO<sub>2</sub>e. Due to the impact of the COVID-19 pandemic, the total carbon emissions fell by 57%<sup>3</sup> from the previous year.</p>	 <p><b>Downstream transport of products</b></p> <p>The carbon emissions of laptops, desktop computers, all-in-one PCs, and monitors product lines shipped from factories to global markets amounted to 15,363 tons CO<sub>2</sub>e.</p>
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<sup>3</sup> Domestic business travel and foreign business travel on land were not included in the calculation due to low significance

# 03 Strategy

## Strategies for Addressing Climate Issues

Climate change is a contemporary global issue that poses significant and far-reaching impacts and challenges to mankind, ecology, and the global environment. The Global Risks Report published by the World Economic Forum over the past decade reveals that extreme climate change has become the primary threat faced by the world today, both in terms of the likelihood of risks occurring and the magnitude of the impacts they may have. According to a study conducted by Stanford University, failing to meet the climate change mitigation goals promised by the United Nations' Paris Agreement will cost the global economy tens of trillions of dollars over the next century.

ASUS is aware of the impact of environmental changes triggered by climate change on the global economy and the Group's operations. Therefore, ASUS is promoting a strategy of "digitize data and adopt scientific management practices" for sustainability to identify major climate risks and simulate possible future scenarios of climate financial impacts. The plans are forward-looking and involve proactive climate measures. This includes improving R&D capabilities in software and hardware to improve product energy efficiency, driving the supply chain toward low-carbon manufacturing, expanding the use of renewable energy, and developing innovative technologies to reduce the carbon footprint of corporate operations, manufacturing, and products, as well as gradually pushing the entire value chain toward net zero carbon.

## Identifying and Assessing Climate Risks

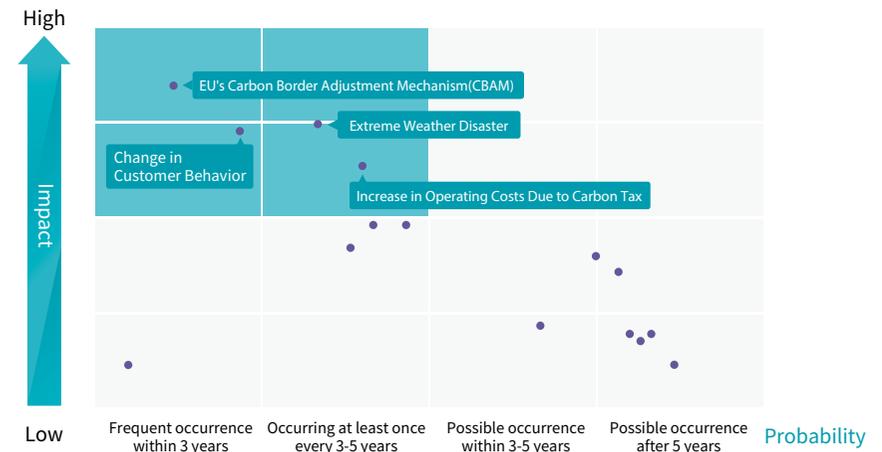
ASUS implements climate risk and opportunity identification based on the TCFD framework to assess the probability, frequency, and possible impact on ASUS. It evaluates its risk value and opportunity value and selects transition and physical risks that require prioritized attention. Based on the impact and significance to the Group's operations, ASUS identified the transition risks as Carbon Border Adjustment Mechanism (CBAM), increased operating costs due to carbon taxes, and changes in consumer behavior; meanwhile, physical risks include the risk of supply chain shutdowns due to extreme weather events.

### Transition risks

In order to respond to the complexity and impact of the market caused by climate change, we must adjust the supply and demand with various methods, including policy, law, technology, and market changes to mitigate and adapt to the needs of climate change prevention.

### Physical risks

The actual risks caused by long-term climate change and immediate extreme weather disasters would have a direct impact on the industry and supply chain disruptions.



## Financial Simulation of Climate Risks

ASUS fully recognizes that the transition risk and the physical risk will have different impact on sustainable operations. ASUS analyzed the transition risk of the following four scenarios according to the World Energy Outlook (WEO) published by the International Energy Agency (IEA) in 2021:

IEA Scenario	Scenario Description	Simulation Scenario Corresponding to ASUS Transition Risk
Stated Policies Scenario (STEPS)	Including the specific contents of policies that have been announced so far and intending to highlight the impact of the announced policies on the future energy system	BAU Scenario
Announced Pledges Scenario (APS)	Incorporating all the latest climate commitments of each country, including the Intended Nationally Determined Contributions (NDCs) and long-term net zero targets, and all carbon reduction commitments could be implemented on schedule	--
Sustainable Development Scenario (SDS)	Calling for the attainment of sustainable development, which involves keeping the increase in global average temperature below 2°C, and attaining the targets set forth in the "Paris Agreement"	2DS Scenario
Net Zero Emissions by 2050 Scenario (NZE)	Achieving net zero emissions by 2050	1.5DS Scenario

Source: This report.

ASUS referenced the methodology in the Sixth Assessment Report (AR6) published by the Intergovernmental Panel on Climate Change (IPCC) in August 2021 to evaluate the physical risks ASUS may encounter<sup>4</sup>. AR6 provided the "Shared Socioeconomic Pathways" (SSPs) evaluation method and established an integrated model based on currently quantifiable and measurable data. It uses different descriptive scenarios to simulate future social and economic conditions. In addition to the SSP Scenario, AR6 also included the radiative forcing in Representative Concentration Pathways (RCP)<sup>5</sup> Scenario from AR5 to evaluate future climate trends<sup>6</sup>.

Scenario SSPx-y <sup>7</sup>	SSP Description	RCP Description	Short Term (2021-2040)	Medium Term (2041-2060)	Long Term (2081-2100)	Simulation Scenario Corresponding to ASUS Physical Risks
SSP1-1.9	Sustainability	Global warming	1.5	1.6	1.4	-
SSP1-2.6		slowing down	1.5	1.7	1.8	-
SSP2-4.5	Middle of the road	Global warming accelerating	1.5	2.0	2.7	-
SSP3-7.0	Regional rivalry		1.5	2.1	3.6	-
SSP5-8.5	Fossil-fueled development		1.6	2.4	4.4	The most serious impact on operations

Source: This report.

<sup>4</sup>The World Climate Research Program of the WMO activated the Coupled Model Intercomparison Project (CMIP) in 1995 to integrate the climate simulation capacity of major meteorological research centers across the world. They followed internationally recognized modeling protocols to systematically conduct climate change simulations and projections using their own developed climate models. These results were the primary scientific basis for writing the IPCC's climate change assessment reports. AR6 used data from the CMIP. Source: <https://newsletter.sinica.edu.tw/1468/>

<sup>5</sup> RCP measures the degree to which the energy balance of the planet's atmosphere is affected by changes in the factors that affect climate. Source: [https://www.cwb.gov.tw/V8/C/K/Qa/Qa\\_2\\_1.html](https://www.cwb.gov.tw/V8/C/K/Qa/Qa_2_1.html)

<sup>6</sup> Source: Framework and summary of the Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP) and IPCC assessment report, [https://tccip.ncdr.nat.gov.tw/upload/activity\\_agenda/20211118205605.pdf](https://tccip.ncdr.nat.gov.tw/upload/activity_agenda/20211118205605.pdf)

<sup>7</sup>The "x" in SSPx-y stands for the socioeconomic pathway and the "y" stands for the approximate level of radiative forcing. Source: <https://eicca.itri.org.tw/ePaperDownload/48744886-082a-49bc-bed5-1bf2fb8ea21f>

With reference to the above IEA scenarios, ASUS defines ASUS' BAU, 2DS, and 1.5DS scenarios for financial simulation of transition risks. The physical risk of supply chain shutdowns due to extreme weather events is also assessed with reference to the AR6 SSP5-8.5 scenario. In order to meet ASUS' sustainable management objectives, the risk impact simulation scenarios will include, and not be limited to, the four types of risks listed in this report. We will continue to pay attention to the significance and urgency of the impact of risks on our operations, and we will select appropriate evaluation methods and simulation techniques to conduct financial risk impact assessments to estimate the impact of each risk on ASUS' operations. Afterwards, we will propose strategies and practices to respond to the risks.

## ► Transition Risks - Increase in Production Costs Caused by Carbon Taxes

### Scenario assumptions:

**01** ASUS carbon inventory data from 2020 is used as the base value for financial scenario simulations. The results of the carbon inventory show that the majority of the Group's carbon emissions come from the supply chain, production, and assembly stages, which account for 70% of the total carbon emissions, of which, more than 90% of suppliers are located in China.

**02** China is committed to reaching "carbon peak" (peak CO2 emissions) by 2030 and "carbon neutrality" by 2060. In order to achieve carbon neutrality, China already has national ETS and subnational pilots to regulate high carbon-emitting industries (e.g. the energy sector), but no specific carbon tax system has been implemented for non-high carbon-emitting industries. Therefore, ASUS estimates that China will implement a carbon tax system to regulate these non-high carbon-emitting enterprises by 2030.

**03** The growth rate of ASUS' global sales can be reasonably estimated, and the growth rate of global electronic devices is used as the driving force of ASUS' supply chain carbon emissions growth. The amount of carbon tax in 2030 is estimated with reference to the trading price of the national carbon market in China.

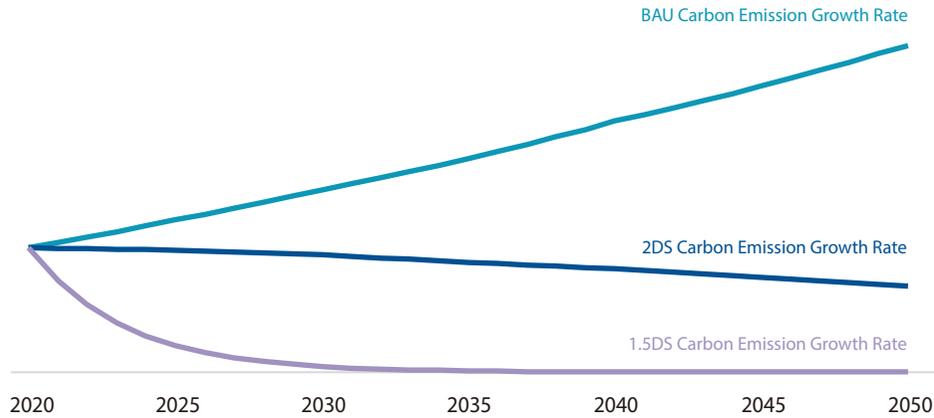


<sup>8</sup>Source: statista.com <https://www.statista.com/outlook/tmo/devices/pcs/worldwide#revenue>

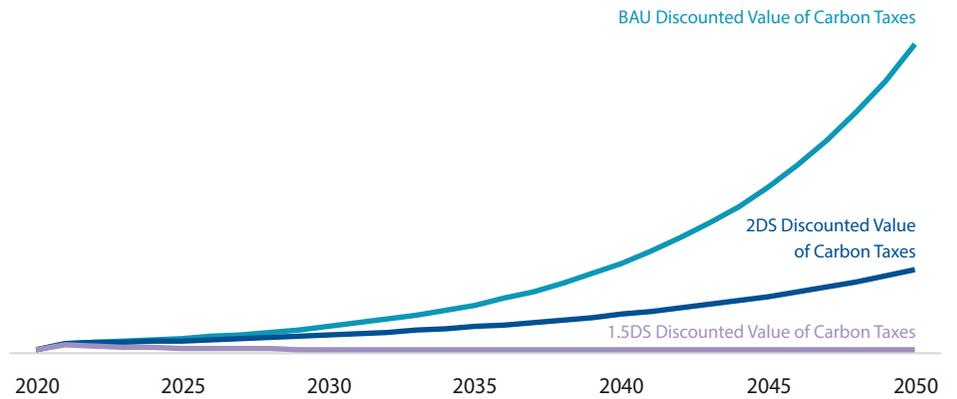
### Financial impact:

▶ In 2030, due to the increase in the supply chain's carbon emissions, the discounted value of carbon tax in 2030, under the 2DS and 1.5DS scenarios, is estimated to decrease by **36%** and **97%** compared to the BAU scenario, respectively.

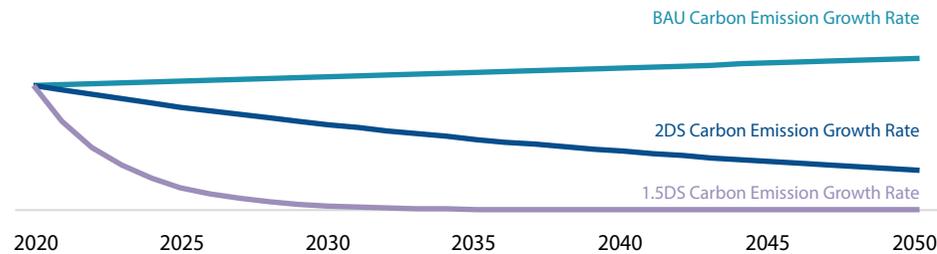
- Carbon Emission Growth Rate under Various Scenarios from 2020 to 2050 - Estimated by Sales Growth Rate



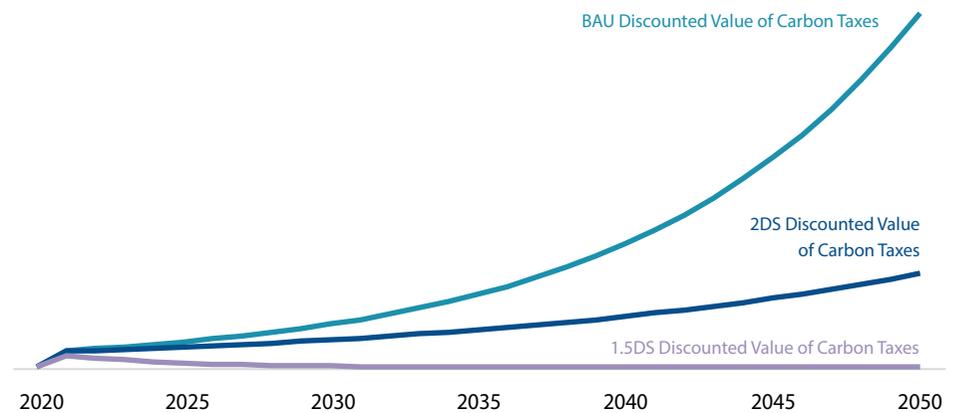
- Discounted Value of Carbon Taxes under Various Scenarios from 2020 to 2050 - Estimated by Sales Growth Rate



- Carbon Emission Growth Rate under Various Scenarios from 2020 to 2050 - Estimated by the Global Electronic Equipment Growth Rate



- Discounted Value of Carbon Taxes under Various Scenarios from 2020 to 2050 - Estimated by the Global Electronic Equipment Growth Rate



► Transition Risks - Carbon Border Adjustment Mechanism (CBAM) of the European Union.

Scenario assumptions:

01

The European Commission announced the Fit for 55 package on July 14, 2021. The package requires the 27 member states of the EU to meet the collective goal of reducing carbon emissions by at least 55% of their level in 1990 by 2030. The EU announced the draft of the CBAM to attain the goal and maintain the international competitiveness of EU companies. The purpose of the draft is to ensure that trading partners bear the same carbon emission costs as industries in the EU. The pilot run is expected to start in 2023 and will come into force in 2027.

02

According to the European Parliament’s proposal, CBAM should include indirect emissions, and it is expected that electronic products may be included in the next batch of control list . ASUS has assessed the possible impact of CBAM's implementation on ASUS products exported to the EU in advance.

03

With the carbon footprint of ASUS laptops has been approximately 300kg per unit on average in recent year, we have made estimate of the rate of carbon footprint reduction under the BAU, 2DS, and 1.5DS scenario.

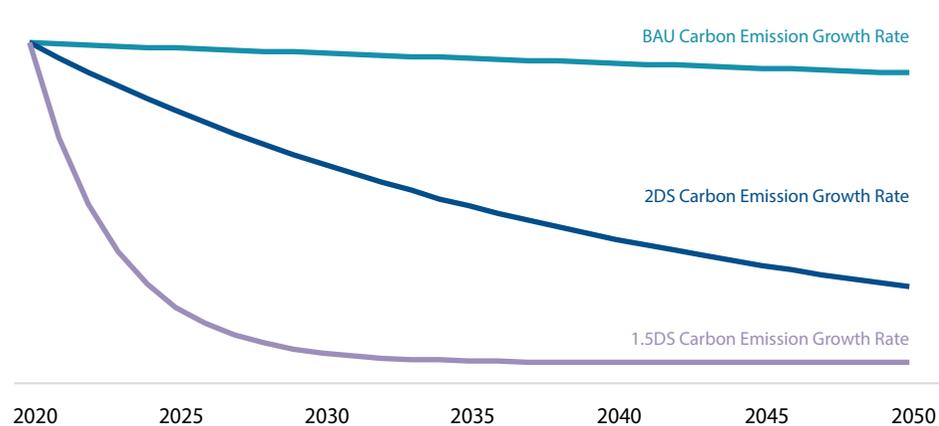
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The CBAM carbon price is based on the average closing price of weekly carbon auctions in the European Union Emission Trading Scheme (ETS).

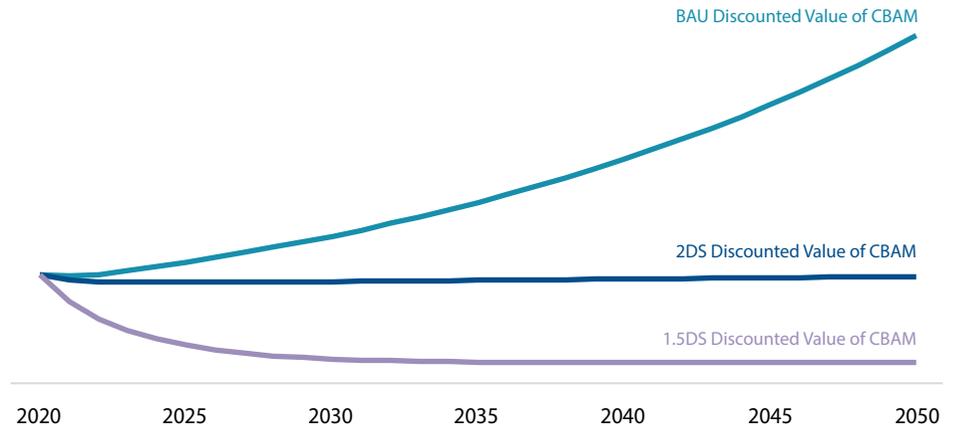
Financial impact:

► According to the assumptions based on the simulated parameters, ASUS estimated the discounted value of carbon taxes in 2027 to be reduced by **23%** and **87%** under the 2DS and 1.5DS scenarios, respectively.

• Carbon Footprint Reduction Rates under Various Scenarios from 2020 to 2050



• Discounted Value of 2020-2050 CBAM in Various Scenarios



## ► Transition Risks - Changes in Consumer Behavior

### Scenario assumptions:

01

According to the trend of Energy-Related Products (ErP) Directive revision, ASUS expects that the next version of ErP will be closer to the ENERGY STAR standard. Therefore, ASUS has internally set its energy consumption standards for major products to comply with the latest ENERGY STAR specifications.

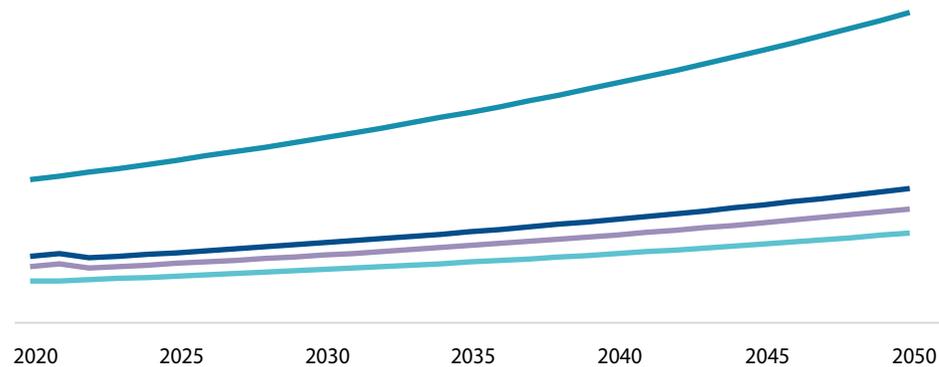
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ASUS has also set an additional 2025 goal, which is to ensure that each year's key products demonstrate energy-efficiency that's 30% above the ENERGY STAR standards the annual target.

### Financial impact:

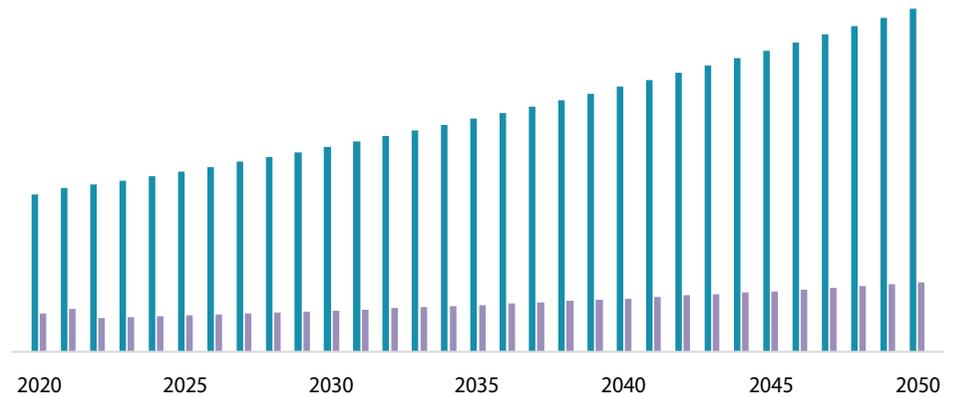
- ASUS' main products have met ENERGY STAR requirements since 2013. Although the requirements have become more stringent after numerous revisions, ASUS' products have demonstrated that the average energy-efficiency is **30%** above the ENERGY STAR standard due to their superior energy-saving designs. There are therefore no potential risks in this regard.
- The major financial impact on ASUS will be reducing the expenses of carbon-related costs. According to estimates, it can save **71%** and **33%** of carbon costs compared to the ErP and ENERGY STAR scenarios, respectively.

#### • Amount of ASUS Main Product's Electricity Demand in Each Scenario in 2020-2050



- Electricity demand for ErP products
- Electricity demand for ENERGY STAR products required by product regulations
- Electricity demand of ASUS products (when its energy efficient is 30% more efficient than ES standard)
- Measured Electricity consumption of ASUS products

#### • Carbon Reduction Benefit of ASUS Main Products in 2020-2050 - Comparison between ErP and ENERGY STAR



- Carbon reduction benefits of ASUS products\_Comparison to ErP
- Carbon reduction benefits of ASUS products\_Comparison to ENERGY STAR

## ► Physical Risks - Extreme Weather Events and Disasters

### Scenario assumptions:

01

Extreme weather events impact people and industries in environmentally fragile areas and have a negative impact on ASUS' supply chain. The occurrence of heavy rainfall and drought often cause uneven rainfall distribution, which has a significant impact on hydroelectric power generation and leads to power outages. These would in turn affect suppliers' regular operations and deliveries, and pose risks to ASUS' operations and reputation that cannot be ignored.

02

According to "CHINA 2050 HIGH RENEWABLE ENERGY PENETRATION SCENARIO AND ROADMAP STUDY," its use of renewable energy will reach 86% in 2050. ASUS's main notebook product assembly plant is located in Chongqing, China, and hydroelectric power generation is one of the main sources of power generation in this region. Therefore, we assessed the financial impact of the shutdown of ASUS' assembly plant due to the unstable power supply in Chongqing that was caused by extreme weather events.

### Financial impact:

- ASUS referenced and used the simulated CIMP6 results from Zhao et al. (2022) and estimated that in 2050 under the SSP5-8.5 scenario, the supply of electricity in Chongqing will decrease every year and cause power outages. The amount of loss due to suspensions accounts for **0.14%** of ASUS' 2020 revenue.



# 04

## Risk Management

In order to strengthen the Board of Directors' oversight of ASUS' risk management and to make risk management more "comprehensive" and "normalized", ASUS established the Business Continuity Management Committee (BCM) to focus on important but non-urgent risk events and to actively identify possible future risks, cope with threats, and have the ability to maintain continuous operations when threats occur.

ASUS has incorporated climate action into the BCM Sustainability Task Force, which is responsible for risk monitoring and risk prevention management. Through continuous reviews of business continuity management, dynamic adjustments of major concerns, and effective integration of internal and external resources, ASUS is now more capable of anticipating, preparing, responding, and adapting to continuous changes in the environment, as well as minimizing their impact and disruption time.



# 05 Climate Actions and Goals

## ASUS Net Zero Vision

As the threat of climate change intensifies, "net zero emissions by 2050" has become the consensus in global climate actions. Nearly 140 countries across the world that produce 88% of global carbon emissions have pledged to achieve net zero emissions by 2050, which demonstrates that the world is moving towards net zero emissions. According to the "Net Zero Economy Index 2021" published by PwC in 2021, achieving net zero emissions by 2050 will be difficult. Halving carbon emissions by 2030 and achieving net zero emissions by 2050 will require a five-fold increase in the rate of global decarbonization. This means that every industry across the world must accelerate their transformation to attain net zero emissions.

ASUS has set science-based targets with a three-staged implementation approach of enhancing energy efficiency, expanding the use of renewable energy, and removing residual emissions with innovative technologies to lead the value chain to net zero.



## Enhance Energy Efficiency

### ► Low carbon products

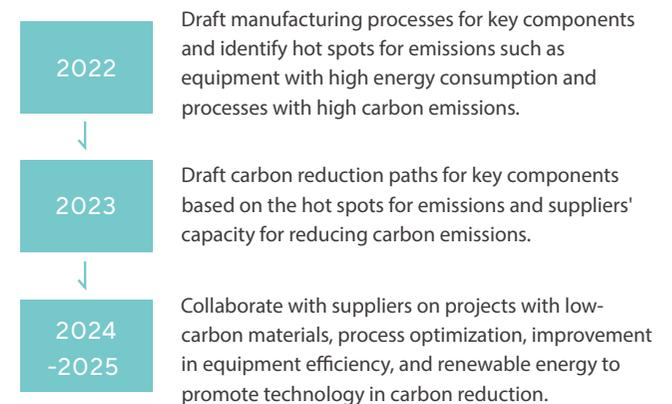
More than 80% of the negative environmental impact of a product during its life cycle is determined at the design stage. Based on this understanding, ASUS strictly quantifies the potential environmental impact of products at different stages, including raw material extraction, manufacturing, transportation, use, and disposal in accordance with ISO 14040 and 14044 Life Cycle Assessment (LCA) standards. Opportunities for product improvements are identified at various points in the product life cycle. Furthermore, the circular economy is incorporated in the product design, production, and marketing services, such as using environmentally friendly materials, improving product energy efficiency, and extending the product life cycle to develop low-carbon products.

Low-carbon products are a major appeal for ASUS in its efforts to reduce carbon emissions. ASUS not only optimizes its resource recycling process, but also uses environmental friendly materials. According to data, the amount of plastic used in ASUS' products accounts for over 30% of the total weight of mainstream products, making it the most used material. Therefore, ASUS is working with key material suppliers to explore new ways to increase the amount of post-consumer recycled resin (PCR) and use it as much as possible without compromising on the quality and durability of ASUS products. Since 2017, ASUS has used over 1,064 tons of PCR in its new products, and will expand its product categories and applications in the future. ASUS will continue to take concrete actions to respond to the needs for a circular economy and implement the concept of sustainability.

In addition, ASUS has invested in long-term R&D resources to improve the efficiency of hardware and software energy usage in order to continuously reduce carbon emissions during the usage of its products. The ENERGY STAR Program is the most stringent global energy efficiency program. The program investigates the best available technology before each revision and maintains its high energy efficiency threshold status by taking global energy efficiency regulations into account. ASUS' main products are designed to be more energy efficient than the ENERGY STAR standard, and external power supplies use Level VI, which is the highest energy efficiency level in the market. This is to avoid hindering sales, which may be caused by global energy efficiency regulations and done to create competitiveness in the green product market. In addition, ASUS has set a 2025 goal of ensuring that each year's key products demonstrate energy-efficiency that's 30% above the ENERGY STAR standard.

### ► Carbon reduction in the supply chain

The supply chain is the most significant source of greenhouse gas emissions for ASUS. Data from over 100,000 environmental footprint surveys over the years has been analyzed and nine key component manufacturers that accounted for over 90% of the total supply chain carbon emissions have been identified. These nine suppliers include: panels, motherboards, ICs, cables, power supplies, mechanical parts, keyboards, batteries, hard drives, and assembly foundries. ASUS will work with these nine key suppliers to develop a carbon reduction plan that will guide suppliers to continue to refine their processes and improve their energy use in the following manner:



## Expand the use of renewable energy

ASUS' global operation carbon emissions come from the use of electricity in offices. To improve the energy efficiency of ASUS' operations, the ISO 50001 energy management system was introduced in 2015 to identify high energy-consuming hotspots and equipment, and improve their energy efficiency. Both operating headquarters have reached the LEED Platinum certification, the highest level of green building, and the marginal benefit of improved energy efficiency has been achieved by reducing electricity use by 1% per year. The development of renewable energy is a necessary approach. ASUS has started to sign a memorandum of collaborations with renewable energy-related industries to gradually increase the use of renewable energy by analyzing the optimal solution for the global operations of renewable energy and mapping out the short-, mid-, and long-term renewable energy paths.

ASUS follows the RE100 organization's recognition of renewable energy and procures renewable energy technologies that are beneficial to the environment and can reduce carbon emissions, such as wind energy, photovoltaic energy, geothermal energy, and hydroelectric energy. These technologies need to comply with the Chinese state's renewable energy transfer and matching system to achieve the ASUS RE100 goals in a compliant manner. In terms of the procurement strategy for renewable energy, ASUS has also comprehensively considered the layout of its operating bases and the current renewable energy market. It plans renewable energy procurement targets in phases, actively collaborates with renewable energy companies, and revises the renewable energy procurement ratios on a rolling basis according to the trends of the technological development of renewable energy. ASUS also considers the degree of commercialization of new renewable energy technologies and gradually incorporates them into the ASUS RE100 energy portfolio in order to take the company's profit momentum and carbon reduction obligations into account.

## Innovative technologies

According to the IEA Net Zero Report, the technologies used to achieve net zero by 2050, apart from mature commercial technologies such as wind power, solar power, and electric vehicles, include carbon reduction technologies that are mostly prototypes and still need technological breakthroughs and market testing. Considering the challenges of innovating new carbon reduction technologies and the reliance on a large amount of resources, ASUS actively focuses on the development trends of technology and the feasibility of innovations. It expects that resource investments made by ASUS Group will allow commercialization to be accelerated, thus contributing toward the global net zero. ASUS selects technologies with better carbon reduction potentials and commercial viability. It is an active participant in the international carbon market, which will not only achieve ASUS' net zero milestone, but also create new profit momentum.

### Long-Term

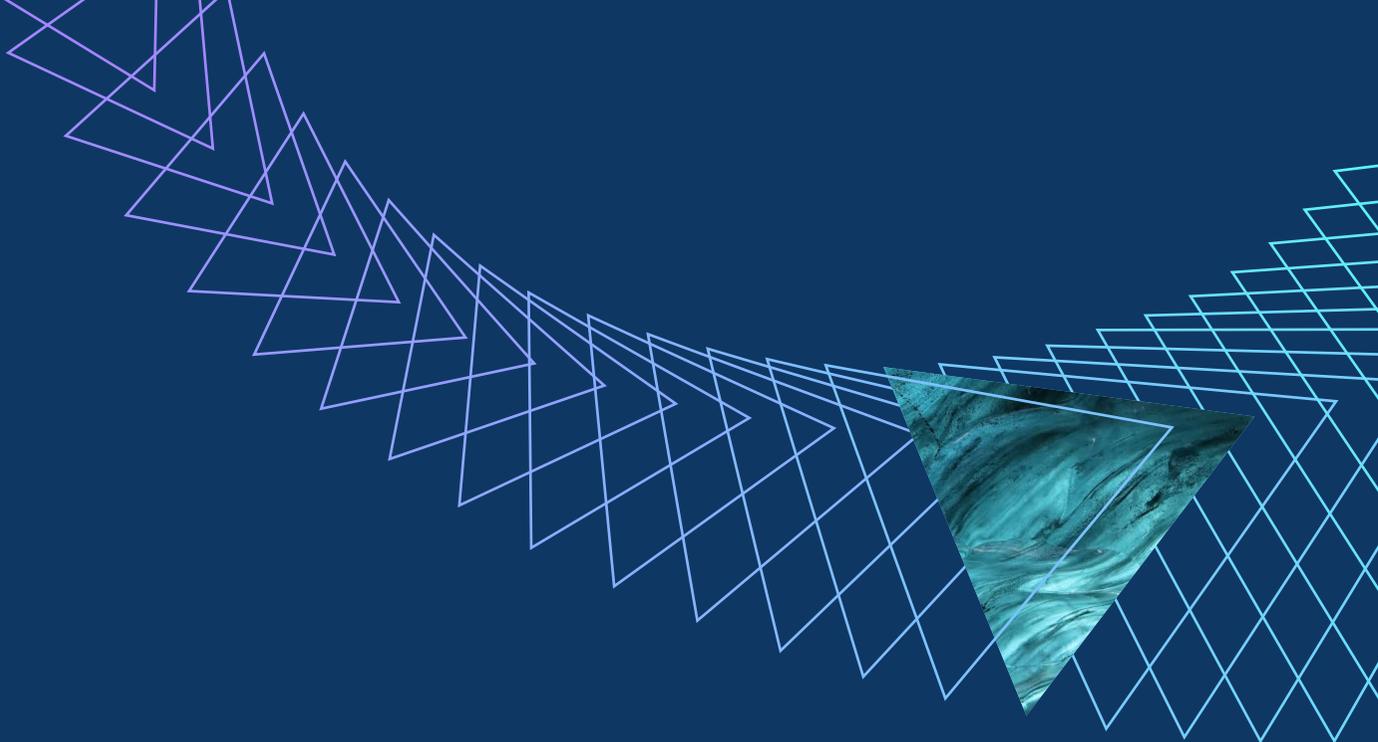
- ▶ Revising the renewable energy procurement ratio on a rolling basis
- ▶ Incorporating new renewable energy technologies according to respective commercialization levels

### Mid-Term

- ▶ Signing of Corporate Renewable Power Purchase Agreements (CPPA)

### Short-Term

- ▶ Setting ASUS renewable energy targets in phases
- ▶ Actively collaborate with renewable energy companies



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