
SAS
Sino-American Silicon Products Inc.
2022
Sustainability Report
Environmental
Social
Governance

Contents

About This Report

Report Axis

Sino-American Silicon Products Inc. (hereinafter referred to as “SAS”) and its subsidiaries are primarily engaged in the R&D, design, manufacturing, and sales of semiconductor silicon materials and components, photovoltaic (PV) and communication wafer materials, as well as technical services for PV power system integration and installation. In 2017, SAS began preparing and filing Corporate Social Responsibility Reports (renamed Sustainability Report in 2021). Based on long-term in-depth interactions with local communities and engagement with stakeholders, SAS discloses in the report relevant information on material topics concerning corporate governance, economy, environment, and society (including human rights), implementation and improvement outcomes, and the company’ s future visions and goals in relation to sustainable development.

Report Editing and Final Draft

This report was prepared and compiled by the following organizations and procedures:

● Sustainability Report Task Force

The task force is composed mainly of staff members from the President’ s Office and the Environment, Health & Safety (EHS) Management Department, who are in charge of the overall planning, information compilation / organization, communication integration, and editing / revisions.

● Editing Procedures, Review and Final Draft

Initial drafts produced by the President’ s Office and EHS Management Department are distributed to all unit members (ESG Committee members) and the Audit Office for review, and then published after review and approval by the chairperson of the Board (chair of the ESG Committee).

Basis of this Report

The content of this Sustainability Report was prepared in alignment with the Global Reporting Initiative (GRI) Standards, indicators of semiconductor industry in the Sustainability Accounting Standards issued by the Sustainability Accounting Standards Board (SASB). Additionally, this Report was also prepared in accordance with the Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TWSE Listed Companies. SAS discloses and responds to material topics of concern to stakeholders in relevant chapters based on materiality analysis results.

Report Boundaries and Reporting Period

This report covers the following period and scope:

Publication time: June, 2023

Coverage time: January 1 to December 31, 2022

Reporting Scope: The scope of this report includes the performance data, financial status, and sales performance of SAS Headquarters, Chunan Branch, Yilan Branch, Hsu-Hsin Branch, and semiconductor business group GlobalWafers Co., Ltd. (hereinafter referred to as “GlobalWafers”), which are consistent with the scope of the company’ s consolidated financial report. Other subsidiaries are also included in the scope in addition to the aforementioned companies. The entities included in this report account for over 80% of the consolidated revenue. The financial data have been verified by KPMG in accordance with the International Financial Reporting Standards (IFRS). All financial numbers in the report are denominated in NTD.

The scope of disclosure for environmental performance mainly includes Chunan Branch, Yilan Branch, and GlobalWafers (all of which have the largest number of plants and the most significant impact on the environment compared to other subsidiaries), as well as the solar system performance of Hsu-Hsin Branch. The scope of disclosure for social (including human rights) performance mainly includes the Headquarters, Chunan Branch, Yilan Branch, Hsu-Hsin Branch, and GlobalWafers.

Because GlobalWafers has released a separate sustainability report, relevant contents mainly cover the Headquarters, Chunan Branch, Yilan Branch, and Hsu-Hsin Branch. The data of GlobalWafers were also included in the performance statistics. Relevant performance data are provided and organized by internal units and presented using an internationally accepted indicator calculation method.

Note: GlobalWafers Co., Ltd. referred to in this report includes GlobalWafers Headquarters, GlobalWafers Chunan Plant, GlobalWafers Taisil Branch, GlobalWafers Japan Co., Ltd., MEMC Japan Ltd., MEMC Korea Company, Kunshan Sino Silicon Technology Co., Ltd., MEMC Electronic Materials Sdn. Bhd., GlobiTech Incorporated., MEMC LLC, MEMC Electronic Materials S.p.A, Topsil GlobalWafers A/S, and GlobalWafers Singapore Pte. Ltd.

SAS will regularly release sustainability reports on an annual basis and provide electronic files of the report in the ESG section of the company website for download.

Previous publication date: June, 2022

Report Assurance

To strengthen the report' s compliance with GRI Standards and enhance the transparency and credibility of the company' s sustainability information, the ESG Committee of SAS has resolved that the company' s sustainability reports shall be verified by an independent third party. Accordingly, this Report has been verified by DNV Business Assurance Co., Ltd. to be in compliance with the GRI Standards and the moderate level of assurance of DNV VeriSustain. The verification statement is provided in the appendix. The financial data disclosed in the report are CPA-certified public information and are consistent with the data presented in the company' s annual reports.

Contact

Should you have any comments or suggestions regarding this report, please feel free to contact us in one of the following ways:

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Official website: https://www.saswafer.com/

Message from the Chairperson

As the impact of climate change intensifies, energy transition as a means of slowing down climate change or adapting to the pressure arising from climate change has become a global consensus. Renewable energy forms the core of energy transition and also plays a key role in achieving carbon neutrality. Net zero carbon emission is a global development trend. Taiwan lacks such natural resources as petrochemical, but it remains the preferred place for renewable energy development, thanks to its unique abundance of wind and solar energy sources. As a provider of total green energy solutions, Sino-American Silicon Products Inc. (SAS) has extended the scope of its business to include the production, storage, sale, and distribution of green energy. We take actions to support and respond to the world' s, including Taiwan' s net-zero transition initiative by pledging on behalf of the Group and its subsidiaries, to achieve 100% use of renewable energy by 2050.

While striving for corporate sustainability, SAS is also committed to its social responsibilities. We endeavor to exert a positive impact on industries and society in the areas of corporate governance, environmental protection, and employee care, and hope to create the value of sustainability for economic growth, environmental protection, and social advancement.

Business Growth and Sustainability Governance

In 2022, the entire solar energy industry was still combating various new and existing challenges in the business environment. However, as the world enters the post-pandemic era, renewable energy became not only a climate issue but also an issue that critically affects a nation' s energy security. Therefore, European and American countries vigorously promoted the autonomy of renewable energy supply chains through legislation, which significantly increased demand for solar energy installation in various countries. SAS ensures the steady operation of PV supply chains by providing high-performing monocrystalline batteries and modules for the operation of downstream power plants, and also by supporting the deployment of energy storage and renewable energy. In addition, the Company expands its high-value businesses by actively developing industries that are key to the semiconductor supply chains. As a result, SAS delivered outstanding business performance in 2022.

01 Consolidated revenue was NT$81.871 billion,an increase of 18.93% from the previous year.

02 Consolidated gross profit margin was NT$31.929 billion, up 30.18% from the previous year.

03 Net income attributable to parent company was NT$8.716 billion, up 27.97% compared to previous year.

04 Earnings per share reached a record-high amount of NT$14.87.

05 SAS was ranked in the top 5% of all TPEx-listed companies during 9 consecutive years of Corporate Governance Evaluation.

Global issues concerning climate change have garnered increasingly more attention in recent years, with renewable electricity dominating the future of energy. Driven by the vigorous promotion of green energy policies by the Taiwan government, solar power plant installations in Taiwan are expected to continue to grow this year. SAS will actively develop solar power plants and build smart grids to accelerate corporate profitability, all the while ramping up efforts to deploying solutions for the storage, sale, and distribution of energy so as to accelerate the enhancement of corporate profitability and business performance. Regarding corporate governance, we will constantly refine governance-related performance to strengthen our sustainability commitment.

Leading Industries with Frontier Technologies

To provide customers with high-quality solar cells, the Company' s R&D team continuously improves P-type monocrystalline cells, achieving a maximum conversion efficiency of 22.9% in mass production. The average conversion efficiency in the mass production of P-type monocrystalline cells is expected to increase to 23.10% by 2023. To keep pace with international trends, satisfy the needs of our customers both at home and abroad, and take further steps in promoting industry upgrade, our Yilan Branch began developing production lines for large-sized (M10) solar cells in 2022, and successfully completed development in the same year thanks to the concerted efforts of all our employees! In addition to providing large-sized cells (M6) for future markets, the branch is also fully prepared for the next-generation large-sized cells (M10/G12) as well as a new technology (TOPCON) for process adoption, both of which enable SAS to provide customers with better and more efficient solar cell products. To meet customers' needs for various solar cell products, the Company also leverages its extensive R&D experience, developing not only large-size solar cell products, but also solar cell products that closely meet customer needs.

Exploring New Sources of Green Energy in Face of Transitioning to Net Zero Emissions by 2050

According to the 2023 Global Risks Report published by the World Economic Forum in the beginning of the year, six of the top 10 risks over a 10-year period are related to the environment. Compared with the 2022 report, this year' s report placed a stronger emphasis on the importance of climate actions given the growing intensity of environmental risks. Therefore, governments and corporate entities worldwide began setting/raising their carbon emission target. According to statistics, nearly half of the world' s top 2000 companies have made a net zero commitment, which however was impeded by the pandemic, war, and inflation. As the world gradually frees itself and recovers from COVID-19, looking ahead to 2023 and beyond, we anticipate increased interventions from the government and businesses playing a more vital role to address such urgent issues as climate change.

At present, net-zero carbon emissions by 2050 seems to be an impossible task, prompting multiple companies to launch initiatives and urge others to follow suit. Using the Science-Based Reduction Initiative (SBTi), a net zero carbon emissions goal generally and internationally recognized, as example, it follows the stringent standard net-zero emission methodology established in the global warming report by the Intergovernmental Panel on Climate Change (IPCC) for 1.5° C pathways. The moment that response to climate change becomes a paradigm shift for business operations, the number of companies setting targets via the SBTi can be viewed as the degree to which an economy is actively investing in low-carbon transition. As of January 2023, 90 companies based in Taiwan have joined the SBTi (data source: SBT Website). Following our RE100 declaration in 2021 and the adoption of TCFD in 2022, SAS Group plans to apply to join SBTi in 2023 and take part in using the scientific approach of SBTi to evaluate reduction pathways. To demonstrate our action and determination to reduce carbon emissions, SAS introduced product carbon footprint and organizational carbon inventory in 2015. In 2021, we conducted carbon inventory and verification by using the latest ISO 14064-1 standard, and included Scope 3 emissions as a means of preparing for our application to join the SBTi.

In keeping pace with Taiwan' s 12 Key Strategies of Net-Zero, SAS actively deploys energy storage systems and electric transportation vehicles to strengthen local green energy supply chains. Through private equity investments, SAS joins forces with private equity investors to develop energy storage equipment and deploy electric transportation vehicles (including EV chargers and batters for electric vessels, etc.). In doing so, SAS can be vertically integrated in the solar energy industry chain, transforming from a purely material provider to one that engages in maintenance and operational management of PV systems. In recent years, we stepped into the fields of green electricity development and sales, expanding our business landscape to include clean energy, thereby becoming a provider of total green energy solutions. To keep abreast of the massive green energy opportunities from the world' s net zero policies and support Taiwan government' s continuous promotion of renewable energy policies, SAS and its business partners signed a long-term agreement to supply solar cells. Such cooperation will strengthen Taiwan' s local energy industry chain, and create high-quality and high-efficiency solar products through supply localization. By forming a strong alliance, the Company hopes to maximize the benefits of vertical integration and seize business opportunities derived from renewable energy transition.

Employee Care and Social Engagement

2022 was still a challenging year, with COVID-19 introducing more uncertain factors to the market environment. Undeterred, SAS continued to strive for innovation, R&D, lower cost, and capacity building. The underlying purpose of a company's existence is to implement effective corporate governance and focus on social responsibility. SAS will stay true to our core values and spare no effort in creating a friendly workplace, protecting the environment, caring for the society, and contributing to the ecological environment.

SAS endeavors to build a safe, healthy, and friendly workplace, fulfill a people-oriented commitment to employee care, observe governmental labor regulations, establish a sound salary and benefit system, and create a friendly working environment where employees' job security is ensured. We attach importance to employees' career development as well as their physical, mental, and spiritual wellbeing; plan a diverse range of training courses that aim to improve employee knowledge and skills; and also pay attention to employees' work–life balance. Through a multitude of efforts, we hope to build a happy, healthy workplace and continue to pursue excellence together with employees even in face of fierce challenges from global competition.

In terms of social engagement, SAS Group has been a long-time participant of various charity activities. We are committed to caring for disadvantaged groups and addressing issues that concern indigenous groups in rural areas. Each year, SAS organizes fundraising and charity events in rural areas to provide support and assistance to increasingly more regions and children across Taiwan. Our determination and mission to assist children living in rural areas were undeterred by COVID-19. We take actions to spread our love for communities, perform our duty of care to society, fulfill corporate social responsibilities, and demonstrate our determination to strive for sustainability.

Sino-American Silicon Products Inc. Chairperson

徐秀蘭

2022 Key Indicators and Recognition

▲ Ranked in the top 5% (for 9 consecutive years)

▲ Won the 2022 Taiwan Excellent PV Award
▲ Sunrise PV Four won the 2022 Top Solar System Award

▲ Chunan and Yilan Branches obtained the Badge of Accredited Healthy Workplace

Corporate Governance Evaluation

2013
Recieved A rating in the information Disclosure Review

2014
Recieved A+ rating in the information Disclosure Review
Ranked in the top 5% of all TPEx listed companies in the 1st corporate governance Evalution

2015
Ranked in the top 5% of all TPEx listed companies in the 2nd corporate governance Evalution

2016
Ranked in the top 5% of all TPEx listed companies in the 3rd corporate governance Evalution

2017
Ranked in the top 5% of all TPEx listed companies in the 4th corporate governance Evalution

2018
Ranked in the top 5% of all TPEx listed companies in the 5th corporate governance Evalution

2019
Ranked in the top 5% of all TPEx listed companies in the 6th corporate governance Evalution

2020
Ranked in the top 5% of all TPEx listed companies in the 7th corporate governance Evalution

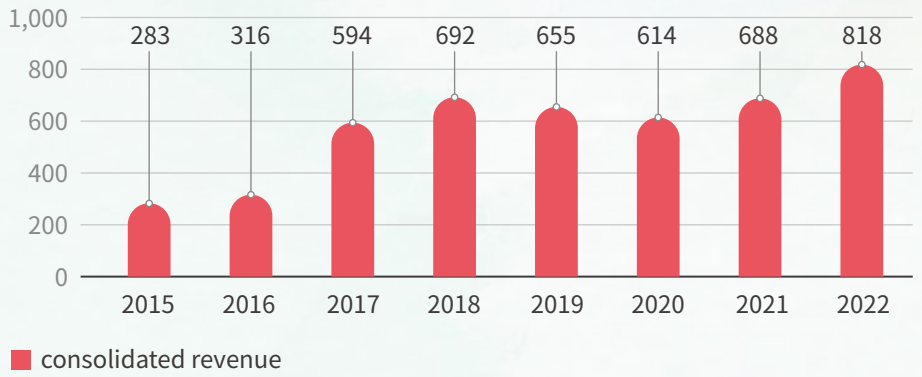
2021
Ranked in the top 5% of all TPEx listed companies in the 8th corporate governance Evalution

2022
Ranked in the top 5% of all TPEx listed companies in the 9th corporate governance Evalution

Economic Aspect

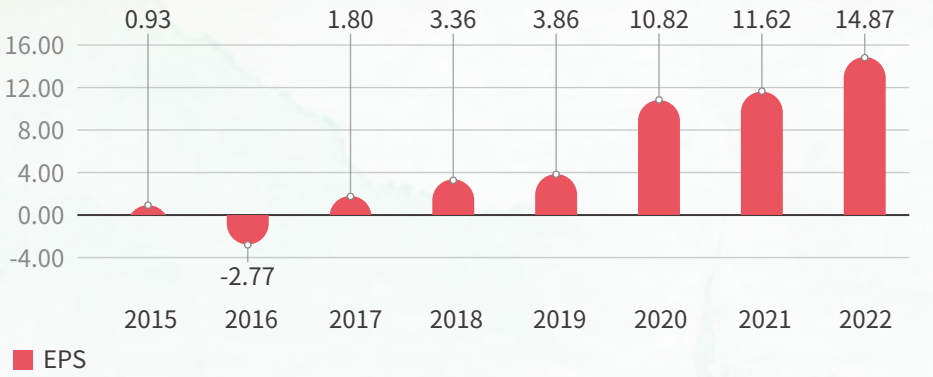
Revenue (consolidated revenue)

Unit: NT$ 100 million



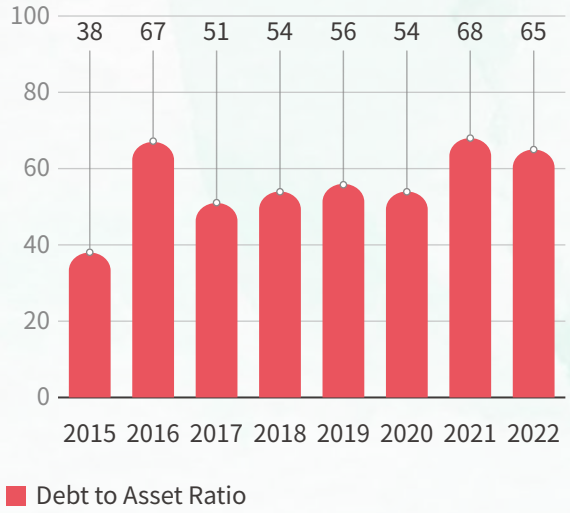
Earnings per share (EPS)

Unit: NT$



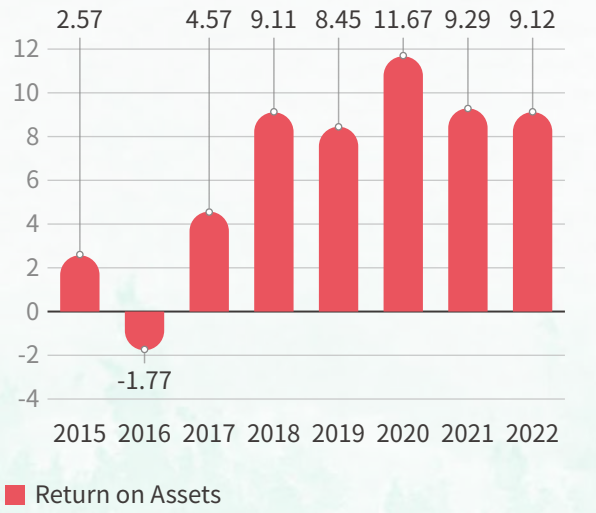
Debt to Asset Ratio

Unit: %



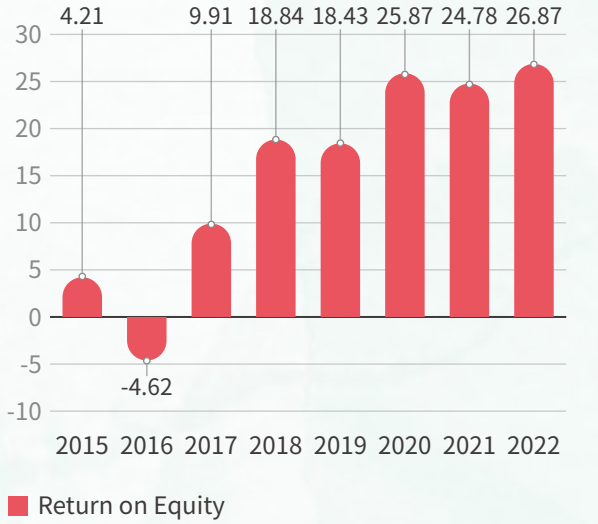
Return on Assets

Unit: %



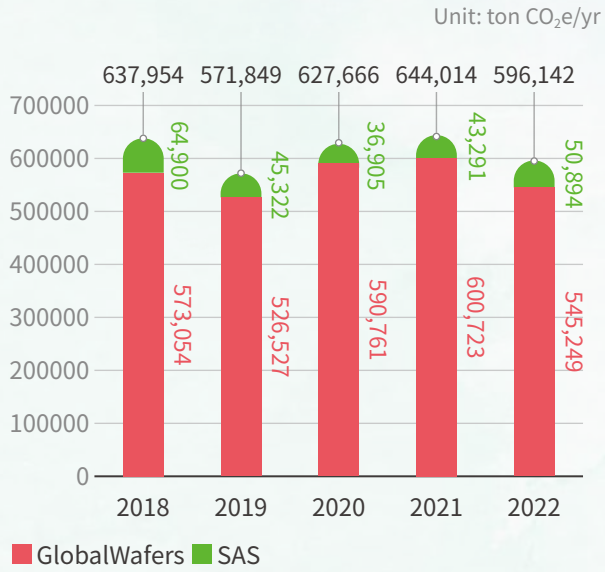
Return on Equity

Unit: %

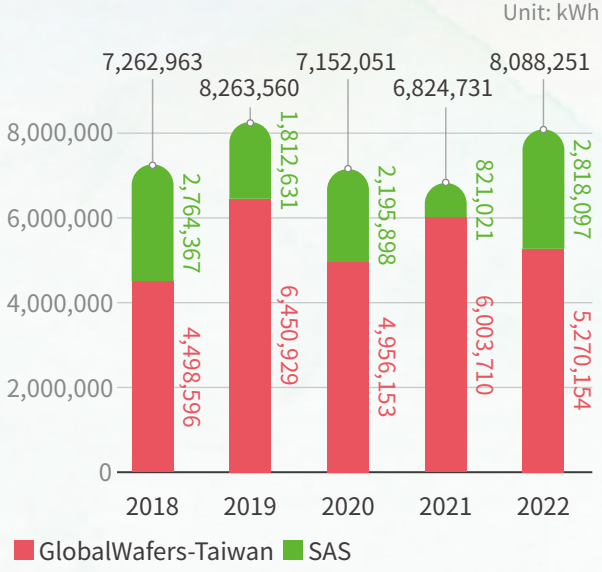


Environmental Aspect

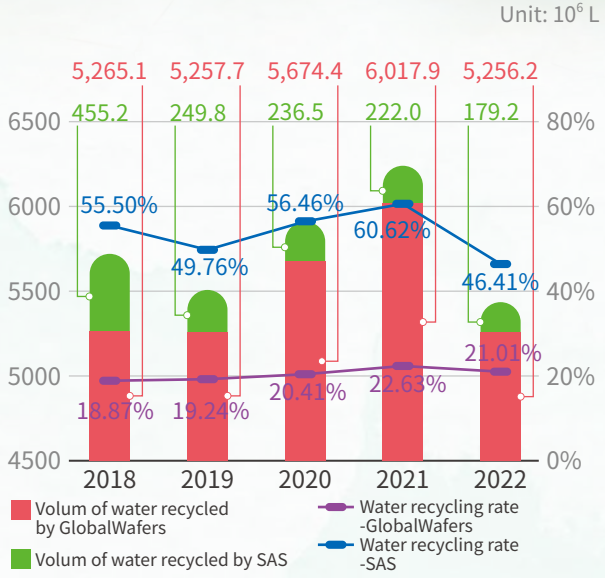
Carbon emissions equivalent



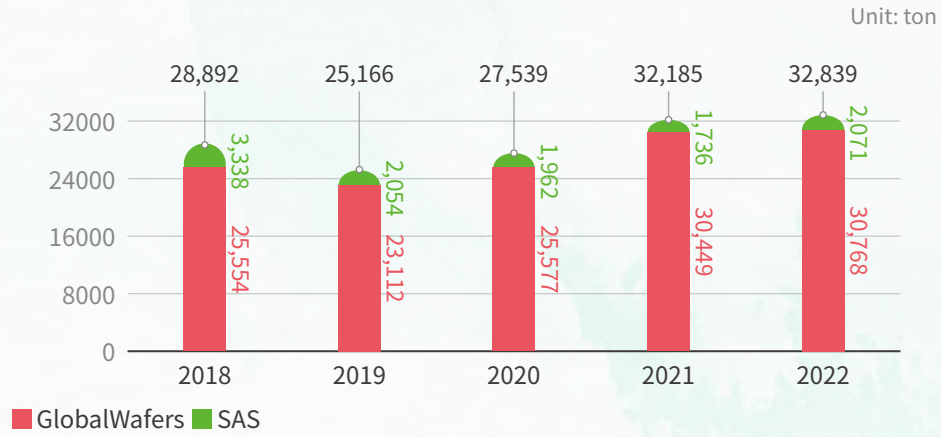
Electricity conservation



Recycled water

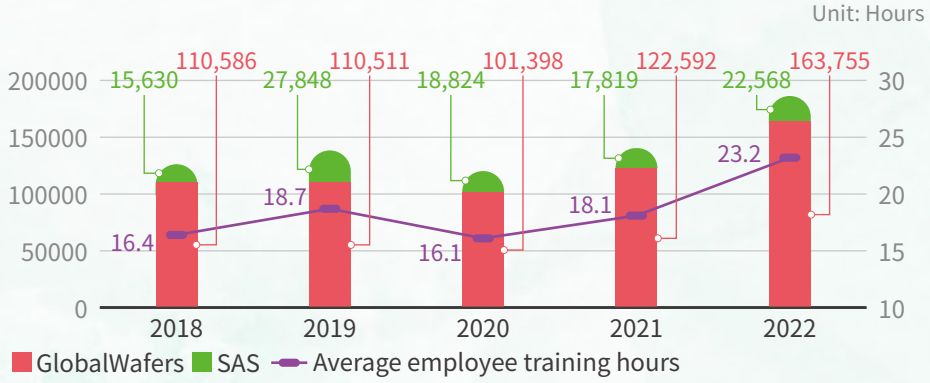


Waste recycle and reuse



People aspect

Training hours



Sino-American Silicon

Company Profile

Sino-American Silicon Products Inc. (hereinafter as “SAS”) was established on January 21, 1981. As a manufacturer of wafers, SAS operates two major business groups - semiconductor and solar energy. On October 1, 2011, SAS sectioned out its semiconductor silicon wafer operations, operating it independently under GlobalWafers Co., Ltd. (hereinafter as “GlobalWafers”). Since then, SAS began focused on solar energy, running production lines for solar silicon ingots, solar silicon wafers, solar cells, and modules. The company also engages in downstream power generation system businesses, becoming one of the most comprehensive vertically integrated companies nationwide.

We are committed to the research and development of advanced technologies and actively launch new-generation solar cell products with high conversion efficiency, which have been the key to our success and to continuously attracting niche customers. With the strategic goal of vertical industry integration, SAS achieves the synergy of comprehensively integrating upstream, midstream, and downstream industries and expands its global deployment for terminal solar systems, which is expected to play a key role in the fields of solar energy and environmental protection while creating greater benefits for our shareholders and employees.

On August 1, 2014, we acquired a high performance solar cell manufacturer, Sunrise Global Solar Energy Co., Ltd., through which we gained ownership to a solar module manufacturer, Aleo Solar GmbH, in Germany, which Sunrise Global acquired on May 16, 2014.

In 2015, we became an active investor of global solar power plants. Through our subsidiary, SAS Sunrise Inc., we constructed a 50MW solar power plant in Palo, Leyte, the Philippines, which commenced operation in May 2016.

GlobalWafers is a key subsidiary of SAS. In 2016, GlobalWafers successfully acquired Denmark’ s Topsil Semiconductor Materials A/S (hereinafter as “Topsil”) and SunEdison Semiconductor Limited (hereinafter as “SunEdison”), expanding the scope of its products from CZ to large-size epiwafers, polished silicon wafers, silicon-on-insulator wafers, and FZ semiconductor wafers. We created a wider range of product lines by combining GlobalWafers’ cutting-edge business model, marketing advantages, and diversified product supply with SunEdison’ s global bases and product R&D capabilities. Currently, SAS is headquartered in Hsinchu City of Taiwan and operates businesses worldwide, including mainland China, Japan, South Korea, Malaysia, the United States, Italy, Denmark, and Singapore.

In 2022, SAS gained access to the renewable electricity trading market when its new subsidiary Sustainable Energy Solution Co., Ltd. obtained the license to sell electricity. Since its establishment through to its vertical integration in the solar energy industry, SAS has extended its reach from solar cells and modules to PV power stations, and engages in maintenance and operational management, becoming a global professional supplier of green energy solutions. To expand our green business, SAS established Sustainable Energy Solution Co., Ltd., a new subsidiary that specializes in the development of green energy. Coupled with SAS’ s extensive experience and leading status in the solar energy industry, Sustainable Energy Solution endeavors to afford a total range of green services, including planning the development of renewable energy and integrating the needs of buyers and sellers, and establishes total solutions to green electricity procurement. Sustainable Energy Solution is the best strategic partner for fulfilling corporate social responsibility in alignment with global ESG trends. Nevertheless, Sustainable Energy Solution will keep pace with global trends in the adoption of renewable energy, and continue to meet the group’ s renewable energy targets and strive for net-zero emissions.

Company Profile

Date of Establishment	January 21, 1981
Capital	NT$5.86 billion
Main Product and Technology	Solar ingots, solar wafers, solar cells, solar modules, solar power systems, and silicon material application products
Number of Employees	SAS (Headquarters and Chunan, Yilan, Hsu-Hsin Branch): 729 employees [Note 1]
Chairperson & CEO	Hsiu-Lan Hsu
Vice Chairperson & CEO	Tang-Liang Yao
President	Chen-Chien Chen [Note 2]
Headquarters	4 F, No. 8, Gongye E. 2nd Rd., East Dist., Hsinchu City
Business locations	⦿ Hsinchu headquarters: 4 F, No. 8, Gongye E. 2nd Rd., East Dist., Hsinchu City ⦿ Chunan Branch: Hsinchu Science Park, No. 6, Kezhong Road, Chunan Township, Miaoli County ⦿ Yilan Branch: No. 1, Sec. 2, Ligong 1st Rd., Wujie Township, Yilan County ⦿ Hsu-Hsin Branch: Hsinchu Science Park, No. 6, Kezhong Road, Chunan Township, Miaoli County
Affiliates	Affiliates of SAS are engaged in the following industries: semiconductor and wafer manufacturing, solar cell and module manufacturing, solar power systems, and sale of renewable electricity

Note 1: Number of employees includes those still working at the headquarters and branch as of 2022.12.31 and excludes subsidiary employees.
Note 2: Employed in April 2023.

Shareholder Composition

Shareholder / Quantity	Governmental institutes	Financial institutions	Other legal entities	Individuals	Foreign institutions and foreigners	Total
Number of people	7	56	422	95,895	530	96,910
Number of shares owned	10,372,774	76,792,985	89,030,115	261,451,856	148,573,921	586,221,651
Shareholding percentage	1.77%	13.10%	15.19%	44.60%	25.34%	100.00%

Data Record Date: 2023.4.22

SAS upholds the principles of integrity and strives to emerge victorious amides challenges and difficulties, becoming a producer of high-efficiency solar wafers, cells, and module products. enterprise after enduring through a series of challenges. SAS is committed to interdisciplinary system integration to achieve vertical industry integration and expand our solar energy business, thereby becoming one of the main professional suppliers of green energy solutions in Taiwan. SAS constantly seeks the next growth momentum and hopes to pursue sustainability and growth together with customers and suppliers. Our products are primarily sold in Asia, Europe, America, and other regions. SAS is committed to environmental protection in hopes of becoming a world-class provider of green energy solutions.

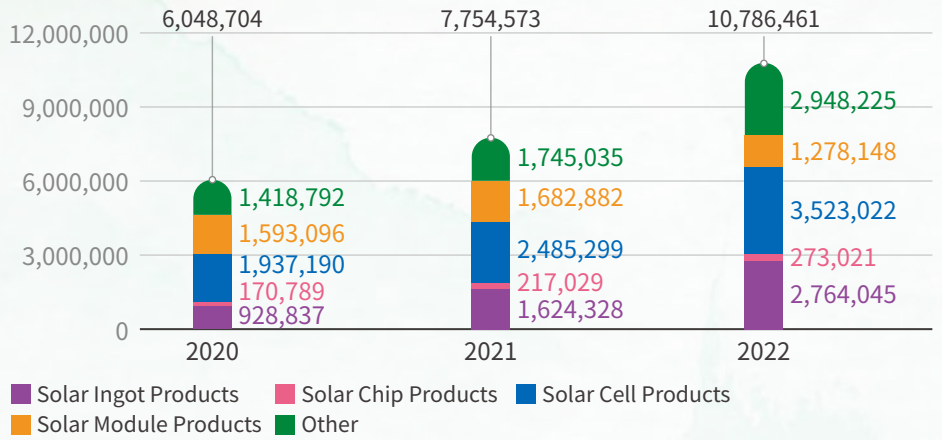
Market and Services

Solar Energy Industry

Product Sales

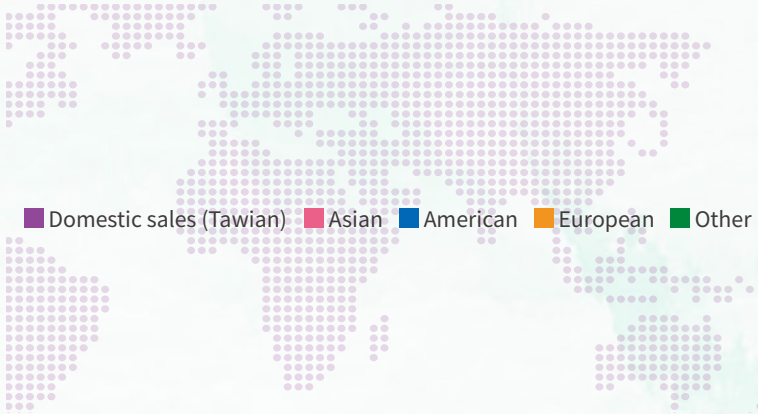
Governments worldwide are focused on energy transition, while many countries have declared their commitment to achieving carbon neutrality or zero carbon emissions by a specific period and implementing relevant carbon conservation policies. In face of government regulations, industry transformation, and supply chain restructuring, corporate entities are urged to reduce carbon emission, stimulating a strong demand from solar PV markets, which caused a surge in the prices of multi-crystalline silicon and wafer products, pushing the cost of solar energy industries upward. SAS ensures the steady operation of PV supply chains by providing high-performing monocrystalline batteries and modules for the operation of downstream power plants, and by supporting the deployment of energy storage and renewable energy. We continuously develop and enhance the quality-price ratio of solar products through technologies and product differentiation strategies, to solidify our competitive edge.

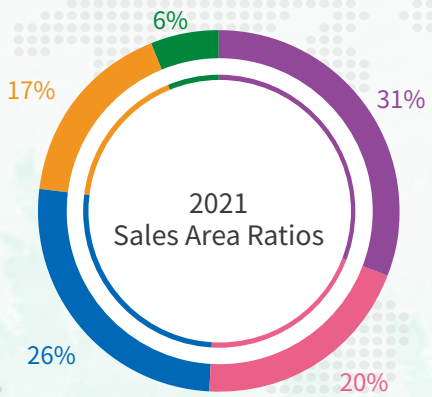
Unit:NT$ thousands

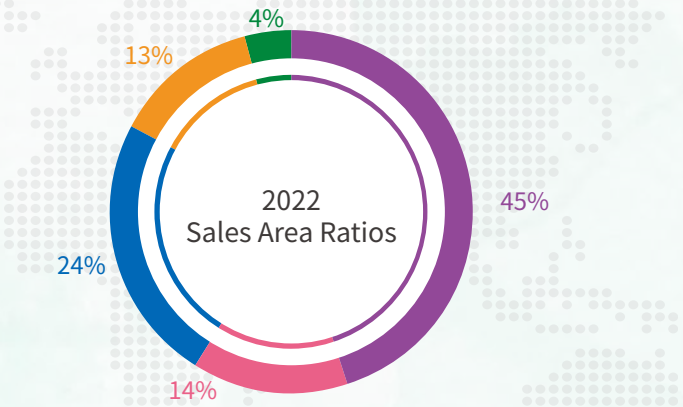


Sales Area Ratios

To achieve net zero carbon emissions by 2050, the Taiwan government drafted the Climate Change Response Act in 2022 and legalized a carbon fee system for the first time, thus driving domestic market demand for green energy sources. In a post-pandemic era, orders which were previously delayed due to COVID-19 began pouring in, and demand for large ground-based construction projects in Taiwan resulted in the vigorous development of domestic sales market. SAS Group sells a variety of high-performance products and diversifies the management of its sales regions. Our sales are evenly distributed across European, American, and Asian countries, with American countries accounting for the highest percentage, at approximately 24% while domestic sales accounted for 45%.





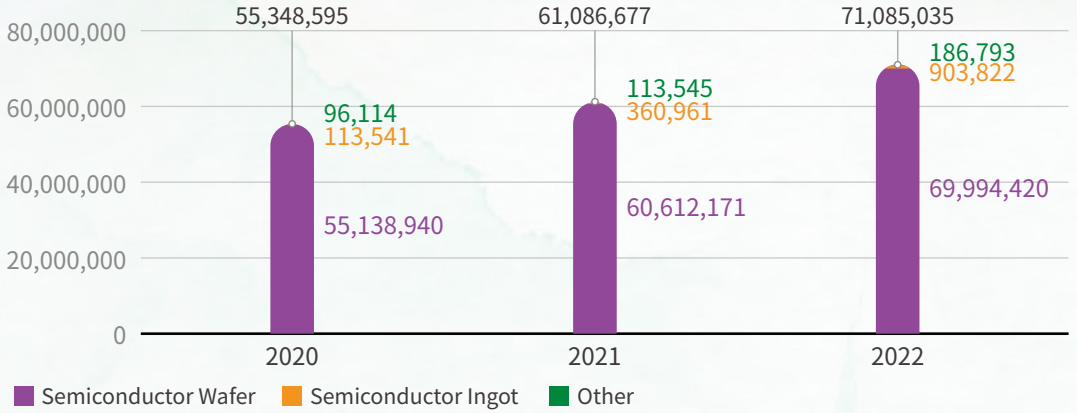


Semiconductor Industry

Product Sales

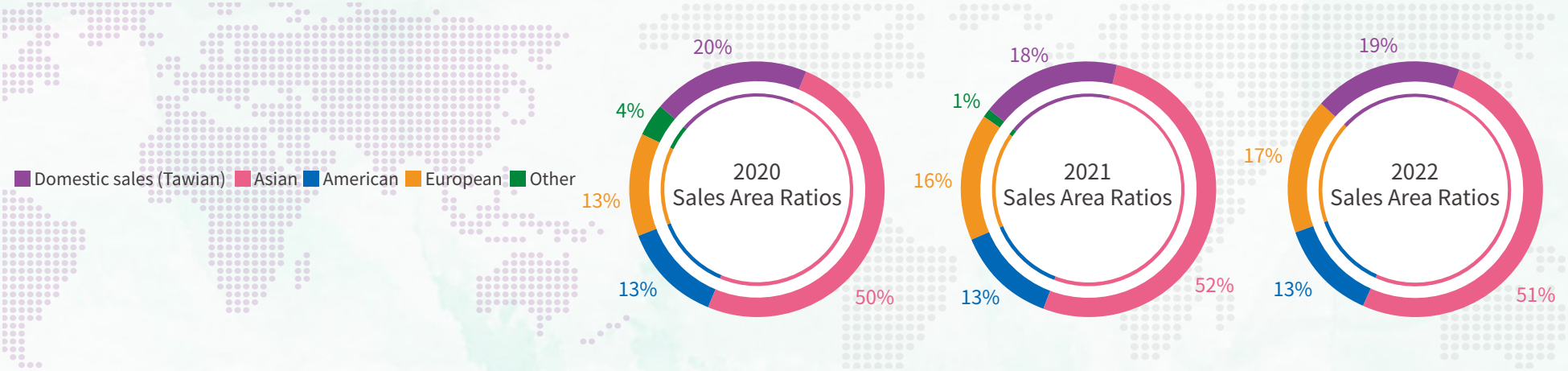
The weakening of global consumer demand, destocking in supply chain, reversal of demands, war, inflation, and chip legislation have intensified uncertainties in the expected growth of the global semiconductor industry. Nevertheless, thanks to long-term contracts entered with customers, our subsidiary GlobalWafers kept producing at full capacity throughout the year. Through active mobilization of global production capacity and flexible allocation to various locations across the world, GlobalWafers maintained safe and stable shipments, and comprehensively improved its quality and customer satisfaction to meet market demand. In 2022, our semiconductor business delivered record-high performance with NT$71.1 billion in revenue throughout the year.

Unit:NT$ thousands



Sales Area Ratios

Through mergers and acquisitions over the years, GlobalWafers successfully acquired the resources of acquired companies, including their existing customer orders and global sales network, generating balanced and stable revenue percentage across sales regions.



Company Philosophy

In adhering to a philosophy of “integrity, continuous innovation, customer satisfaction, and social contribution”, SAS provides superior quality, technologies, and services to strive for sustainable operation and growth in partnership with customers and suppliers. We aim to create excellent value for shareholders and employees, thereby fulfilling our corporate social responsibility.

Ethical management and integrity

With honesty and integrity, SAS abides by corporate institutional regulations and social ethical norms to honor its commitment to the company’s ethical management policy.

Customer satisfaction

In terms of technology, strategy, and profitability, SAS builds mutually beneficial cooperative relationships with customers to create a win-win environment for collective growth.

Continuous Innovation

By adopting innovative thinking and business models, SAS seizes opportunities, strives for new knowledge, cultivates advanced technologies, and expedites the research and development of new-generation ultra-high-efficiency products to bolster the company’s competitiveness.

Give Back to Society

SAS embraces a spirit of giving back to society, shows concern for underprivileged groups, and actively participates in social welfare and environmental protection to fulfill corporate social responsibility.

Participation in external associations

Association/organization	Participant	Member	Role
Taiwan Photovoltaic Industry Association	●	●	Chairperson
PV Generation System Association (PVGSA)	●	●	Vice Chairperson
Chinese Professional Management Association		●	
Allied Association for Science Park Industries		●	
Institute of Internal Auditors (IIA)-Taiwan Chapter		●	
Computer Audit Association		●	
Taiwan Climate Partnership		●	

Sustainable Management

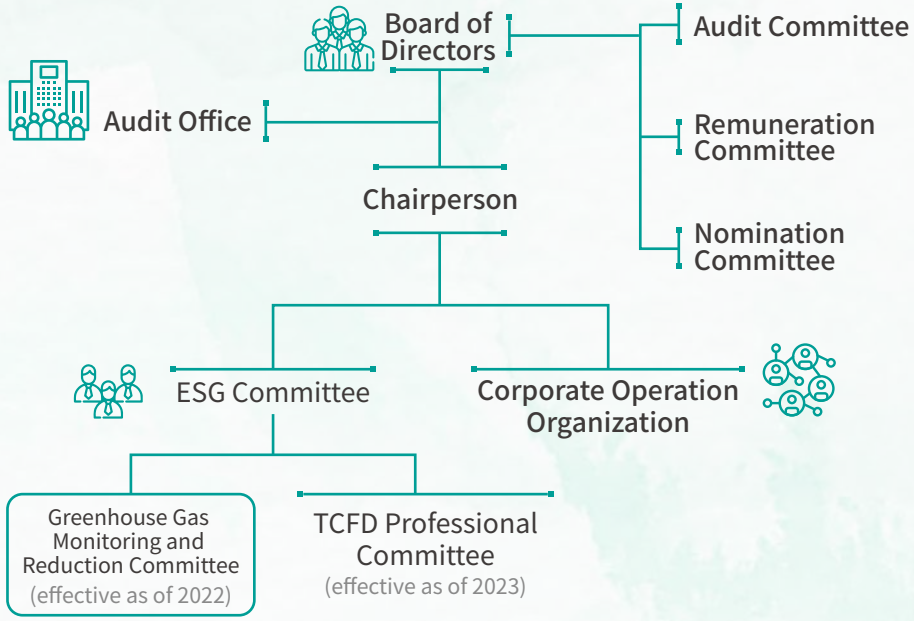
Sino-American Silicon Products Inc. (SAS) adheres to the business philosophy of “integrity, professionalism, innovation, and services” and envisions mutually beneficial outcomes through “growth with customers, the pursuit of excellence with employees, and creation of value for shareholders.” In continuing to strive for corporate sustainability, SAS perseveres with its social responsibilities in hopes of creating the value of sustainability for economic growth, environmental protection, and social advancement.

SAS adopts Corporate Social Responsibility Best Practice Principles for the implementation of corporate social responsibilities and promotion of economic, environmental, and societal advancement to achieve sustainable development. The Company actively fulfills its corporate social responsibility in the course of business operations to follow international trends, and contributes to the economic development of the country to improve the quality of life of employees, the community, and society by acting as responsible corporate citizens, and to enhance competitive edges built on corporate social responsibility. To fulfill corporate social responsibilities, the Company follows the principles of exercising corporate governance, fostering a sustainable environment, preserving public welfare, and enhancing disclosure of corporate sustainable development information.

Sustainable organization

To achieve the goal of sustainable operation and fulfill corporate social responsibility, SAS established the "Corporate Sustainability Development Committee" in April 2016 as the highest-level corporate social responsibility implementation organization for the Company. The organizational structure of the committee is shown in the figure below. The committee chair was originally held by the president but was switched to the chairperson of the board in June 2020 due to organizational changes. The committee members comprised department heads in to coordinate the development direction of the company' s corporate social responsibility and sustainability goals. To align with international development trends and the high level of attention paid to ESG issues, the Company renamed its sustainability organization the "ESG Committee" which shall still be chaired by the Chairperson of the Board of Directors, to facilitate deeper promotion and implementation of sustainability goals. (To access the Company' s Sustainable Development Best Practice Principles, please visit SAS website)

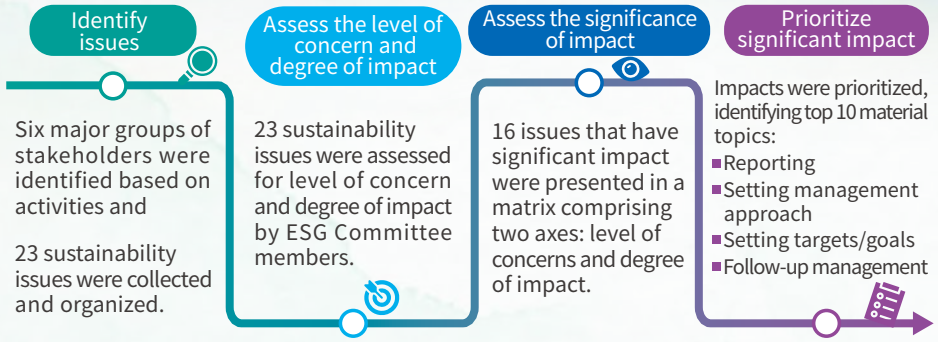
The ESG Committee is the highest governing body overseeing the management and supervision of sustainability practices within SAS. To promote activities related to the environment, people, and governance, the ESG Committee has set up professional committees (incorporated as needed). Promotion committees are established in the early stage of project implementation to achieve short-term goals. The Company has established two promotion committees as needed, namely the Greenhouse Gas Inventory and Reduction Promotion Committee, and the TCFD Promotion Committee. Both promotional projects have been completed and forwarded to the respective professional committees in 2022 and 2023 for task integration, regular follow-up monitoring, review, and inspection. Each year, the chair of the ESG Committee reviews performance and target achievement status and performs continuous review for improvement. With the concerted efforts of all departments, we strive to fulfill our corporate sustainability commitments. In addition, the ESG Committee reports to the Board of Directors at least once a year regarding implementation focuses, annual targets, and implementation results. In 2022, the committee submitted four quarterly reports to the Board of Directors, detailing principal matters implemented in 2022 with respect to sustainability: GHG inventory, verification, and implementation progress carried out by each branch and subsidiary companies of SAS Group; customers' net zero emission requirements for SAS and current status of target setting; adoption and implementation of TCFD framework; and setting of SBT for project adoption and implementation, etc.



Analysis of Material Topics

SAS followed the four steps described in GRI 3 Material Topics 2021 for redefining material topics. Assessment of materiality was based on the level of concern and the degree of impact of a sustainability issue to identify and determine economic, environmental, and people-related (including human rights) issues that are relatively more significant to SAS. Finally, sustainability issues were prioritized based on the significance of impact, with the top 10 material topics prioritized for reporting in this sustainability report. Subsequently, we established management approaches and set targets for regular follow-up management. Other issues of considerable significance were still reported for continuous observation but were without management approaches and target setting.

SAS will periodically, once every three years (or when the material topic guideline is updated), identify material topics and regularly assess the impact of identified issues.



➔ Stage 1: Identify issues

1. Stakeholders: SAS identified six major groups of stakeholders based on activities and business relationships. Following interdepartmental discussion and based on the nature of the company' s business, six major groups of stakeholders were identified: employees, customers, shareholders (investors), suppliers (contractors), government agencies (Science Park Bureau, Department of Environmental Protection, Environmental Protection Administration, Bureau of Energy, Ministry of Labor, etc.), and the media. We engaged with these stakeholders to help identify the impacts of sustainability issues.
2. Sustainability issues: Based on stakeholder interaction experiences and communication records of the President' s Office, marketing office, procurement office, administrative office, and other relevant external units, issues that concern employees, customers, shareholders (investors), suppliers (contractors), government agencies (Science Park Bureau, Department of Environmental Protection, Environmental Protection Administration, Bureau of Energy, Ministry of Labor, etc.), and the media were collected. With reference to stakeholder concerns survey results on official websites, and sustainability-related issues extracted from international sustainability standards and regulations, UN Sustainable Development Goals, responsible investment, and industry trends, the identified issues were converged into 23 sustainability issues and subsequently examined to assess the impacts of such issues.

➔ Stage 2: Assess the level of concern and degree of impact

This stage was carried out by representatives from each group of the company' s ESG Committee. They considered stakeholder concerns and the impact (actual and potential impact) of an issue on the company and on external aspects such as economy, environment, and people (including human rights), and then assessed the extent to which an issue concerns stakeholders and impacts SAS.

➔ Stage 3: Assess the significance of impact

A matrix comprising two axes, Stakeholder Concerns and Impact on SAS was created. Issues of significant concern and have significant impact were listed as issues of significant impact. The aforementioned results were summarized, yielding 16 issues that had significant impact on SAS in 2022.

➔ Stage 4: Prioritize the most significant impacts for reporting

Finally, the 16 issues that had a significant impact on SAS in 2022 were prioritized based on the significance of impact, with the top 10 issues treated as material topics in 2022 and prioritized for reporting. Subsequently, we established management approaches and set targets for regular follow-up management. The rest of the issues were briefly disclosed or not disclosed at all in this report.

Identify issues

Following interdepartmental discussion and based on the nature of the company' s business, SAS identified six major groups of stakeholders: employees, customers, shareholders (investors), suppliers (contractors), government agencies (Science Park Bureau, Department of Environmental Protection, Environmental Protection Administration, Bureau of Energy, Ministry of Labor, etc.), and the media. Using different channels, we engaged with these stakeholders periodically or from time to time to determine their expectations. The results also served as the basis for sustainability issues and impact assessment.

Stakeholder Engagement

Employees

Significance to SAS

Employees are the Company’ s most important asset. Only by taking good care of employees can the two grow synergistically.

Communication frequency/method

★ Organizational meetings / non-periodically
★ Company bulletin board / non-periodically
★ Internal website and emails / non-periodically
★ Performance appraisal interviews / once a year
★ Labor-management meetings / four meetings per year
★ Complaint boxes or hotline / non-periodically

Issues of concern

*Salary *Benefits *Work environment
(Including occupational health and safety, healthy workplace)

Our Responses

Employees are a company’s most important asset. We attach great importance to communication with employees. In 2020, we created a Staff Corner, added more consultation channels for employees, and regularly convened labor-management meetings to listen to the voices of employees.

*To attract and retain outstanding talents, the Company offers competitive salaries and sets salary adjustment standards yearly according to the relevant data.

*The Company established an employee canteen where free meals are provided to employees during work hours. In addition to labor insurance, the Company also provides group insurance, childcare leave, and other benefits that are better than those required by law; and established an Employee Welfare Committee that helps employees to obtain more benefits such as employee travel, year-end party, emergency relief, sickness subsidies, and special contract stores.

*The Company adheres to the concept of “Ensuring the Safety and Health of the Employee Work Environment” and uses the organization's system operation to create a healthy and safe working environment for employees.

Shareholder/Investor

Significance to SAS

All shareholders are investors of the Company, and the information that should be disclosed shall be handled in a fair manner.

Communication frequency/method

★Shareholders meeting, institutional investors conference, domestic investment institute seminars, and face-to-face communication meetings / a total of 6 investor conferences were held in 2022
★Company annual report / once a year
★Company websites, press release, and information on Market Observation Post System / non-periodically
★Telephone and emails / non-periodically

Issues of concern

*Business Performance *Corporate governance * ESG Performance *Integrity and Ethics / Anti-corruption

Our Responses

*Continue using our stable financial structure and rich management experience to practice performance management and operational improvement, improving overall operational performance.

*Establish and strengthen close interaction and communication channels with investors, domestic and foreign media, cooperation, and major shareholders.

*Continue improving corporate governance performance and realize the commitment to sustainable operation.

*“Integrity management is achieved by compliance with laws and regulations.” So, the Company has actively organized education and training and integrity management policy advocation, promoting the integrity policy and its importance to directors and employees.

Customer

Significance to SAS

Company's main source of revenue

Communication frequency/method

★Business meetings / non-periodically
★Customer satisfaction survey / twice a year
★Customer audit / non-periodically
★Customer quality meetings / once a month
★Grievances or complaints filed via telephone or email / non-periodically

Issues of concern

*Price
*Quality
*Timely delivery
*Environmental and sustainability responsibilities
*Labor Safety and Health

Our Responses

*Adhere to the spirit of "customer satisfaction." The quality assurance unit must conduct interviews and propose the corresponding improvement plan for customer survey items with lower satisfaction.
*Actively understand customer voices. When customers make various demands, the organization must evaluate and discuss feasible solutions to "meet the requirements."

Suppliers/Contractors

Significance to SAS

They are the Company's partners and must maintain the same ideals as ours in order to provide services in line with our needs.

Communication frequency/method

★Business meetings / non-periodically
★On-site audit / non-periodically
★Telephone and emails / non-periodically

Issues of concern

*Price
*Supplier/ contractor management regulations

Our Responses

*Reduce costs by implementing supplier localization.
*Establish a supplier evaluation management process.
*Formulate contractor management procedures and establish a contractor construction management system to manage all contractors who have entered the plants systematically.

Government Agencies

(mainly Science Park Bureau, Department of Environmental Protection, Environmental Protection Administration, Bureau of Energy, Ministry of Labor, etc.)

Significance to SAS

Maintain a smooth and good communication relationship, and express the company's determination to comply with legal requirements.

Communication frequency/method

★Correspondence of official documents, meetings (public hearings or conferences / non-periodically
★Communication meetings with associations or unions / non-periodically
★Impromptu site audits / non-periodically

Issues of concern

*Regulatory compliance
*Laws/regulatory amendment announcements
*Environment permit review/approval
*Interpretation and communication of laws and regulations (drafts)

Our Responses

*Purchase and set up a cloud-based compliance platform and keep abreast of regulatory changes.
*Participate in competent authority regulatory meetings and understand the requirements.
*Communicate with competent authorities through association or union channels.
*Cooperate with the competent authority for plant visits or unscheduled plant audits.

The media

Significance to SAS

We establish a contact channel with the media and provide non-scheduled, correct, fair and objective industry and corporate news.

Communication frequency/method

★Press release / an average of 2–3 pieces of news per quarter
★Media interviews with press and provision of industry news / non-periodically

Issues of concern

*Direction of company development
*Business Performance

Our Responses

*Maintain media contact as needed and organize interviews to keep media professionals informed of the Company's industry and operating performances.
*Issue press release on revenue and investor conference.
*Ensure transparent information disclosure to comply with the principles of disclosure (i.e., information shall be disclosed completely, timely, and fairly).

Collect sustainability issues

To identify material topics that have potential impact on SAS, the identified issues were converged into 23 sustainability issues concerning sustainability-related issues extracted from international sustainability standards and regulations, UN Sustainable Development Goals, responsible investment, industry trends, and stakeholder engagement, and subsequently examined to assess the impacts of such issues.

Sources

International sustainability standards and regulations	UN Sustainable Development Goals (SDGs)	Responsible Investment	Industrial development trends	Topics of concern to stakeholders
GRI Sustainability Reporting Standards, Responsible Business Alliance (RBA), Taskforce on Climate Related Financial Disclosure (TCFD), and Carbon Disclosure Project (CDP), among other international sustainability guidelines	Assess 17 SDGs and 169 targets to select actions that may contribute to SAS	Dow Jones Sustainability Index (DJSI), MSCI ESG Leaders Indexes, FTSE4Good Index, Sustainability Accounting Standards Board (SASB), and other rating indices	Issues of concern to such industries as international leaders of sustainability, IT peers, and other industries	Issues of concern to employees, customers, suppliers and business partners, investors, government and NGOs, media, and other related parties

Sustainability issues

Corporate governance	Innovation and Products/Services	Climate Transition and Circular Economy	Great Workplace and Mutual Prosperity in Society
• Business continuity management • Risk Management • Business Performance • Corporate governance • Compliance • Cybersecurity and Personal Information Protection • Integrity & Ethics • Tax	• Sustainable Supply Chain Management • Product quality and safety • Customer relations management • Innovation management	• Climate and Energy • Waste Management • Water Management • Air pollution prevention • Biodiversity	• Workplace Health and Safety • Talent recruitment and retention • Talent development • Workplace Group Diversification • Human rights • Community involvement

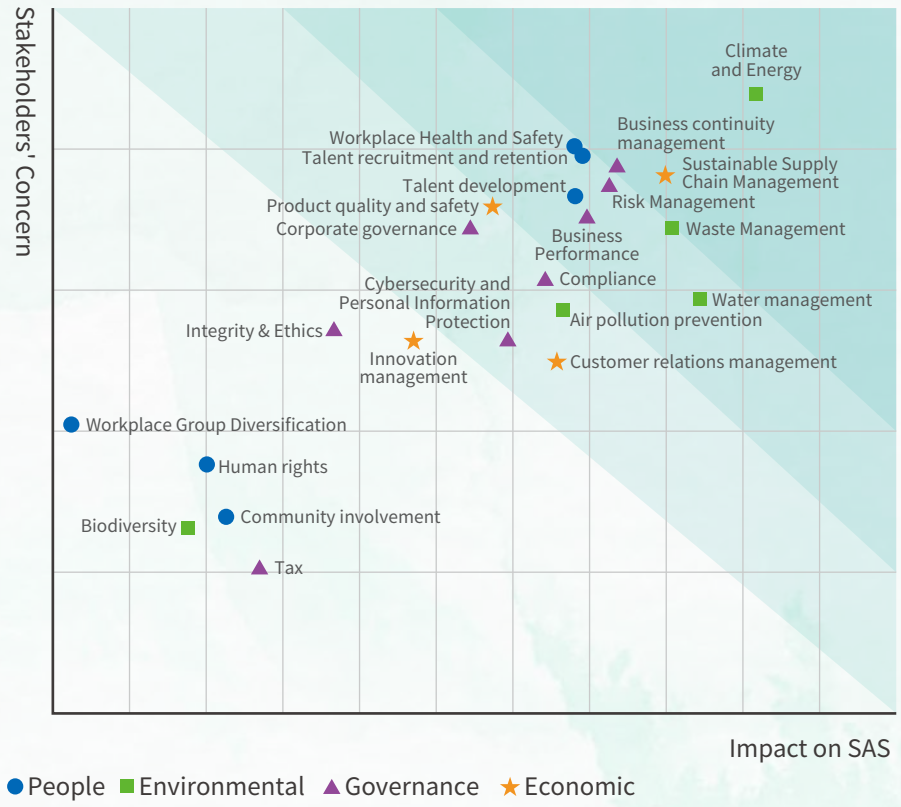
1 2 3 4 Assess the level of concern and degree of impact

SAS created a questionnaire to determine how representatives from each group of the company' s ESG Committee assess the sustainability issues in terms of the level of concern and degree of impact.

1 2 3 4 Assess the significance of impact

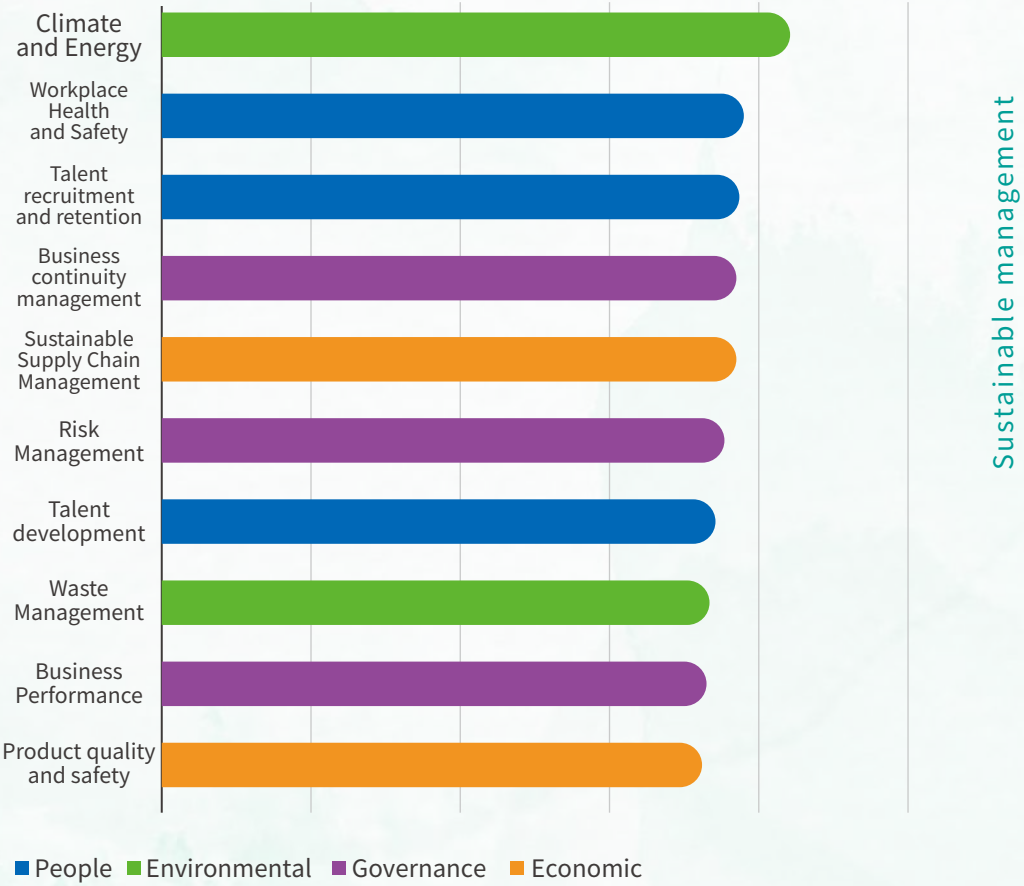
The questionnaire included level of concern and the likelihood and severity of impact. The degree of impact and level of concern were statistically analyzed, and then a materiality matrix (as shown) of the analysis results was produced, with issues of significant concern and impact listed as issues of significant impact; 16 issues were assessed as having a significant impact.

Materiality matrix



1 2 3 4 Prioritize the most significantimpacts for reporting

Finally, the issues of significant impact on SAS in 2022 were prioritized based on the significance of impact, with the top 10 material topics prioritized for reporting. Subsequently, we established management approaches and set targets for regular follow-up management. The rest of the issues were briefly disclosed or not disclosed at all in this report.



Description of Changes to Material Topics

Aspect	Material Issues 2021	Material Topics 2022	Description of Change
Governance	Compliance (including economic, environmental, and social aspects)	-	Not in the top 10
	Corporate governance	-	Not in the top 10
	Business Performance	Business Performance	No change
	Integrity and Ethics / Anti-corruption	-	Not in the top 10
	-	Risk Management	New sustainability issue introduced in 2022
		Business continuity management	New sustainability issue introduced in 2022
Environmental	Consumption and Reduction of Energy Resources (including energy conservation and carbon reduction measures, etc.)	Climate and Energy	Issue was renamed
	Greenhouse Gas (GHG) Emissions	-	Consolidated into Climate and Energy Issue
	Waste management (including reuse)	Waste Management	No change
	Pollution prevention (air, water)	-	Not in the top 10
People	Employee education & training	Talent development	Issue was renamed
	-	Talent recruitment and retention	New sustainability issue introduced in 2022
	Friendly Workplace (including occupational safety and health, workplace health)	Workplace Health and Safety	Issue was renamed
Economic	Product quality and customer satisfaction	Product quality and safety	Issue was renamed
	-	Sustainable Supply Chain Management	New sustainability issue introduced in 2022

Boundary and Scope of Material Topics

Material topics	Topic-Specific GRI Standards	SASB Guideline	Boundary - Within the organization						Boundary - Outside of the organization	Corresponding Chapter in the Report
			SAS				Subsidiaries			
			Hsinchu headquarters	Chunan Branch	Yilan Branch	Hsu-Hsin Branch	GlobalWafers Wafer	Other Subsidiaries		
Business Performance	GRI 201 Economic Performance	-	○	○	○	○	○	○		1.2 Operation performance
Business continuity management	-	-	○	○	○	○	○	○		Climate Change Risk Management 1.2 Operation performance 1.3 Risk Management
Risk Management	GRI 201 Economic Performance	TC-SC-440a.1	○	○	○	○	○	○		Climate Change Risk Management 1.3 Risk Management
Sustainable Supply Chain Management	GRI 204 Procurement Practices	TC-SC-440a.1		○	○	○				2.5 Value chain
Climate and Energy	GRI 302 Energy GRI 305 Emissions	TC-SC-110a.1 TC-SC-110a.2		○	○	○	○			3.1 Carbon Management 3.2 Energy Management and Development
		TC-SC-130a.1		○	○	○	○	○	○	3.2.3 Renewable Energy Development
Waste Management	GRI 306 Waste	TC-SC-150a.1		○	○	○	○			3.4 Pollution Prevention and Waste Reduction Management
Talent development	GRI 404 Training and Education	-	○	○	○	○	○			4.3 Education and training
Talent recruitment and retention	GRI 201 Economic Performance GRI 401 Employment GRI 405 Diversity and Equal Opportunity	TC-SC-330a.1	○	○	○	○	○			4.1 Talent Recruitment and Human Resources 4.2 Remuneration and Benefits
Workplace Health and Safety	GRI 403 Occupational Health and Safety	TC-SC-320a.1 TC-SC-320a.2	○	○	○	○	○			5.1 Safe Workplace 5.2 Health Promotion and Care
Product quality and safety	GRI 416 Customer Health and Safety	-		○	○	○				2.4 Product Accountability

Material Topics Impact Management

Material topics	Impact Consideration and Influence	Nature of Impact	Mitigation Action
Business Performance	Economic impact and influence: • Business Performance can increase the willingness of shareholders and investment institutions to invest • Unable to take appropriate actions due to failure to identify financial information related to climate change impact risks and opportunities	Impact on operation Potential impact on operation	-
Business continuity management	Economic impact and influence: • Unable to demonstrate risk resilience against predicted events due to failure to identify risks	Potential impact on operation	-
Risk Management	Economic impact and influence: • Unable to take appropriate actions against high risks due to failure to identify risks and assess quantitative results	Potential impact on operation	-
Sustainable Supply Chain Management	Economic impact and influence: • Failure to establish a backup mechanism due to material shortage, poor supply quality, and supplier violation, resulting in a broken supply chain that will affect company operations	Potential negative impact	Incorporate procurement decisions into supplier ESG performance to drive sustainable supply chain transformation
Climate and Energy	Environmental impact and influence: • Greenhouse gases emitted from company operations and production will accelerate global climate change, which triggers climate disasters that will cause irreversible harm to the environment Economic impact and influence: • Stakeholders request the use of renewable energy and the Group' s commitment to RE100 (strategy); use of renewable energy will incur increased cost • Failure to meet customer requirements or renewable energy targets may affect customers' willingness to place orders	Potential negative impact	• Continuously optimize energy-consuming equipment and energy efficiency to conserve energy and reduce carbon emissions; adopt renewable energy; and commit to RE100 • Enter the fields of green electricity development and sales and expand our business landscape to include clean energy, thereby becoming a provider of total green energy solutions
Waste Management	Environmental impact and influence: • Failure to dispose of waste properly, causing environmental pollution • Waste disposal companies fail to dispose of waste by regulations, which indirectly affects the company' s reputation	Negative impact	• Adopt a circular economy, reduce waste generation • Optimize waste disposal management
Talent development	Impact and influence on people (including their human rights): • Demand for talent is outpacing supply, which will erode the company' s competitive advantage and growth capacity	Impact on operation	-
Talent recruitment and retention	Impact and influence on people (including their human rights): • Failure to recruit and retain high-caliber talents promptly may affect company operations	Impact on operation	-
Workplace Health and Safety	Impact on people (including their human rights): • Earthquakes, fires and other disasters cause damage to machines and equipment, resulting in interruption of operations and property losses • Failure to ensure operational safety results in injuries, disasters, and loss of working hours • Occurrence of novel infectious diseases and cluster infections lead to operational interruption	Potential negative impact	Identify various risks, formulate response measures early, establish a business continuity plan for the company, and conduct disaster response drills
Product quality and safety	Economic impact: • Defective products and products with poor yield rate are scrapped, affecting customer orders and company operations	Potential impact on operation	-

Material Topics and Sustainability Goals

Governance	Topic - Business Performance			
SDGs	Strategy	Targets in 2022	Achieved /Not chieved	2023 and Long-Term Target
8 就業與經濟成長 16 和平與正義制度	• Uphold a corporate culture of ethical management • Promote ethical management policies for a long period • Strengthen transparent information disclosure	• Maintain top 5% ranking in Corporate Governance Evaluation	V	• Maintain top 5% ranking in Corporate Governance Evaluation
	• Develop a rigorous internal regulation management mechanism to minimize integrity risk • Actively organize education and training to promote ethical management policies • Establish reporting channels and whistleblower protection system	• Maintain zero corruption incidence rate	V	• Maintain zero corruption incidence rate
	• Continuous education, training, and advocacy • Regular inventory self-evaluation system • Strengthen internal organization and rectification • Implement cross audits within the group to identify potential risks and improve internal management	• Conduct inventory of compliance for overseas subsidiaries and inventory of personal information protection on all plants in Taiwan	V	• Ensure that the operating activities of overseas subsidiaries are in compliance with laws and that personal data protection is ongoing on the premises of all plants in Taiwan
	• Adjust strategies according to market conditions • Strive for innovation, R&D, lower cost, and capacity building	• Continue to generate business profit • Maintain a good financial structure	V V	• Continue to generate business profit

Governance	Topic - Business Continuity Management, Risk Management			
SDGs	Strategy	Targets in 2022	Achieved /Not achieved	2023 and Long-Term Target
12 責任消費與生產	• Establish risk management policy and procedures • Follow said procedures to identify and assess risks, classify risks, manage each of the classified risks, and regularly report to the board of directors • Strengthen information security protection measures, and build a complete backup system	• Not a material topic of 2022, so no target was set	-	• No target set [Note 1]

Environmental aspect	Topic - Climate and Energy, Waste Management			
SDGs	Strategy	Targets in 2022	Achieved /Not chieved	2023 and Long-Term Target
9 工業、創新基礎建設 11 永續城市 13 氣候行動	• Mitigate climate change by starting with GHG/carbon footprint inventory and then cutting down GHG emissions	• Optimize assessment of climate change risks and opportunities	V	• Chunan Branch to save >1% of electricity throughout the year
	• Meet GHG emission reduction targets by adopting green design, green factory, and energy management practices, as well as high-performance energy generation/conservation/ storage products and solutions	• Chunan Branch to save >1% of electricity throughout the year	V	• Yilan Branch to save ≧ 800,000 kWh of electricity throughout the year
	• Focus on the development of renewable energy and international renewable electricity certificates in hopes of creating a clean green energy environment to combat climate change challenges	• Yilan Branch to save ≧ 800,000 kWh of electricity throughout the year	V	• Achieve 100% renewable energy usage by 2050: In stages, specifically 20% by 2030, 35% by 2035, 50% by 2040, and 100% by 2050

Environmental aspect	Topic - Climate and Energy, Waste Management			
SDGs	Strategy	Targets in 2022	Achieved /Not chieved	2023 and Long-Term Target
9 工業、創新基礎建設 13 氣候行動	• Continue to adopt the concept of product life cycle and the 4Rs of circular economy; develop product/process designs based on ecological considerations; implement green design and clean production; improve unit production capability and reduce raw material consumption through process designing and technological improvement	• Chunan Branch to adopt smart energy management • Yilan Branch to adopt the ISO 50001 Energy Management System	X[Note 2] V	• Chunan Branch to adopt smart energy management
3 健康與福祉 6 淨水與衛生 9 工業、創新基礎建設	• Support the adoption of environmental management systems, set annual improvement targets, and continue to implement water recycling and waste reduction measures • Set up an adequate number of pollution prevention/control equipment that possess considerable processing capability to reduce environmental hazards and impact • Regularly maintain and inspect prevention/control equipment and maintain equipment treatment efficiency • Appoint dedicated person to operate equipment by relevant specifications	• Chunan Branch reclaimed more than 50% of the waste water from the drilling process. • Pollution control equipment to completely meet emission requirements	V V	• Chunan Branch reclaimed more than 50% of the waste water from the drilling process. • Pollution prevention (control) equipment on the premises of Chunan and Yilan Branches to completely meet emission requirements • Yilan Branch to reduce the use of calcium carbonate and calcium chloride by 10% in wastewater treatment
11 永續城市	• Reduce output of waste by effective management of resources instead of cleaning and disposal in the traditional sense • Strengthen audit management on waste disposal companies to ensure proper waste disposal	• Chunan Branch to recycle and reuse 85% of wastes generated by the whole plant	V	• Chunan Branch to recycle and reuse 85% of wastes generated by the whole plant
People aspect	**Topic - Talent Development, Talent recruitment and retention**			
SDGs	Strategy	Targets in 2022	Achieved /Not chieved	2023 and Long-Term Target
4 教育品質	• Plan next year' s education and training plan in line with the company' s business goals, department KPIs, and job requirements, etc. • Conduct a quarterly review of training status, assess target achievement status, and use results as a basis for improvement	• Chunan Branch to achieve education and training implementation rate of 100% • Yilan Branch to achieve an attendance rate of ≧ 85% for general education training courses	V V	• Training implementation rate of 100% • Indirect employees to complete ≧ 24 hours of training per person
8 就業與經濟成長	• A complete performance-linked remuneration system • Subsidies for the continuing education of existing employees • Signing contracts with a cadre of key employees • Employee stock ownership trust • Years of service awards or certificates	• Not a material topic of 2022, so no target was set	-	• Average annual turnover rate of <4%

People aspect	Topic - Workplace Health and Safety			
SDGs	Strategy	Targets in 2022	Achieved /Not chieved	2023 and Long-Term Target
3 健康與福祉 11 永續城市	• Create a friendly working environment to ensure workplace safety, employees' physical and mental health, and work–life balance • Adopt occupational safety and health management systems, focus on social expectations and management/employee involvement, and treat occupational safety and health as a process that must be operated steadily and sustainably	• Chunan Branch to host ≧ 10 lessons on health management • Ensure 100% compliance in use of new substances of very high concern (HF) • Yilan Branch to build an environment that is safe for the storage of isopropyl alcohol • Conduct care and follow-up management on all special populations	V V V V	• Chunan and Yilan Branches to comply with laws and regulations governing the use and management of substances of very high concern (hydrogen fluoride) • Organize ≧ 10 sessions of health-promoting courses or activities

Economic aspect	Topic - Product quality and safety, Sustainable Supply Chain Management			
SDGs	Strategy	Targets in 2022	Achieved /Not chieved	2023 and Long-Term Target
8 就業與經濟成長 12 責任消費與生產	• Enforce product safety and non-toxicity requirements on upstream suppliers • Produce customized multi-crystalline silicon-related application products through technological cooperation • Establish product quality monitoring mechanisms and early warning systems • Collect customer feedback regarding service, quality, cost, innovation, etc., and use results as the direction for continuous improvement	• Customer Satisfaction Survey - Quality Chunan Branch to score >8.5 points Yilan Branch to score >8.0 points • Customer Satisfaction Survey - Service Chunan Branch to score >8.5 points Yilan Branch to score >8.5 points	V V	• Chunan/Yilan Branches to score >8.5 points on quality in the customer satisfaction survey • Chunan/Yilan Branches to score >8.5 points on service in customer satisfaction survey
	• Establish a Supplier Code of Conduct for all suppliers to comply with • Implement supply chain localization to lower material transportation cost, reduce turnover inventory, optimize unit shipment, etc.	• Not a material topic of 2022, so no target was set	-	• Suppliers are required to sign a Statement of Commitment to the Supplier Code of Conduct

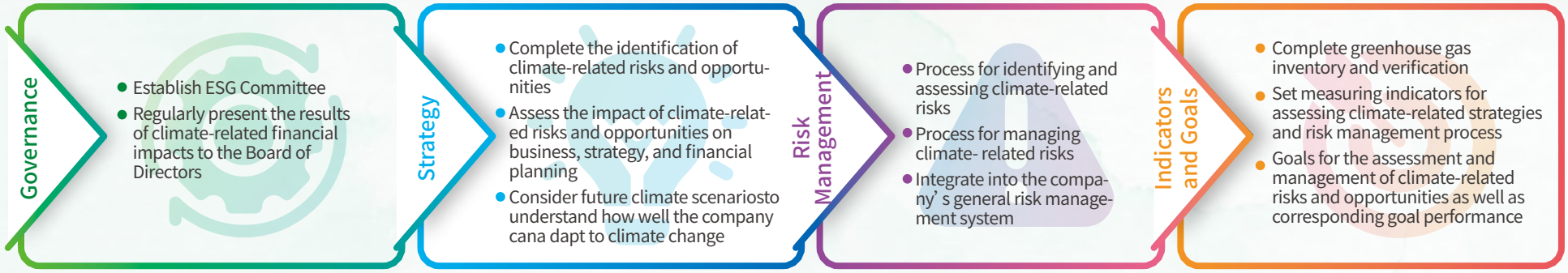
Note 1: We did not keep track of and set a separate target for reporting strategies.
Note 2: The smart surveillance system proposal is still pending.

Climate Change Risk Management

Nearly 200 countries have strengthened their response to the threats of climate change through the Paris Agreement. Mitigating the emission of greenhouse gas has become the key issue of the global economic development. To assist public and private sectors in establishing relevant information disclosure framework, the Financial Stability Board created the Task Force on Climate-related Financial Disclosures (TCFD) and, in June 2017, released guidelines and recommendations for disclosing clear, comparable and consistent information. SAS strengthened the content of information disclosed in our sustainability report by referring to the pillars of the Corporate Governance 3.0 - Sustainable Development Roadmap and adopting the TCFD framework. The TCFD framework was also used to identify significant climate risks and opportunities that may be caused to operations, and to implement various climate change mitigation and adaptation actions to continuously reduce risks, enhance resilience, and create opportunities for sustainable development.

Governance Structure and Accountability

SAS is committed to tackling climate change risks and promoting low-carbon transition and climate adaptation through governance, strategies, risk management, metrics and targets:



To effectively address issues related to climate change, SAS adopted the TCFD framework in 2022, and established a TCFD Promotion Committee—a task force responsible for promoting climate change adaptation projects (Figure X), which reports to the ESG Committee. Through two-way interaction between management and each unit, the company' s climate change governance and operating system is implemented, and the division of labor is based on the business activities carried out by existing departments.

Members of the TCFD Promotion Committee collected risks and opportunities related to climate change and integrated them with stakeholder concerns. Representatives from each group of the ESG Committee identified and rated the risks and reported their assessment results to the ESG Committee each year. Subsequently, committee members and teams formulated management approaches and goals for each identified risk (material topics) and presented the results at a board meeting during the first quarter of 2023.

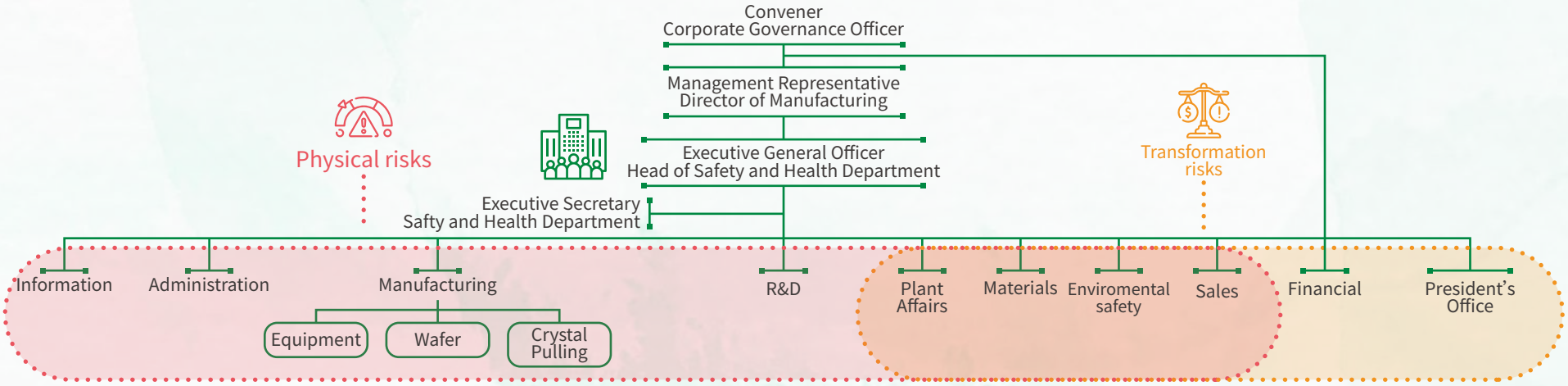


Figure X. Organizational chart of SAS Adaptation Management Task Force

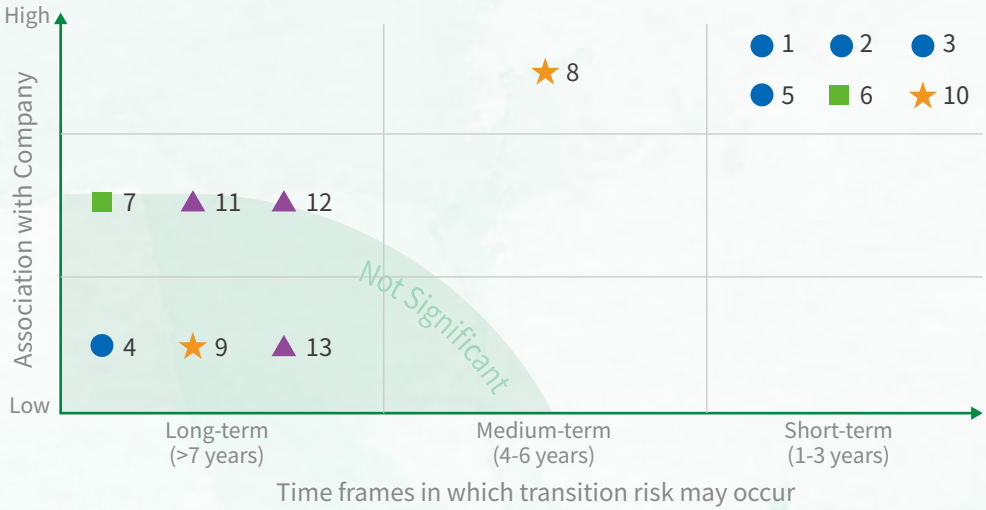
Climate Change Strategy

Climate-related risks and opportunities identified over the short, medium, and long term

By studying the World Energy Outlook (WEO) 2021, Energy Technology Perspectives (ETP) 2021, and other relevant research reports published by the International Energy Agency (IEA), SAS selected transition risks that concern the manufacturing industry. Given the trends and requirements related to extreme climate (physical risks) and low-carbon transitions that may be caused by climate change, we considered different climate-related scenarios, including a global warming of 4°C and 1.5°C , to assess the operational impact on the company, thereby ascertaining the short-, medium-, and long-term impacts of various climate-related issues.

— 13 transition risks in the categories of “policy and legal risks,” “reputation risk,” “technology risk,” and “market risk,” were selected for identification

- Not related to company operations or internal/external environment: 6 risks.
- Short-term risk (1–3 years) and highly associated: 6 risks, including carbon tax, emissions control, renewable energy requirement, sustainability verification, and low-carbon technology.
- Medium-term risk (4–6 years) and moderately associated: 1 risk, that is, popularization of electric vehicles.



Policies and regulations

1. Carbon tax
2. Emissions control
3. Renewable energy percentage requirement
4. Increase in climate litigation
5. Increase in corportate climate information disclosure related requirement

Technology

8. Increased popularization of electric vehicles
9. Carbon capture technology
10. Low-carbon technology transition

Goodwill

6. Customers will have increased requirements for third-party sustainability verification
7. Increase in credit risk

Market

11. Increase in fossil fuel price
12. Renewable material demand and price changes
13. Decrease in oil availability

— Consider “acute” and “chronic” physical risks

■ Set flooding, drought, and high temperature in 2035 as worst-case climate scenarios for the future.

■ According to the future high-temperature scenario, demand for the cooling capability of in-plant air conditioning facilities will increase but poses a low potential impact. In addition, with the existing adaptation capability of back-up chillers, process stability is maintained even when a high-temperature scenario occurs. Therefore, the risk assessment result showed no risk and no influence in the high-temperature scenario.

Drought

Under the IPCC AR5 RCP 8.5 scenario, Miaoli has a 33.5% probability of having more than 51 dry days in a row in 2035, reaching the scale of drought. Therefore, the Water Resources Agency announced second-phase water restrictions for industrial-sector users, reducing water supply by 20% for 20 days continuously.

Rainstorm flooding

No influence

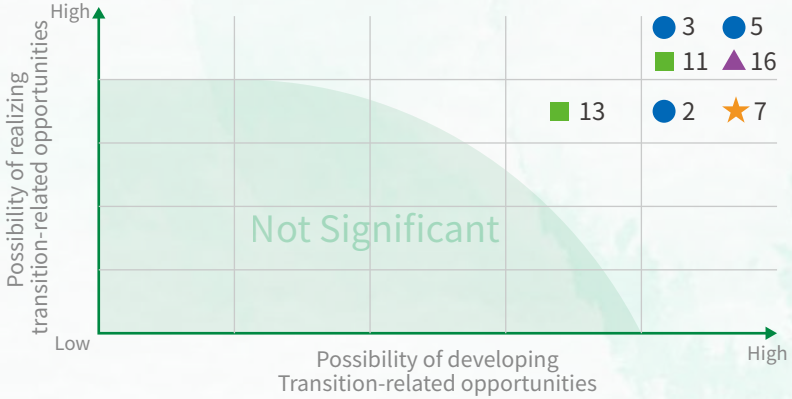
Extreme high temperature

Under the IPCC AR5 RCP 8.5 scenario, Miaoli has a 9.6 probability of having at least 1 day in 2035 where temperature reaches 37.25°C, causing:

- A surge in demand for electricity in Taiwan and substantial decrease in backup capacity, which results in increased cost of electricity usage.
- Production activities and the cooling capability of air-conditioning facilities may be affected; therefore, the following scenario was adopted for evaluation: outer air temperature will rise sharply, possibly reaching a maximum temperature of 37.25°C in summer (June–August).

— Opportunities related to the transition to the lower-carbon economy include “resource efficiency,” “energy source,” “products and services,” “market,” and “resilience”

■ Major opportunities related to the transition to the lower-carbon economy in 2022 entail seven issues: Use more efficient production and distribution processes, recycling and reuse, reduce water usage and consumption, adopt incentive policies, develop or increase low-carbon goods and services, R&D and innovation of new products and services, and access to new markets.



● Resource efficiency

2.Use more efficient production, distribution, and sales processes (The company develops low-carbon transition or energy conservation related technology)

3.Recycling and reuse (increase the use of recycled sillicon materials)

5.Reduce water usage and water consumption (water resource recycling and reuse)

■ Products and services

11.Develop or increase low-carbon goods adnservices (increase in solar energy installation businesses)

13.R&D and innovation of new products and services (solar cell technology innovation and increase in sales and service demand)

★ Energy source

7.Adopt incentive policies (Develop a mechanism do rewarding sustainable actions)

▲ Market

16.Access to new markets (sale or renewable electricity)

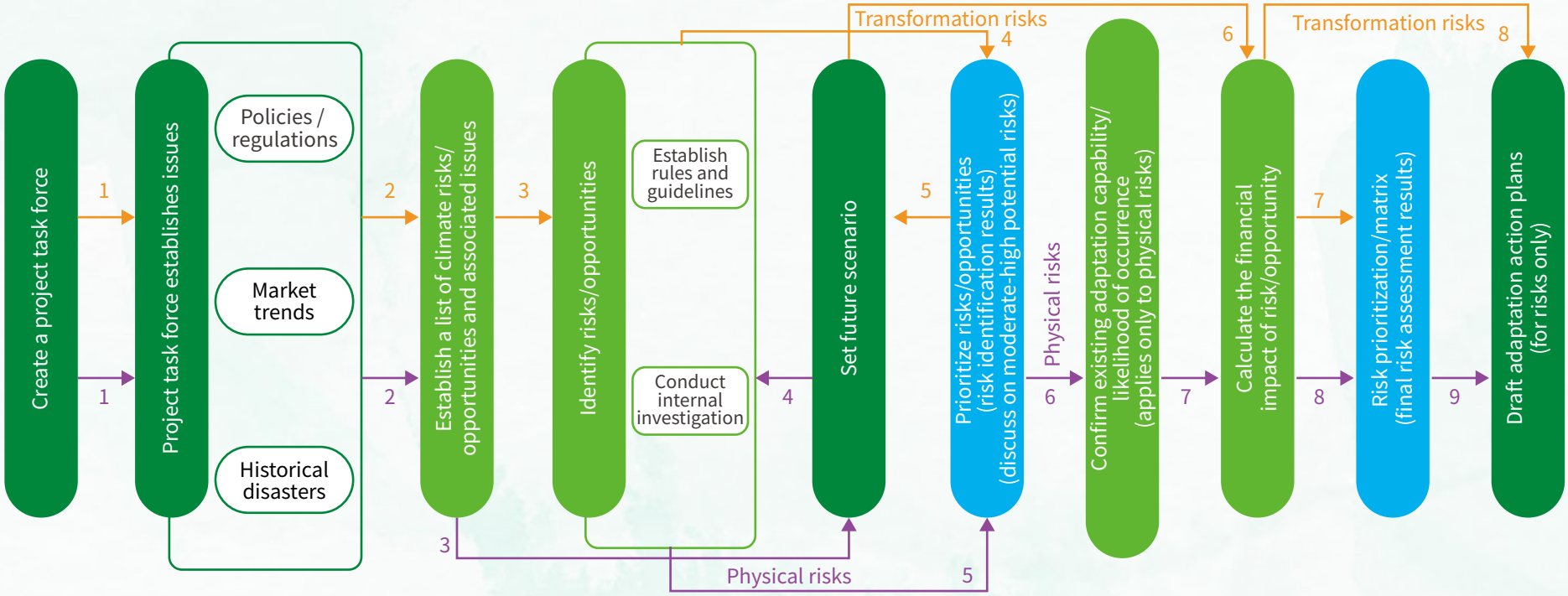
Risk Management and Adaptation

SAS identifies and assesses risks/opportunities to gain insight into various sustainability and climate-related issues.

(I) Transition risk: Transition risks are possible risks arising from the transition of the general environment to a lower-carbon economy; therefore, we reviewed external policies, market trends, and internal goals to take an inventory of various transition risk issues, and then assessed the risk by its association with the company and likelihood of occurrence to identify transition risk issues that are of materiality. We subsequently set future scenarios and conducted a quantitative analysis of financial impact based on the material issues, proposed a climate adaptation action plan, and estimated management costs.

(II) Physical risk: To examine the difference regarding the effects of climate disasters on operations, we adopted the Risk Breakdown Structure (RBS) approach, exploring major issues concerning three aspects of operation: value chain, production, and asset. The issues included raw material supply, production process, energy management, water resource management, buildings, storage management, facilities and equipment, environment, logistics and transportation, and product sales, etc. Next, we determine the causes of each issue by analyzing its associated "risk events."

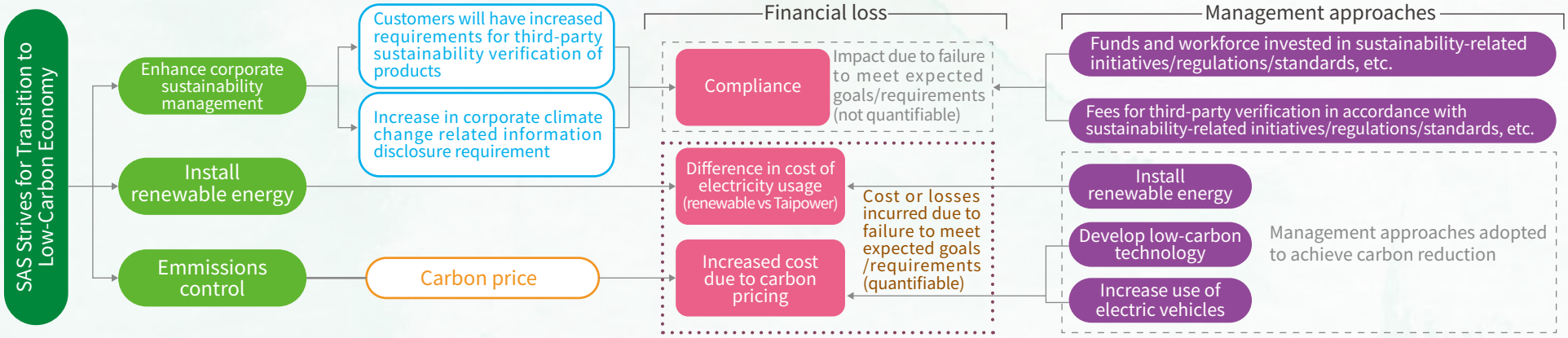
(III) Opportunities related to the transition to a low-carbon economy: TCFD-recommended opportunities include resource efficiency, energy source, products and services, market, and resilience. Accordingly, their relevance to current operating status and future operational directions was assessed for discussing the financial benefits of these opportunities.



Note: Process for assessing physical risks differs from that of transition risks. Physical risks are assessed in terms of hazard level, vulnerability, and exposure based on the IPCC AR5, whereas transition risks can be assessed without reference to the IPCC AR5.

Financial Impact of Climate Change: Analysis and Quantification

Based on the aforementioned evaluation results, transition risks exhibited low potential impact, the result showed no risk, therefore financial impact analysis and quantification will not be conducted. In terms of transition risks, the "transition risk impact chain" reveals that issues such as carbon tax, emissions control, and renewable energy can be assessed quantitatively, whereas issues concerning climate information disclosure and verification are assessed qualitatively.



➔ Transition risk 1: Carbon expenditures/costs that may incur as a result of GHG emissions control

➔ Transition risk 2: Achieving the stipulated percentage of renewable energy use increases cost of electricity

Aspect	Transition risk event	Scenario/Time	Management cost	Financial Impact	Benefits derived from the opportunity
Policies and regulations	Carbon tax	Carbon price will reach US$120 per ton by 2030 (IEA APS scenario)	• Initial investment (in reducing emissions and improving facilities or installing renewable power systems) • Increase in operational costs (carbon tax payment or purchasing of renewable energy certificates [RECs])	Impact of carbon reduction cost includes: • Promote energy conservation measures in response to low-carbon technology transition, and convert car fleet to electric vehicles, which initially increases setup cost but thereafter the amount of carbon tax paid or RECs purchased can be reduced • Purchase RECs, which increases operational costs	• Energy conservation projects • Silicon raw materials can be recycled for reuse to reduce carbon emissions from upstream procurement of carbon emission and operational costs
	Emissions control	Reduce emissions by 20% by 2030 compared to 2020			
	Renewable energy percentage requirement	Generate 20% of electricity from renewable energy by 2030		Cost of purchasing electricity increases, which increases operational costs	Increase in demand for renewable energy drives revenue growth
	Increase in corporate climate related information disclosure requirement	-	Database setup/maintenance, guidance/verification fees	Can obtain green mark, external certification, and procurement approval, and be included in ESG constituent stocks, which can increase investors' willingness to invest	
Goodwill	Customers will have increased requirements for third-party sustainability verification of products	-		Third party-verified data can increase stakeholders' trust in the information disclosed by a company	

Aspect	Transition risk event	Scenario/Time	Management cost	Financial Impact	Benefits derived from the opportunity
Technology	Increased popularization of electric vehicles	Popularization reaches 100% by 2030	Increase in the operating cost of purchasing electric vehicles	-	-
	Low-carbon technology transition	Corporate carbon reduction cost of approximately NT$9,000 / metric tons CO2 by 2030	-	-	• Energy conservation projects • Recycling and reuse

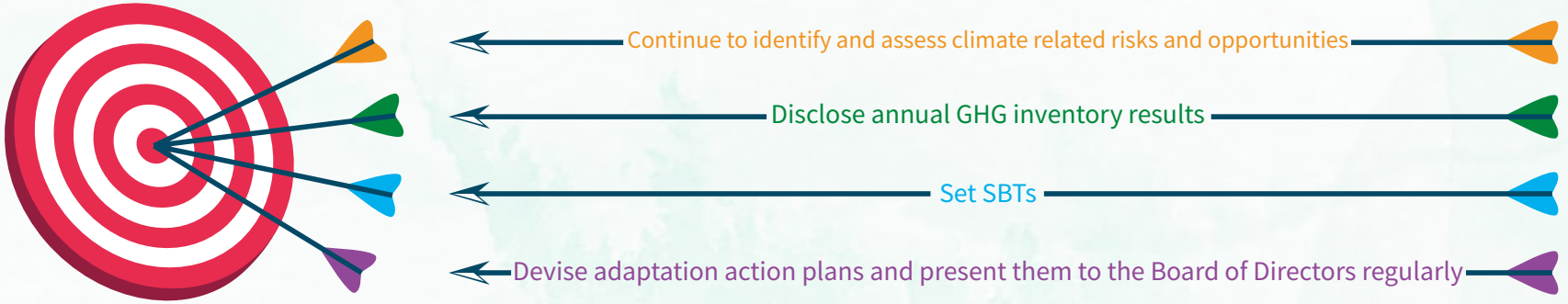
➔ Transition-related opportunity 1: The development of low-carbon or energy conservation related technology leads to lower operational expenditures

➔ Transition-related opportunity 2: The development of renewable energy business leads to increased revenue

Aspect	Opportunity	Opportunity Event	Financial Benefits
Resource efficiency	Use more efficient production, distribution, and sales processes	The company develops low-carbon transition or energy conservation related technology	Promote facility/process-optimized energy saving plan, which substantially reduces electricity bills
	Recycling and reuse	Increase the use of recycled silicon materials	Adoption and increased use substantially reduce the use of pure materials and hence lower the cost of material use
	Reduce water usage and water consumption	Water resource recycling and reuse	Implement water-saving projects to substantially reduce water usage costs
Energy sources	Adopt incentive policies	Develop a mechanism for rewarding sustainable actions	The potential benefits of managing and reducing the carbon footprint of the supply chain help the company to reduce GHG emissions, to establish SBTs, and meet stakeholders' expectations
Products and services	Renewable energy products and service development	Increased demand for solar-related businesses	Increase in solar energy installations, high-efficiency solar cells, and the rise of renewable electricity industry (potential benefits)

Metrics and Targets

Future climate change scenarios will be affected by the global economy, GHG emissions, and other associated factors. Therefore, SAS monitors climate change development trends at all time, regularly conducts climate-related risk assessment, and launches action plans for climate change adaptation. We then keep track of the progress of the implemented action plans and simultaneously engage with stakeholders to ensure that the plans are effective against climate-related risks.



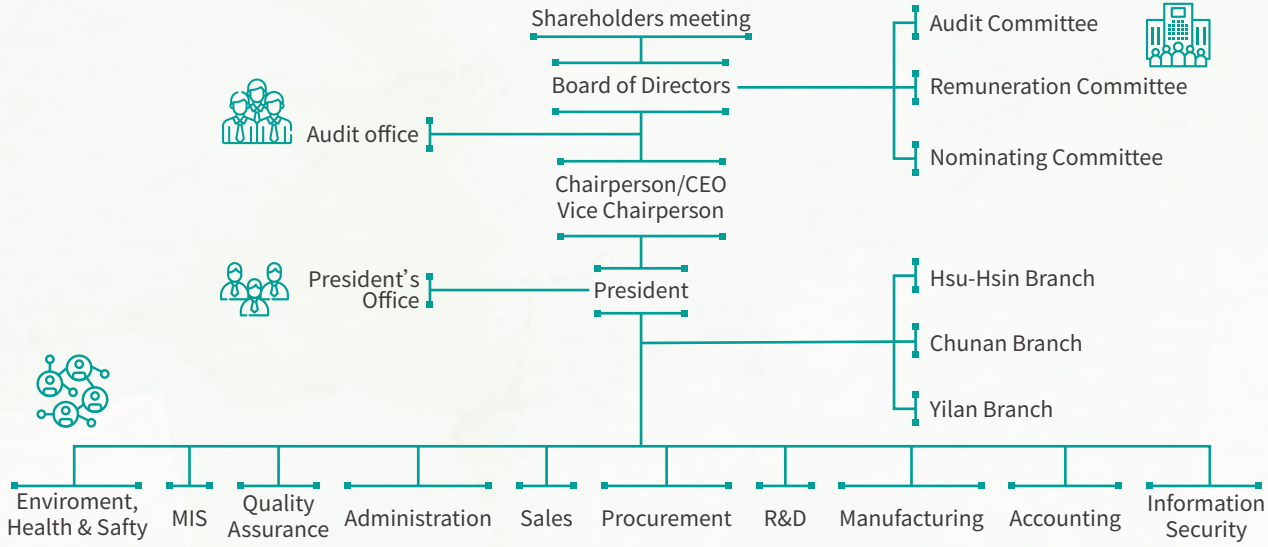
01

Governance and Operation

1.1 Corporate governance

Sino-American Silicon (SAS) has long promoted ethical management policy and strengthened transparent information disclosure to uphold an ethical corporate culture. For 9 consecutive years, SAS has been ranked among the top 5% of all TPEx-listed companies during corporate governance evaluations, demonstrating a strong resolve to pursue sustainable corporate operations.

1.1.1 Corporate Governance Framework



SAS Organizational Chart

➜ Summary of key points for the corporate governance organization

- ⦿ 3 of 10 directors are independent directors
- ⦿ 1 of 10 directors is a female director
- ⦿ Both the audit and remuneration committee members are composed of independent directors
- ⦿ 3 of the 5 nomination committee members are independent directors
- ⦿ The organizational charter of all committees is publicly disclosed on the Company website
- ⦿ The Board of Directors and functional committees conduct annual self-performance evaluations and disclose the evaluation results on the Company website
- ⦿ A Corporate Governance Officer is appointed to implement corporate governance. And strengthen the board of directors' competency

Operation of the Board of Directors

SAS' s Board of Directors consists of 10 knowledgeable and experienced directors, 3 of which are independent directors. Each director has a solid academic background and extensive industry experience, which enable them to fulfill their supervisory and managerial responsibilities and also effectively make business decisions. Major proposals are submitted to the Audit Committee for initial review and discussion before presenting them to the Board of Directors for resolution. Board resolutions are published on the company website to enhance information transparency and protect the rights and interests of shareholders.

To enhance directors' professional knowledge and legal literacy, board members must continue to participate in relevant continuing education courses, at least 6 hours per year per person, during their term of office. The Company has "Directions for the Implementation of Continuing Education for Directors" in place, which states continuing education courses for directors shall encompass corporate governance related topics such as finance, risk management, business, commerce, law, accounting, and corporate social responsibility. Continuing education courses that directors took in 2022 covered issues concerning corporate governance and securities laws, insider trading prevention and response, ESG, global net-zero, and sustainable development, etc.

The Diversity of Board of Directors

The Company' s "Corporate Governance Best-Practice Principles" has expressly defined the formation of the Board members and ability to be held by the members. The Company has also established the diversified policy for the board members. The composition of the board of directors has been determined by taking diversity into consideration, and appropriate policy on diversity based on the Company' s business operations, operating dynamics, and development has been formulated, as the following two general standards:

- Basic requirements and values: Gender, age, nationality, and culture.
- Professional knowledge and skills: A professional background (e.g., law, accounting, industry, finance, marketing, or technology), professional skills, and industry experience.

The Company emphasizes gender equality among board members and aims to have at least one seat of female director on the board. Our board members possess work experiences and expertise in operational management, knowledge of the industry, finance, and strategic management so as to facilitate the company' s implementation of board diversification policy. Please refer to our annual report for directors' professional qualifications and the company' s diversity implementation status.

Avoiding Conflict of Interest by Board Members

Provision for avoiding conflict of interest by board members are stipulated in SAS' s "Rules and Procedures for Board of Directors Meetings" and "Audit Committee Organizational Rules." When a director or a juristic person that the director represents is an interested party in relation to an agenda item, the director shall state the important aspects of the interested party relationship at the respective meeting. When such relationship is likely to prejudice the interest of the company, that director may state his or her opinions and answer questions but may not participate in discussion or voting on that agenda item and shall recuse himself or herself from the discussion or the voting on the item, and may not exercise voting rights as proxy for another director.

SAS shall adopt a candidate nomination system for election of directors (including independent directors) in accordance with Article 192-1 of the Company Act, and directors shall be elected from among the nominees listed on the roster at the shareholders' meeting. In 2022, the Board of Directors of SAS convened 7 meetings, and average attendance rate was 99%. The organization of board meetings, and the education/work experience and attendance of each board member are summarized in the table below:

◈ Main academic (experience) background and attendance status of board members in 2022

Title	Name	Gender	Education/work experience	Attendance in Person	By Proxy	Attendance Rate in Person (%)	Note
Chairperson	Hsiu-Lan Hsu	Female	Master of Computer Science, University of Illinois President of SAS	7	0	100%	Reelected on 2020.06.24
Vice Chairperson	Tang-Liang Yao	Male	Master of Management and Research Institute of Tamkang University Assistant Vice President of the Manufacturing Division of Lite-On Power Semi / President of SAS	7	0	100%	Reelected on 2020.06.24
Director	Ming-Kuang Lu	Male	Honorary Doctor of Engineering of National Chiao Tung University/Honorary Doctor of Engineering of Tatung University/Entrepreneur Program of National Chengchi University President of Lite-On Semiconductor Corporation/President of Xuxing Science and Technology Corporation/Vice President of Xuli Corporation/Chairman and CEO of SAS/Academician of Industrial Technology Research Institute	7	0	100%	Reelected on 2020.06.24
Director	Wen-Huei Tsai	Male	Department of Accounting, National Chengchi University Director of Hongdian Medical Science and Technology Corporation/Director of ENE Technology Inc.	7	0	100%	Reelected on 2020.06.24
Director	Feng-Ming Chang	Male	Master of Computer Science, University of Southern California/Master of Economics, Texas A&M University Director of TECO Corporation/Director of Syntec Scientific Corporation	7	0	100%	Elected on June 24, 2020
Director	Kai Jiang Co., Ltd. Representative: Hau Fang	Male	Master of International Business Administration, National ChengChi University Vice President of Taiwan United Medical Inc.	7	0	100%	Reelected on 2020.06.24

Title	Name	Gender	Education/work experience	Attendance in Person	By Proxy	Attendance Rate in Person (%)	Note
Director	Kun Chang Investment Co., Ltd. Representative: Edward Andrew Ow	Male	Department of Energy Economics, University of California, Berkeley Chairperson of Edison' s Co., Ltd./Director of VIA Faith and Love Charity Foundation/Director of Chinese Christian Faith and Love Foundation	6	1	86%	Representative elected on 2020.06.24
Independent Director	Jin-Tang Liu	Male	Bachelor, Department of Accounting, Tamkang University CPA, KPMG/Governor of 21th Term, Taiwan Provincial CPA Association/Teaching Assistant at Tamkang University	7	0	100%	Elected on June 24, 2020
Independent Director	Hou-Chung Kuo	Male	PhD, Electrical Engineering and Computer Science, University of Illinois, Urbana-Champaign	7	0	100%	Elected on June 24, 2020
Independent Director	Shao-Lun Li	Male	PhD in Materials Science, University of California Executive Vice President of Lam Research / Director of TVBS / Supervisor of HTC Corporation / President of Chander Electronics corp.	7	0	100%	Elected on June 24, 2020

For information on directors concurrently holding positions in SAS and other companies, director remuneration, and board resolutions, please refer to SAS 2022 Annual Report

Remuneration Committee

SAS has established a Remuneration Committee to faithfully implement a remuneration system. The Remuneration Committee is responsible for formulating and reviewing performance evaluations and remuneration policies, systems, standards, and structures for directors and managers.

In 2022, a total of 3 meetings were held for an average attendance rate of 100%:

For the organizational charter of the Remuneration Committee, please refer to the SAS Website

For details on Remuneration Committee resolutions, please refer to the SAS 2022 Annual Report

Audit Committee

SAS has established an Audit Committee entirely composed of independent directors to strengthen the internal supervision of corporate governance. The Committee' s main responsibilities are to review and discuss the Company' s financial reports, selection (dismissal) of certification accountants and their capability, credentials, independence and performance, service fees of CPAs, implementation and amendment of the Company' s internal control system, legal compliance, and control of existing or potential risks to the company, etc.

In 2022, a total of 7 meetings were held for an average attendance rate of 95%.

For the organizational charter of the Audit Committee, please refer to the SAS Website

For details on Audit Committee resolutions, please refer to the SAS 2022 Annual Report

Nomination Committee

SAS has established a Nomination Committee to improve the functions of the Company s board of directors and strengthen the management mechanism. The committee is composed of 5 directors, of which 3 are independent directors. The main responsibilities of the Nomination Committee are to construct and develop the organizational structure of the board of directors and various committees; seek, review, and nominate candidates for directors and senior managers based on the professional knowledge, technology, experience, gender, and other diverse backgrounds as well as the independence needs of board members and senior managers; and formulate and review the directors training plans and succession plans for directors and senior managers.

In 2022, 1 meeting was held for an average attendance rate of 100%.

For the organizational charter of the Nomination Committee, please refer to the SAS Website

For details on Nomination Committee resolutions, please refer to the SAS 2022 Annual Report

Performance Evaluation

The Company conducts annual performance evaluations in accordance with the Performance Evaluation Measures for Board of Directors and Functional Committees to implement corporate governance, enhance the functions of the company' s board of directors and functional committees, and establish performance targets to improve operational efficiency.

At the end of each year, the President Office is responsible for executing and coordinating the evaluation process. Internal questionnaires are collected. The evaluation is completed through the internal self-evaluation, and the self-evaluation of board members and functional members. The evaluation scope includes the performance evaluation of the whole Board of Directors, individual members of the Board of Directors, the Remuneration Committee and the Audit Committee. The performance evaluation standards mainly include participation in the operation of the Company, improvement of the decision-making quality of the Board of Directors and functional committees, composition and structure of the Board of Directors and functional committees, election and continuing education of the Board of Directors and functional members, internal control, etc. The 2021 performance evaluation results were excellent, indicating that the Board of Directors and each functional committee operated favorably as a whole in line with corporate governance requirements. The evaluation results have been presented and reported at the board meeting on March 16, 2023.

Board of Directors	• Relevant motions are submitted to the board of directors for discussion in accordance with law. • Directors observe rules with respect to avoidance of conflicting interests. • Directors of the board review the company's accounting system, financial position and financial reports, audit reports and their follow-up. • Directors engage in healthy communications and exchanges with CPAs. When new accounting standards are published or there are major adjustments to financial statements, directors convene Q&A or discussion meetings with CPAs.	• The Board of Directors faithfully monitors existing or potential risks to the company. • Whether board directors have all completed the training hours as required by governing authorities. • At least 2/3 of directors attend each board meeting. • At least 1/2 of directors attend shareholders' meeting. • The board of directors has an effective communication channel to communicate with company management.
Remuneration Committee	• The chair of the Remuneration Committee is able to chair meeting proceedings and thereby ensures effective and efficient discussions and resolutions. • All Remuneration Committee members possess professional knowledge of the industry and competency in remuneration management. • All Remuneration Committee members are fully aware of the core targets of the organizational operation, and well-versed in all remuneration plans that pertain to the company as well as all component factors of director and managers' remuneration. • The committee stipulates and reviews regularly the Company's compensation policies, systems, standards and structures.	• Directors' and managers' evaluation results for each performance indicator are used as the key basis for remuneration planning and distribution so as to make objective and fair decisions. • The committee formulates and regularly reviews the board performance evaluation system to ascertain any links to the allocation rules of director remuneration. • The committee regularly reports to the board of directors highlights discussed and resolved by the Remuneration Committee.
Audit Committee	• Members have a clear understanding of their roles and responsibilities and those of the Audit Committee as a whole. • The committee regularly reports to the board of directors the audit committee's activities, problems identified, and relevant suggestions. • Audit Committee members possess knowledge of the industry including diversity in terms of experience and background. • The committee annually and regularly reviews the audit and non-audit fees and services provided by CPAs and verifies the scope of audit services provided. • The committee and CPAs jointly review, any audit-related problems and difficulties, as well as actions taken by governing authorities.	• The committee regularly meets with internal audit personnel to assess the effectiveness of internal audit results and meets individually with audit personnel at least once a year or whenever deemed necessary. • During the review process, the Audit Committee effectively identifies and assesses major risks and evaluates the necessary steps to take for risk control. • The committee has evaluated and monitored existing or potential risks to the company. • The committee reviews and issues prior consent to any proposed related-party transactions to ensure conformance with related-party transaction policies, and reports approved transactions to the Board of Directors.
Nominating Committee	• The committee performs its duties loyally with due diligence as a good administrator, and submits its suggestions to the Board of Directors for discussion. • Find, review and nominate candidates for directors and senior managers based on the professional knowledge, skills, experience, gender and other diversified backgrounds and independence needs of the Company's Board members and senior managers.	• Construct and develop the organizational structure of the Board of Directors and committees, conduct performance appraisals of the Board of Directors, committees, and directors, and assess the independence of independent directors. • Formulate and review directors' continuing education plans and succession plans for directors and senior managers.

1.1.2 Integrity & Ethics

Core Values

Honesty and Integrity are one of the core values of SAS. SAS has formulated relevant rules and communication mechanisms for all directors, managers, and employees to follow in order to establish an honest business environment. Rigorous management mechanisms are executed to minimize ethical risks thereby achieving the goals of creating value for customers and profits for shareholders and stakeholders.

Internal Regulation System

To implement integrity management, SAS has established important internal regulations such as Ethical Corporate Management Best Practice Principles, Code of Ethics, and Ethical Corporate Management Operating Procedures and Code of Conduct to stipulate specific matters to which SAS directors, managers, and employees shall pay attention during business operations. The content of these regulations covers topics such as integrity management, ethical behavior, prohibition of unreasonable hospitality or improper interests, prohibition of intellectual property rights infringement, prohibition of anti-competitive behavior, and conflict of interests. These documents are published on the Company website and internal website for employee access at any time so as to raise employees' awareness of regulatory compliance and ethical conduct.

For employees involved in marketing and procurement, the Company reiterates the importance of honesty and integrity in our Sales Management Measures and Procurement Management Measures, establishing a comprehensive business compliance mechanism that covers such topics as fair competition, due diligence, trade control (trading counterparty, subject matter, purpose of use, cash flow, and relevant trade control and restrictions of major trading countries), anti-corruption, anti-bribery, and conflict of interests prevention and exemption mechanism. The Company also uses supply chain control to ensure compliance with conflict-free minerals provisions.

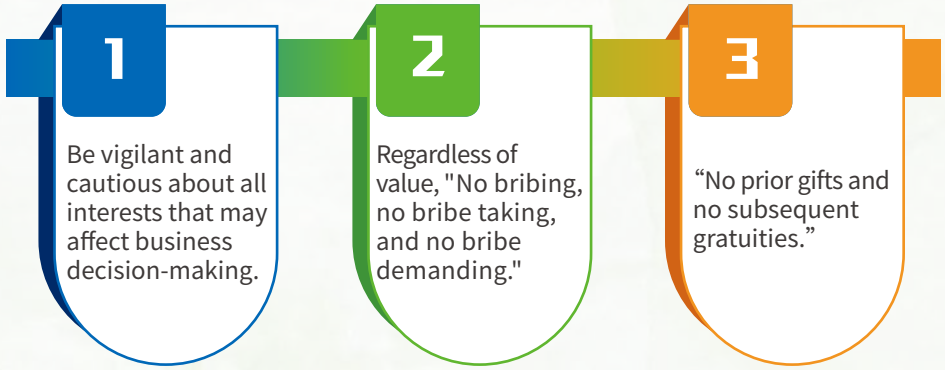
To prevent information-related unethical conducts, we ask employees to sign an Intellectual Property Rights and Confidentiality Agreement, and also request units in charge of marketing and procurement to enter a non-disclosure agreement (NDA) with customers and suppliers. Both types of agreements state that employees and signatories may not disclose to any other party any trade secrets of the Company of which they have learned, nor may they inquire about or collect any trade secrets of the Company unrelated to their individual duties, thereby fully safeguarding our business partners' sensitive or confidential information. SAS has established Personal Data Protection Management Measures to regularly implement an inventory of personal data and fulfill obligations of confidentiality for personal privacy with the highest ethical standards.

In 2022, SAS was not the subject of any legal events or penalties in relation to anti-competitive behavior.

Anti-Corruption

SAS abides by a Three-No' s policy for active prevention of unethical behaviors: No bribing, no bribe taking, and no bribe demanding. The "Ethical Corporate Management Best Practice Principles" clearly stipulates that colleagues shall not directly or indirectly provide, promise, request or receive any improper benefits during the process of engaging in business activities. The "Procedures for Ethical Management and Guidelines for Conduct" further provides clear codes of conduct for colleagues, and the key points include: (1) If payment is provided or promised due to threat or intimidation, record the process, report to the supervisor, and notify the compliance unit. (2) If others provide or promise illicit benefits, return or refuse the offer, and report to the supervisor and notify the compliance unit. If it cannot be returned, hand it over to the legal compliance unit for processing within 3 days from the date of receipt.

In 2022, SAS arranged education and training courses on ethical management for new employees to impart the correct concept, raise compliance awareness, and ensure that all corruption risks are properly controlled:



SAS has adopted compliance self-assessment evaluation, e-mail tracking, qualitative interviews, donation review, and other unethical behavior risk assessments to identify units and personnel that are at higher risk of corruption. Specifically, units in charge of marketing and procurement are on the front lines of increasingly more internal/external incentives and opportunities for unethical behaviors (i.e., cash, gifts, services, hospitality, facilitating fees) because of their business attributes and are, therefore, identified as exhibiting a higher risk of corruption. For this reason, SAS stipulated anti-bribery and anti-corruption clauses in its Sales Management Measures and Procurement Management Measures to prohibit any bribery and corruption behaviors, including directly or indirectly offering, promising to offer, delivering, requesting or accepting bribes, any unreasonable presents, hospitality or any improper benefits. In case of violation, the violator must face criminal and civil liabilities in addition to punishment according to the Company' s employee Reward and Punishment Provisions. If such actions incur damages to SAS, the violator shall also compensate the Company for the losses thus incurred.

In addition to the aforesaid internal risk control measures, SAS urges all suppliers and customers to adopt the highest corruption prevention standards and adopts Supplier Code of Conduct and Customer Code of Conduct to communicate our anti-bribery and anti-corruption beliefs to all counterparties of the Company. SAS requires suppliers and customers not to bribe or accept bribe from SAS or its representatives under any circumstances for the sake of affecting transaction decisions. In addition, SAS instructs its marketing and procurement personnel to complete the Customer/Dealer/Agent Integrity Management Evaluation Form and Supplier Integrity Management Evaluation Form before establishing business relationships. The completed forms shall serve as the basis for assessing transaction risks.

Employees of SAS obtain a high level of knowledge about anti-corruption behaviors through continuous education and training. In 2022, none of our employees were involved in corruption incidents.

For Ethical Corporate Management Best Practice Principles and other internal regulations, please refer to the SAS website.

Avoiding Conflicts of interest

SAS attaches great importance to ethical integrity. The Company has formulated Ethical Corporate Management Best Practice Principles, Ethical Corporate Management Operating Procedures and Code of Conduct, and Code of Ethics, stipulating that when a proposal at a given Board of Directors meeting concerns the personal interest of, or the interest of the juristic person represented by, any of the directors, managers, and other stakeholders attending or present at board meetings of the Company, the concerned person shall state the important aspects of the relationship of interest at the given board meeting. If his or her participation is likely to prejudice the interest of the company, the concerned person shall recuse himself or herself from the discussion or the voting, and may not exercise voting rights as proxy for another director.

To effectively prevent conflicts of interest, SAS stipulates that its employees shall not take advantage of their position in the company to obtain improper benefits for the following persons or companies:

- either themselves or their spouse, parents, children, or relatives within the second degree of kinship.
- enterprises in which the aforementioned personnel directly or indirectly enjoy considerable financial benefits.
- an enterprise in which the employee serves concurrently as the chairman, director, independent director, or senior manager.

SAS has provided appropriate channels for directors, independent directors, or managers to voluntarily explain whether they have potential conflicts of interest with the Company.

Reporting Channel and Informant Protection

SAS has established the Code of Conduct for Reporting Illegal, Unethical or Dishonest Cases to ensure ethical compliance. The Code clearly stipulates a disciplinary and appeal system for violations of integrity management regulations. On the Intranet, the company has set up and announced employee suggestion boxes, email, and complaint hotline, with a statement declaring our pledge to protect whistleblowers from any mistreatment due to whistleblowing, so as to encourage employees and stakeholders of the Company to report any unethical or improper conducts. In 2022, the Company amended the Code of Conduct for Reporting Illegal, Unethical or Dishonest Cases by introducing clauses on the authorization of independent directors to receive complaint reports and clauses on recusal of conflicts of interest, which stipulate that handlers shall recuse themselves if they have conflict of interest in a case and its investigation process.

Persons involved in the verification and handling of complaints shall indicate in writing that whistleblower' s identity and any details of the report will be kept confidential. If violation of integrity management regulations by any involved parties is found, disciplinary actions shall be taken according to the severity of the violation. The specific reporting process and responsible units are summarized as follows:

- Acceptance Unit and Accepted Party

Acceptance Unit	Accepted Party
Spokesperson	1. Shareholders, 2. Investors, 3. Other interested parties
Head of human resources	1. Company insiders, 2. Customers, 3. Suppliers, 4. Contractors
Legal Office and Independent directors	Accepted parties are same as spokesperson and human resources manager

- Processing Unit and Procedure

The Accused	Processing Procedure		Processing Unit
General Employees	Money Case	Forward it to the President	Human Resources legal affairs must assist
	Non-money Case	Forward it to the President	Head of Human Resources and department supervisor legal affairs may assist
Chairperson, Director, Senior Executive	Report Submission Independent Director or Audit Committee		Human Resources and Legal Office

➔ Handling Method

Investigate the Facts 01

Human Resources, Legal Affairs

- Investigate the relevant facts immediately; if it is believed that there is indeed a risk of unethical behavior, submit the case to the Chairperson for case delegation.
- The relevant personnel handling the case shall issue a written disclosure to keep the identity of the informant and the content of the report confidential.
- Written records of report acceptance and investigation shall be kept for 5 years.

If verified to be true 02

Human Resources, Legal Affairs

- The perpetrator is required to stop the relevant behaviors, and shall be properly disciplined via the Company's internal procedures or legal procedures.
- Information such as the job title, date of violation, facts of violation, provisions violated, and handling status shall be disclosed on the Market Observation Post System. (the same shall apply to those receiving immunity from the board of directors)
- If necessary, report to the competent authority or transfer the case to the judicial authority for investigation.
- The relevant unit of the perpetrator shall review the internal control system and operating procedures, and propose improvement measures.
- The investigation results shall be recorded in writing and be kept for 5 years.

Relief 03

Human Resources

- Give the perpetrator the opportunity to appeal, and convene a Personnel Appraisal Committee hearing if necessary.

Report to the board of directors 04

Legal Affairs

- Submit the case reported, the handling method, and the subsequent review and improvement measures to the board of directors.

1.1.3 Professional and Independent Internal Auditing

The Audit Office reports to the board of directors. Its mission is to assist the board of directors and managers in designing appropriate internal control mechanisms for the purpose of promoting sound operations of the company, so as to reasonably ensure that the following objectives are achieved:

- ⦿ Effectiveness and efficiency of operations (including profits, performance, and safeguarding of asset security).
- ⦿ Reliability, timeliness, transparency, and regulatory compliance of reporting (where reporting includes internal and external financial and non-financial reporting of the company).
- ⦿ Compliance with applicable laws, regulations, and bylaws.

The company' s internal auditors shall be detached, independent, objective, and impartial, in faithfully performing their duties, and shall exercise due professional care, and in addition to reporting their audit operations to each audit committee member (independent director) on a regular basis, the internal audit officer shall also attend and deliver a report to a board of directors meeting. The internal auditors shall perform their duties in good faith and shall not violate the Code of Practice on Internal Audit and Code of Ethics for Internal Auditors.

In response to global changes in capital markets, internal auditors must not only urge the Corporate Governance Office to deliver operational performance, but also monitor the company' s sustainable development. The Audit Office shall send its staff to participate in relevant activities or third-party verification activities, give guidance for responsible units to establish an internal control system, and adjust the direction of audit operations in a timely manner during their participation in relevant activities.

Implementation items include:

- ⦿ Internal control system setup and self-assessment: Assist managers in designing appropriate internal control mechanisms and conduct "Internal Control System Self-assessment." Each department shall evaluate the internal control status for its own responsible area. The goal is to achieve the self-examination effect and strengthen the internal control concept for evaluation department. To promote the applicability of self-assessment items, internal auditors shall revise assessment items by referring to the results of other internal evaluation activities and use electronic questionnaires to strengthen inter-operational links and handling efficiency.
- ⦿ Planning and implementation of annual audit plan: formulate the annual audit plan via risk assessments, perform audit for the various operating procedures based on the Company' s business activities, identify process defects, and make recommendations during operations to ensure the internal control proficiency.
- ⦿ Inspection of and suggestions for audit projects: Perform project inspections in response to potential risks (including fraud and corruption) identified by senior executives, and make recommendations in order to improve internal control integrity.
- ⦿ Audit findings and communication of such findings: Discuss improvement measures with the inspected unit based on the audit findings, and continue to track the follow-up improvement status to realize internal control implementation.
- ⦿ Audit reporting: Report the auditing results to the Audit Committee and board of directors, convey the weakness of the internal control and obtain instruction to improve the supervision effectiveness for enhanced corporate governance.
- ⦿ Audit operations related to subsidiaries: Depending on the scale of operation of a subsidiary, auditors shall assist the subsidiary in establishing an audit mechanism and conducting self-assessments, and shall review the implementation status of audits. They must also review the implementation of annual plans and keep track of review results.

1.1.4 Compliance with laws and regulations

To effectively and continuously raise employees' awareness of regulatory compliance and ethical conducts, SAS formulates relevant policies and rules in accordance with domestic and foreign laws and regulations. In addition, through continuous training, awareness campaigns, and regular inventory of self-assessment systems, we also strictly require all employees to comply with and understand such policies and rules. Education and training related to compliance issues organized by SAS in 2022 is briefly described below:

- Education and training for in-house employees (1 hour):

  The contents include analysis of insider trading laws, including constitutive elements, method and time of major news disclosure, and judicial opinions; and analysis of insider equity transfer laws, including obligation to declare before/after an event, and maintaining the number of shares held by directors and supervisors. This training is provided to new employees.

- Education and training in personal information protection (1 hour):

  The contents include compliance in the collection, processing, and use of personal information, a company's statutory obligations, punishments for violation, and case study. This training is provided to division managers.

- Ethical management education and training (2 hours):

  The content includes trade secret protection, fair trade, anti-bribery and corruption, conflict of interest prevention, export control, among other major compliance issues that concern technology industries. This training is provided to new employees.

In addition, SAS continues to strengthen internal organization and management while requesting all plants within the group to conduct cross auditing to identify potential risks from different perspectives and thereby enhance internal management. Sanctions and penalties within the organizational boundaries of SAS during 2022 are described as follows:

- SAS Chunan Branch was fined NT$60,000 for failing to take necessary measures in the engagement and adjustment of joint operations, which consequently caused injuries to a contractor who is an employee of GlobalWafers.
- SAS Yilan Branch was fined NT$50,000 for failing to pay overtime in accordance with Article 24 of the Labor Standards Act.
- Taisil Branch of subsidiary GlobalWafers was fined NT$60,000. Specifically, an equipment operator was repairing and testing the remote control of a robotic arm for wafer operations, and a wafer fell off when the arm suddenly released its gripper, injuring an employee.
- Taisil Branch of subsidiary GlobalWafers was fined NT$360,000 for exceeding the limit during an inspection of stationary pollution source in gas pipes by the Environmental Protection Bureau.

SAS formulates relevant policies or guidelines for different areas of compliance:

Securities regulations

Strict management mechanism

SAS stocks are listed on the Taipei Exchange for OTC trading in compliance with the Securities and Exchange Act and other applicable laws and regulations.

- The President's Office has established an effective communication channel with relevant competent authorities.
- After verification, the Legal Affairs Department observes legal trends, reviews the latest regulations and announcements, keeps track of regulatory changes, and informs relevant departments to formulate necessary response measures. If a department raises questions, the Legal Affairs Department will study relevant regulations and provide the correct response after communicating and confirming with the competent authority.

Labor laws and

Strict compliance with labor-related laws

- The company establishes various work systems and management standards that meet or exceed labor laws and regulations, develops excellent labor conditions and communication mechanisms, and forges positive labor-management interactions and relations with employees.
- We place value on employee salaries and benefits, are proactive in talent development, and implement labor laws to safeguard employees' rights. In the event of major policy changes (e.g., changes to salary and benefits, leave systems, etc.) that affect employees' rights, employees will be notified, prior to implementation, via labor-management meetings, e-newsletters or announcements on the HR notice board to safeguard their interests and rights.

Data management

- Main policy documents: Staff Employment, Business Secret Confidentiality, and Intellectual Property Rights Ownership Contract; Code of Ethics; and Intellectual Property Rights and Confidentiality Agreement.
- Management mechanism: Education on the importance of intellectual property and business secrets though posters and slogans, employee training and education, and signing of confidentiality agreements with employees in charge of relevant operations.

Corporate Governance/ Subsidiary Management

- Main policy documents: Ethical Corporate Management Best Practice Principles, Code of Ethics, Code of Conduct for Reporting Illegal, Unethical or Dishonest Cases.
- Management mechanism: Relevant regulations are incorporated into employees' education andtraining so that all employees have a clear code of conduct to follow.

Environmental Protection / Occupational Safety and Health Regulations

- Main policy documents: Identification and management of environmental protection, occupational safety and health related laws and regulations, and other requirements.
- Management mechanism: We conduct a monthly review of any changes in environmental protection, occupational safety and health related laws and regulations, and other requirements, and regularly assess compliance with applicable laws and other requirements.

Health Care

- Work Overload Prevention: Lectures on Coping with and Alleviating Workplace Stress
- Have you been vaccinated? Things We Should Know About COVID-19 Vaccine
- Course on Non-Violent Communication to Create Friendly Workplace
- Course on Building a Gender-Friendly Workplace Environment
- On-site First Aid Emergency Response and Chemical Splash Course
- CPR+AED Practical Education and Training Course

Environmental Protection, Safety, and Hygiene

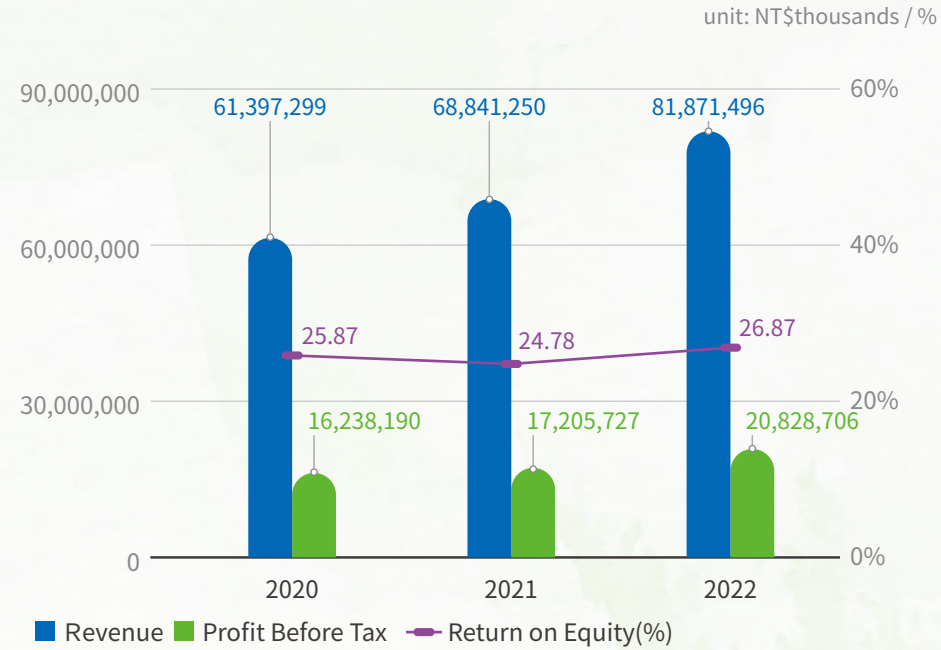
- Environmental Safety and Health Management System Education and Training
- GHG inventory
- How to Identify Chemicals and Use Protective Equipment
- Education and Training on Dangerous and Hazardous Substances
- Safety and Health Hazard Identification & Risk and Opportunity Assessment Form
- Automatic Inspection Education and Training
- Respiratory Protection Education Training and Fit Test
- Safety Management of Contractor On-Site Construction (including In-factory Control Operation Applications)
- Education and Training for Construction Entry Application Procedures
- Introduction to Fire Fighting System and Operating Practices
- Education and Training on Organizational Staffing Changes and Related Hazardous Chemicals
- ESG Sustainable Management Course
- TCFD Training Courses

1.2 Operation performance

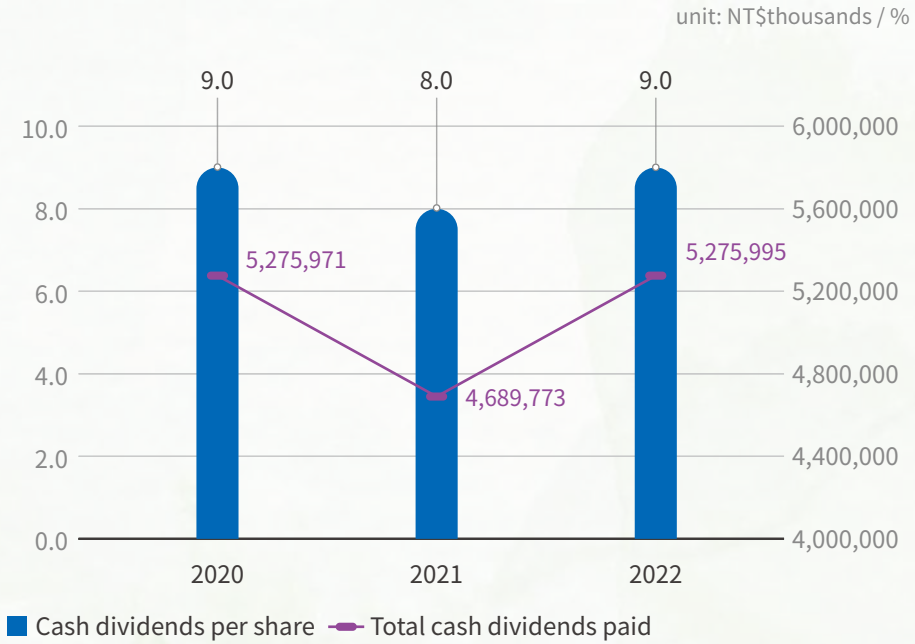
In 2022, as the world slowly emerged from the shadow of COVID-19, markets gradually recovered but in the face of challenges from reversal of demands, war, and inflation. Thanks to global focus on energy transition, various carbon reduction policies and funding have been introduced, boosting the demand of solar PV. Solar businesses with its robust operations maintained its status in existing supply chains, cultivated downstream system businesses, strengthened vertical integration to increase operating profit margins, and also actively established a presence in the fields of energy storage and renewable energy to diversify risks and enhance the cost performance of solar products through business diversification. As for semiconductor businesses, despite a weak consumer demand, our subsidiary GlobalWafers has signed long-term contracts with customers, and demand for high-end chips remained strong, enabling it to deliver outstanding performance. In 2022, the production output of SAS was 100% derived from its own production sites. See our Annual Report for more information on production output. Even though foreign exchange loss and soaring freight charges and electricity bills affected profit performance, the concerted efforts of our employees enabled SAS to turn in exceptional performance with record-high consolidated revenue and EPS in 2022. In sum, the Group' s consolidated revenue for 2022 was NT$81.871 billion, an increase of 18.9% from the NT$68.841 billion in the previous year. Net income after taxes attributed to the parent company was NT$8.716 billion; after-tax EPS was NT$14.87.

For details on the Company' s operating performance and financial information, please refer to Page 6 of SAS' s 2022 Consolidated Financial Statements.

◈ Financial Performance (Consolidated)

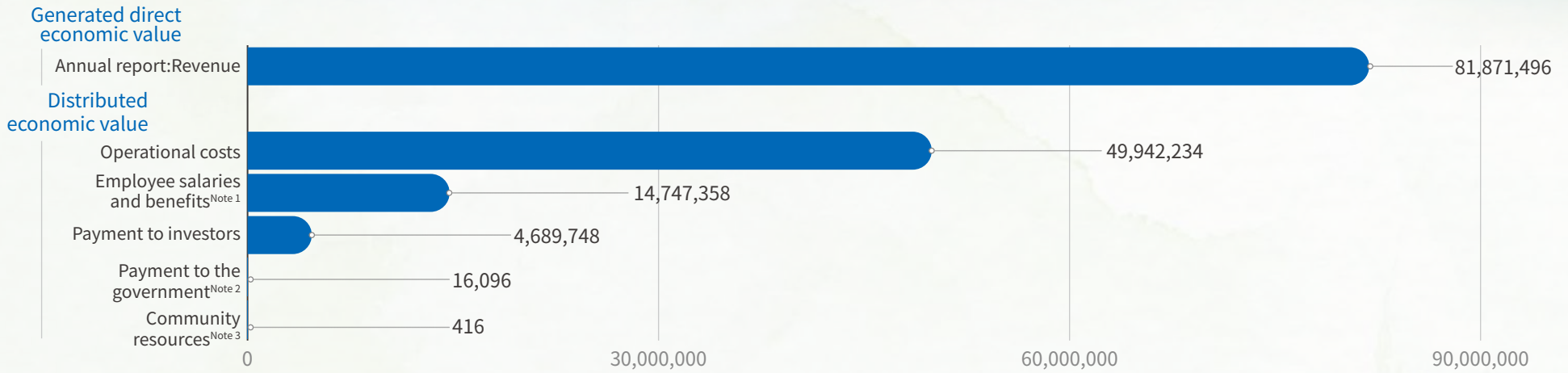


◈ Cash Dividends



◈ 2022 Economic value Analysis

Unit: NT$ thousands



Note 1 Human Capital Return On Investment (HCROI) in 2022 was 6.11.
Note 2 Fees included taxes (housing tax, land tax, license tax, fuel tax, etc.) and customs duties, etc.
Note 3 Fees included donations to charity events.

Overall economic environment and industry trends

As impacts from extreme weather events grow in frequency and severity, renewable energy has a vital role to play in carbon neutrality, with many nations successively legislating green policies and setting climate goals to adopt renewable energy. Characterized by its reasonable price and innovative technologies, solar energy is a competitive alternative to conventional fossil fuels that accounts for more than half of the growth volume, becoming the main driver of renewable energies. Furthermore, strong domestic demand ensued as the Taiwan government announced the goal to achieve net-zero emissions by 2050. SAS is proactive in developing different land sites, such as aqua-photovoltaics and agrivoltaicsas, to address maximum land limiting factors and build more solar power plants. In doing so, the company shifts its business focus from pure manufacturing to a variety of energy applications and services, thereby capturing opportunities from energy storage and renewable electricity for continuous business expansion to become a leading supplier of total green energy solutions. Going forward, demand for solar energy will continue to grow as carbon reduction becomes mainstream worldwide. SAS will focus on the robust operation of its key services while continuing with strategic deployment in the semiconductor sector to lay a firm, strong profit foundation for the overall performance of SAS.

1.3 Risk Management

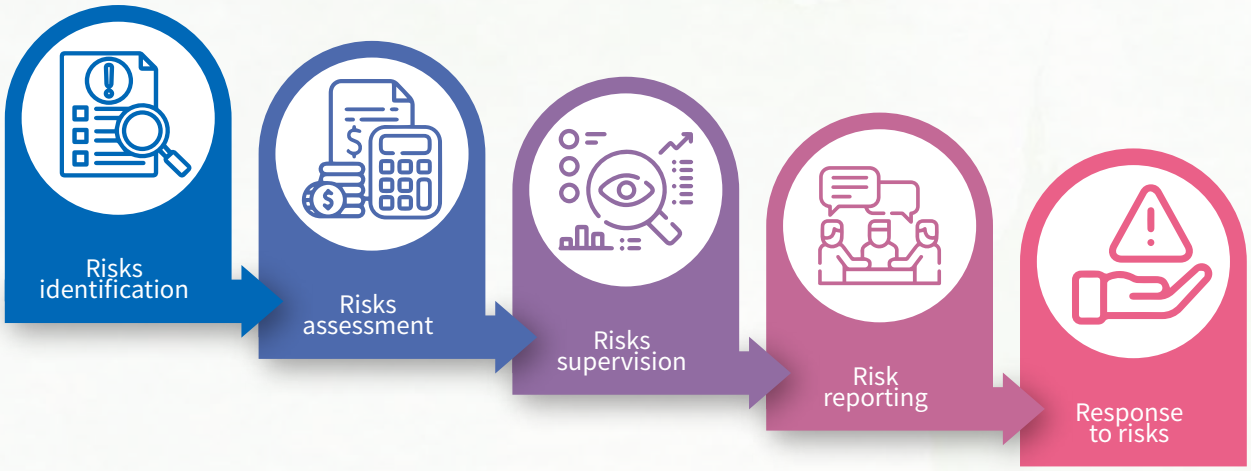
To ensure the robust management and sustainability of the company in a fast-changing business environment, SAS has formulated risk management policies and procedures for use to assess and monitor risk tolerance, risk exposure, risk response strategies, and compliance with risk management procedures.

Risk Management Organizational Structure

- Board of Directors: As the Company' s highest risk management unit, the Board of Directors acts in line with overall business strategies and environment, aims to comply with laws, promote and implement the Company' s holistic risk management, stays informed of risks in company operations, ensures effective risk management, and bears the ultimate responsibility in risk management.
- Senior management: The senior management is responsible for planning, commanding, and deploying the implementation of risk management decisions by the board of directors, and coordinating interaction and communication for interdepartmental risk management to reduce strategic risks.
- Functional units: The units are responsible for analyzing, managing, and monitoring risks to their respective unit and for ensuring that risk management mechanisms and procedures are effectively implemented.
- Internal Auditing: This independent unit reports to the board of directors. It assists the board of directors in supervising and executing risk management mechanisms, inspects the progress of each functional unit in risk mitigation and control, and provides improvement suggestions for risk monitoring.

Risk management process

SAS follows a risk management procedure that includes risk identification, risk assessment, risk supervision, risk reporting, and response to risks. With this risk management procedure, we aim to effectively implement and facilitate the company' s risks management strategies.



SAS has developed an assessment method to serve as the basis for risk management. Quantifiable risks are analyzed using a robust statistical method and technique and subsequently managed using a progressive approach. Difficult-to-quantify risks are measured qualitatively and descriptively to express the possibility and impact of a risk occurrence. Information on the management of relevant operational and business risks is disclosed in the Company' s Annual Report and company website.

SAS keeps 3 major emerging risks identified in 2020: climate change, information security, and epidemic infectious diseases. In response, the Company formulated risk strategies and action plans to mitigate any possible impacts on all aspects of the company' s operations. In doing so, we ensure that risks are effectively controlled.

Note: Climate change risks are reported in the Risk Management section

Information Security

According to the 2019 World Economic Forum Risk Report, large-scale cyberattacks and data theft were ranked in the top 10 risks. In 2020, many well-known companies worldwide and in Taiwan have experienced ransomware incidents that resulted in significant losses. Therefore, strengthening cybersecurity warrants immediate attention. SAS continuously optimizes information security management system and enhance its information security defense capabilities to ensure effective information security practices and reduce the risks of novel forms of cyberattacks. With respect to operating models, SAS adopts the PDCA cycle to achieve objectives and continuous improvement, establishes information security monitoring systems that scan for vulnerability to prevent external (hackers) and internal (data breach) sources of cyberattacks, and implements software and hardware control (including Internet and personal information equipment) to protect the security of personal data and confidential data.

The information security management and control mechanisms are implemented in 3 major aspects (as follows) to ensure effective information security protection and reduce risks.

Information System Security Management

- Install endpoint protection software on servers and personal computers or laptops, and automatically update virus definitions or signatures.
- Construct email security gateway equipped with information security modules such as spam filtering, malicious file detection, and phishing email detection in order to enhance email attack protection.
- Important systems and databases are regularly backed up and stored off-site to ensure data availability.
- The information system vulnerability scanning is conducted periodically and the holes in the loop of the system are fixed.
- The computer operation systems or servers are updated for securities based on the cyber risks.
- Established a firewall in the internal network and set up firewall rules to protect important information systems.
- Performed annual disaster recovery exercise drill for important application systems.

Information System Access Control

- Strictly control the application system and file access setting permissions to ensure information confidentiality.
- Formulate and implement account/password complexity principles, and update passwords regularly to ensure the validity of identity authentication.
- For employees who have resigned and changed departments, the information department shall adjust the permissions according to documents to ensure real-time and correct data permission & authorization.
- The Company has established the management procedures for non-employees (suppliers and contractors) to apply for accounts and access the systems. Once the application is approved, access will be granted for them to enter the system, and the handling status is recorded.
- No personal terminal device is permitted to be connected with any external storage medium.
- Personal computers are prohibited from connecting to the Company' s network and resources, and the device authentication management mechanism is established.

Network Security Management

- Established a firewall to protect the network' s external connections, and analyzed the firewall' s anomaly records to strengthen protection.
- A multi-loop mechanism is adopted to connection to the Internet and the Company' s internal network interface in order to prevent disconnection.
- An information service monitoring platform has been set up to monitor network traffic and connection status, which can resolve any network related problems in real time.
- The information department delivers security reminders to all colleagues irregularly to remind colleagues to remain alert for the emails received in order to prevent the increasingly serious phishing and malicious fraud letter problems.
- The internal staff ' s computers all must have anti-virus software installed. Once the anti-virus control platform finds a virus, it will send a notification letter to the IT personnel for computer virus removal.
- The remote connection to the internal network when the employees are out of office are limited to these compliant with the cyber security controls. Only these employees who are required to perform the required tasks may connect to the Company via remote connection via an authorization, and the VPN security connection with multi-factor authentication must be applied.

Pandemic Infectious Disease

COVID-19 still affected the world in 2022. SAS strengthened pandemic prevention measures for its production sites at the first instance to ensure employee health and safety and maintain normal wafer production. Our departments joined forces to formulate pandemic prevention strategies for production sites, launched a series of actions to combat the pandemic, took an inventory of hierarchical measures and pandemic prevention resources, and regularly rolled out changes to pandemic prevention practices in alignment with the global pandemic status so as to ensure a safe and healthy workplace.

We took a multi-pronged approach regarding epidemic prevention and employee care for the factory. In addition to executing the high-standard corporate epidemic prevention mechanism to ensure uninterrupted production line operations, we have continued to practice multiple care measures to ensure the safety of all employees, exert a positive influence on the enterprise, and join forces with everyone to fight the epidemic.

- Employee care: During the local outbreak of COVID-19 in May 2021, SAS gave priority to pandemic prevention, purchasing statutory infectious disease health insurance for its employees. This insurance policy covers statutory infectious diseases, hospitalization for statutory infectious diseases, and intensive care hospitalization for statutory infectious diseases to safeguard the safety and health of all our employees.
- Pandemic prevention information: To enable employees to grasp the real-time epidemic prevention information correctly, the Health Management Center has collected the latest epidemic information at home and abroad periodically and made rolling epidemic prevention measure adjustments in the factory to make real-time announcements according to the COVID-19 status so employees can quickly receive the correct epidemic prevention information.
- Health monitoring: To reduce employee exposure risks, we set up infrared thermometers at the entrance of each factory area and implemented access control for risk groups such as people with fever symptoms and suspected exposure history. The goal is to fully implement employee access control for pandemic prevention.
- Visitor management: Electronic bulletins are used to inform supply chain manufacturers of COVID-19 prevention measures when they enter our plants. We require all visitors and contractors to apply for access into the plants, limited the scope of in-plant activities according to the pandemic alert level, and ask everyone to wear masks at all time to protect the safety of employees.
- Plant pandemic prevention: To prevent the infection risks due to crowd gathering, office workers have taken a number of contingency measures such as: crisscross seating, cabin separation, traffic flow diversion, and work from home in order to minimize crowd gathering and reduce the frequency of employee contact. (Note: social distancing measures such as work from home are adopted to maintain smooth work operations).
- Safe dining environment: The Company has planned epidemic prevention dining lines, table plastic partitions, disposable lunch boxes, and divided the dining area by units to ensure worry-free meal dining safety in the plants.
- Disinfection in the plants: The Company has formulated public area disinfection and cleaning measures, adjusted the frequency of environmental disinfection and supplied alcohol disinfectant in public spaces, increased internal ventilation, encouraged staff to open windows in confined spaces, affixed adhesive films on top of frequently used buttons, added partitions in restaurants, posted correct hand washing instructions in each restroom, and conducted a regular inventory to ensure that the Company has sufficient anti-epidemic materials.
- Physical and mental care: The COVID-19 pandemic has created a general atmosphere of anxiety and insecurity in the society. In 2021, SAS introduced the Employee Assistance Program Consortium (EAPC), providing each employee with two free-of-charge one-to-one consultation services every year. Promotional materials on mental health development were also distributed regularly to help employees alleviate negative emotions and stress.

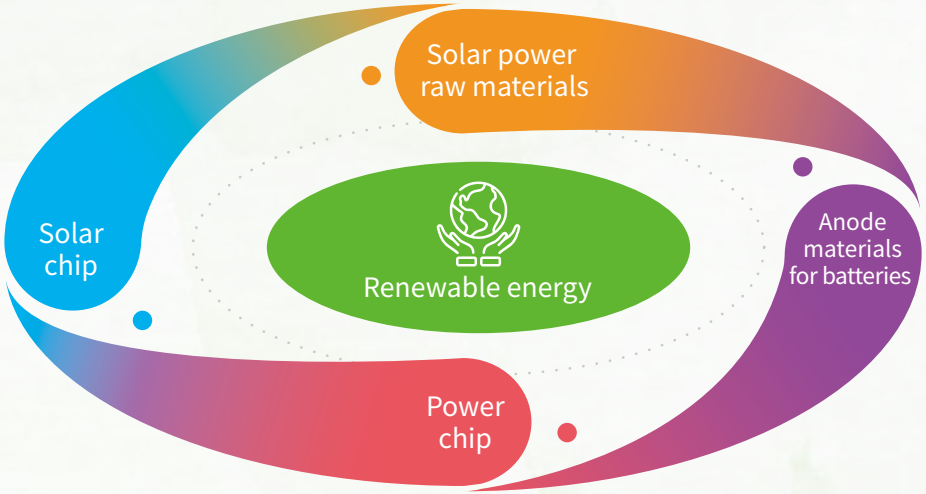
02

Products/Services and Value

2.1 Innovation management

Continuing to be an Energy Supplier

Energy has garnered global attention in recent years due to the impact of climate change, COVID-19, and the Russia–Ukraine war. In such ever-changing and challenging environment, SAS is vertically integrated in the solar energy industry, extending our reach from solar cells and modules to PV power stations, and engages in maintenance and operational management to continuously and actively provide green energy solutions. Meanwhile, we are committed to the development of anode materials for batteries in an effort to search for new opportunities and sales channels for future businesses. Presently, our services are mainly focused on energy materials, including raw materials and solar chip products for solar energy operators, which are used to produce solar cells and models for renewable energy markets, as well as anode materials for batteries and GaN chips for power conversion to strengthen environmental protection and energy conservation, which also aligns with carbon reduction trends.



Situated in a competitive market, SAS complies with various laws and international trade regulations, acts in the interest of the environment, encourages suppliers and customers to use renewable energy, enhances our competitive advantage, and also strives toward the goal of sustainability. While we continue to invest in green energy and semiconductors, SAS Group is also committed to environmental sustainability and pledges to use 100% renewable energy by 2050 in hopes of driving our industry peers to focus on and transition to cleaner energy sources.

Continued Innovation and Development of Advanced Products and Technologies

With respect to the development and mass production of monocrystalline high-efficiency solar cells, we continued to provide high-quality solar cells with high conversion efficiency; mass-produced large-size solar cells (M6); and adopted the new CELCO P+ process technology, which enables a maximum efficiency of 23.20%. In 2022, our solar cell products won the Taiwan Excellent Photovoltaic Award, which was held by the Bureau of Energy, Ministry of Economic Affairs.

SAS has access to core technologies for solar cell designs. Beginning in 2023, our larger-sized solar cells (M10) will be made available in the market to keep pace with global trends in solar energy development, satisfy the needs of our customers both at home and abroad, and provide better green energy solutions.

Under the same conversion efficiency, M10 solar cells can provide up to 20%+ output wattage compared to M6 solar cells. Products powered by high-wattage M10 cells can facilitate the effective use of land, generating larger amount of solar power on the same piece of land. In other words, installing larger-sized cells in the same PV system can minimize land development, which is conducive to ecological conservation and sustainable development.

Moreover, large-sized M10 cells will lower Levelized Cost of Energy (LCOE) more efficiently and in turn increase the installed capacity of solar PV systems, thereby accelerating the integration of Taiwan' s solar energy market into international markets, which bolsters the competitiveness of Taiwan-based industries, promotes industry upgrade, speeds up the attainment of national policy goals for renewable energy, and thus achieves national policy objectives for the sustainable development of green energy.


臺灣製MIT微笑產品驗證書
Taiwan-made MIT Smile Product Certificate


臺灣製MIT微笑產品驗證書 附件
Attachment to Taiwan-made MIT Smile Product Certificate

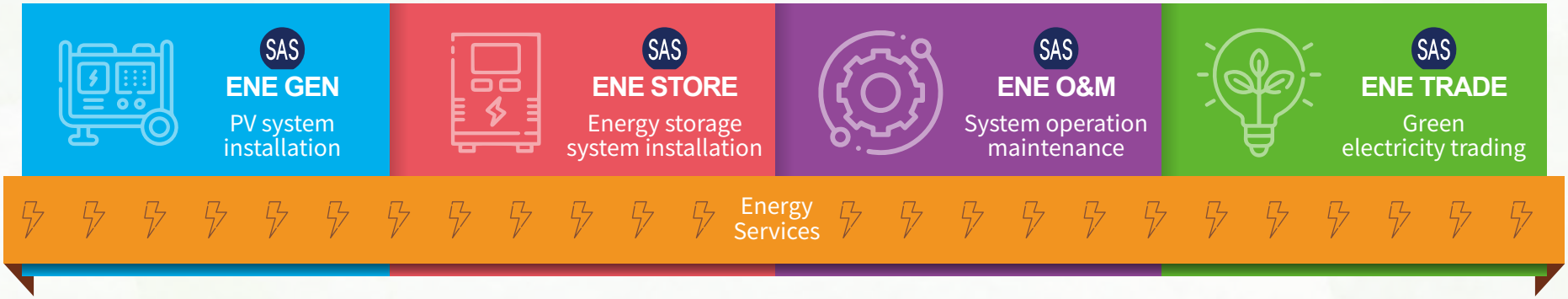
Continuous Product Innovation

In continuation of our previous R&D results, we will keep on developing products for the application of silicon materials, improve ultra-high-efficiency monocrystalline silicon solar cells, and focus on the development of ultra-high-efficiency large-sized P type monocrystalline silicon solar cells (M10).

Strategic Deployment in the Renewable Energy Market

With the continued development of the global renewable energy power generation industry, SAS will continue to cultivate the solar energy industry as we have done for many years. In 2015, SAS began devoting to the solar power industry through our Hsu-Hsin Branch in Yilan. In 2020, our Yilan Branch established a Power Station Development Department, expanding the scope of the Group' s renewable energy services to include power generation, maintenance and operation, energy storage, and green energy. SAS is committed to achieving vertical industry integration and expanding our solar energy business so as to transform the company into one of the main professional suppliers of green energy solution in Taiwan. SAS constantly seeks the next growth momentum and hopes to pursue sustainability and growth together with customers and suppliers.

SAS Group not only continued its investment in green energy industries, but also made a commitment to environmental sustainability in August 2021, pledging to adopt 100% renewable energy by 2050. By leveraging our long-term commitment to and understanding of the green energy industry, SAS Group established Sustainable Energy Solution Co., Ltd., (SES) a subsidiary that strives for both energy and business sustainability. The goal is to assemble enterprises that need to use renewable electricity and assist them in providing professional solutions with respect to law, border trade, global supply chains, or self-declarations. In 2022, SES obtained the license to sell electricity, officially becoming a member of the renewable electricity market for trade liberalization. Nevertheless, we will keep pace with global trends in the adoption of renewable energy, and continue to meet the group' s renewable energy targets and strive for net-zero emissions.



The four main pillars of our renewable energy services

Building Renewable Energy Plants and Maintaining Management Quality

Given the continued increase in the number of solar power plants invested, held, and commissioned for construction by SAS, SAS completed the development and adoption of an online Solar Power Engineering Management System in 2022 to improve the overall management quality and efficiency. This management system is used to create a database that contains 20 years of data on solar plant construction and operations. These data are continuously generated and analyzed to optimize the quality and scope of our renewable energy services.

2.2 Customers and Products/Services

Customer Service

Forging longstanding relationships with customers and building a culture of trust, collaboration, and tacit understanding are the cornerstone for the development of SAS. Customers are absolutely the key to stable operations. As the upstream supplier of the solar energy industry, we not only provide material products and services, but also actively improve ourselves by addressing customer feedback, including their opinions, needs, and suggestions. When coordinating with customers, we make adjustments as needed and render warmer services through personalization, thereby improving customer satisfaction and trust. While actively developing the solar energy and semiconductor industries, we are also committed to the research and development of our hard power—process technologies, whereas our soft power is the brand value we created through customer services. When customers express opinions, we always take it to heart and adjust our pace to achieve mutually beneficial outcomes for our customers and the company, thereby realizing the core value and development of SAS.

Product quality and customer satisfaction

SAS invariably strives to achieve customer satisfaction, fulfill customer requirements, implement total quality control, and engage in continuous improvement so as to make customers more confident in our products and services. Providing services that are satisfactory to customers and high-quality products forms the core of our business operation. Our entire product/service process, from R&D to cost, manufacturing, quality control, and customer services, boasts a team of professionals who are readily available to address and handle any customer concerns and feedback so as to gain customer trust and satisfaction.

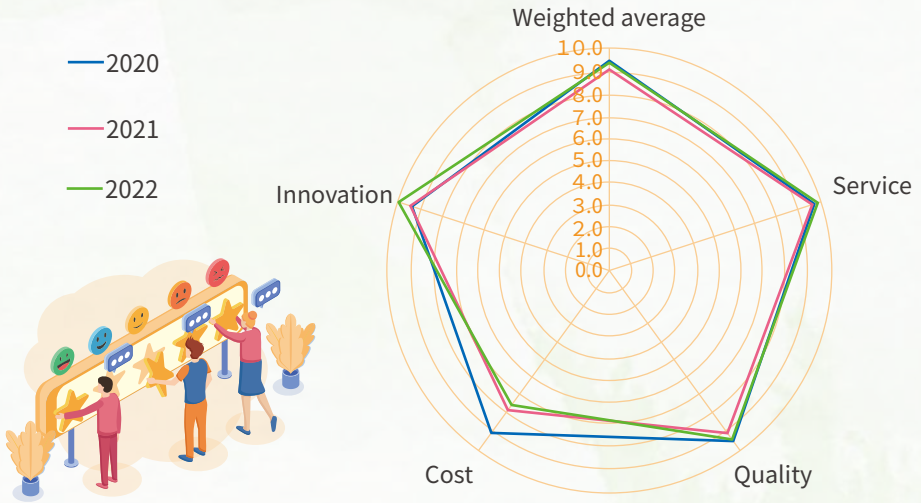
SAS maintains effective communication with customers by scheduling regular meetings with them to discuss their concerns such as production and sales quality or engineering technologies. We work with customers to develop new-generation products and engage in technical discussions with suppliers to improve product power efficiency, thereby optimizing the use of social resources to reduce environmental pollution. Thus, we can forge deeper, stronger relationships with customers who will then feel more satisfied with our products, technologies, and services.

Customer satisfaction surveys are conducted every six months to collect feedback from customers. After organizing the collected data, dedicated teams convene a meeting to establish improvement strategies and directions based on customer feedback. For unsatisfactory items, customers are interviewed to identify issues. Deficiencies are analyzed and improvement strategies formulated to continuously improve customer satisfaction. Through these actions, we hope to earn the trust and recognition of increasingly more customers and become their most preferred partner in striving for sustainable development.

Despite challenges in 2022 arising from weak market demand, rising raw material prices, and increase in logistics costs, as well as shortage of water and electricity resources, SAS still continues to strive for balance between cost and quality.

Customer Satisfaction with Multi-Crystalline Silicon Products

In 2022, our multi-crystalline silicon products received a weighted average satisfaction score of 9.2 (very satisfied), a slight increase of 0.2 point from 2021. Specifically, the customers were not particularly satisfied with the cost aspect of this product primarily because the global rise in raw material prices also increased customers' costs. The customers request improvement in this aspect. Considering that this issue is an unavoidable risk, SAS has set "cost reduction" as its main goal and adopted various improvement strategies, such as process improvement, 2nd source verification, and regular review of cost changes, to maintain our competitiveness. Three aspects of this product—service, quality, and innovation—still scored above 9 points (very satisfied), indicating that the customers continued to evaluate SAS favorably. SAS will continue to meet customer expectations.

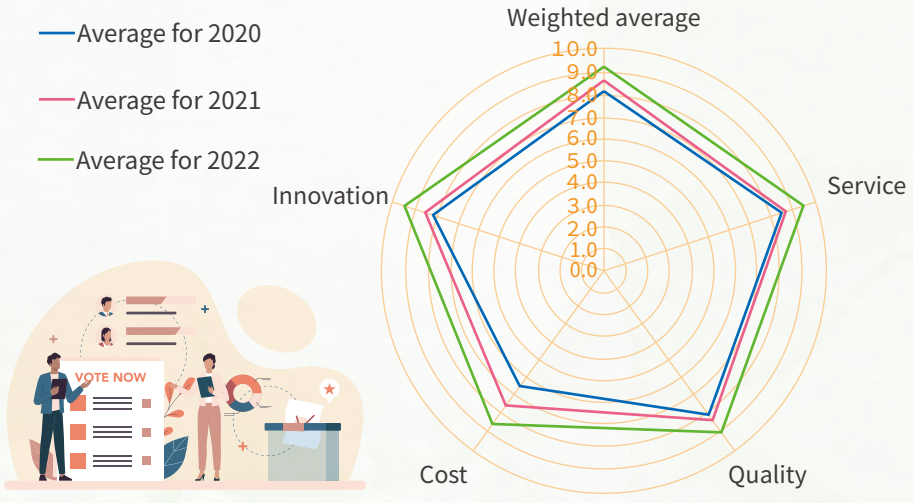


Survey of Customer Satisfaction with Multi-Crystalline Silicon Products

Customer Satisfaction with Solar Cells

We divided customer satisfaction into five main aspects for evaluation, with the hope of improving customer satisfaction and product competitiveness by understanding the needs of market customers. The five aspects were service, innovation, quality, cost, and weighted average (general evaluation). The highest score for each item was 10 points (very satisfied). Items with a score of 6 points or below require internal improvement. A weakness or improvement analysis of satisfaction scores for each item of the five main aspects was performed, and the results served as the basis for our continuous improvement.

In 2022, our solar cell products scored a weighted average of 9.1 points in the customer satisfaction survey, which is a 0.6 point increase from 2021, indicating that our overall performance in all five aspects improved considerably compared with previous years. In terms of quality, surface passivation and electrical conduction capabilities were optimized to improve conversion efficiency and wattage. We outperformed our solar cell competitors in this regard,providing higher-efficiency products to meet the needs of module customers. With respect to cost, we continued to cut production costs by adjusting and optimizing automation mechanisms and battery manufacturing processes to improve production yield, reduce use of chemicals, and increase the number of prints. Regarding innovation, our Yilan Branch launched a production line for large-sized M10 solar cells and prepared a new technology (TOPCON) for process adoption, thus enabling SAS to provide customers with more product options and play a leading, competitive role in the solar energy market.



Survey of Customer Satisfaction with Solar Cells

SAS does not become complacent after earning the recognition of customers. We nevertheless remain invested in relevant equipment to improve product quality and performance, and continue to develop technologies that will help us achieve breakthroughs in the current environment. We adhere to the company's quality policies and quality goals and continuously improve customer satisfaction by providing products and services of premium quality. Using the core tools of quality management systems, we propose improvement strategies for non-conforming items and keep track of our improvement progress. Through these efforts, we hope that customers can perceive our sincere attitude toward self-improvements, thus further inspiring SAS to enhance its service quality and competitiveness.

Products services

SAS continuously innovates and develops high-efficiency products to uphold its persistence in producing cells with high conversion efficiency. SAS quickly integrates upstream and downstream technology development capabilities through the integration of upstream and downstream supply chains for product technologies and technology interchange. In doing so, the time required for product launch is shortened, product reliability is enhanced, and quality confidence is boosted so as to more efficiently align products to the demands of end users. In terms of quality, SAS has rigorous quality control procedures and processes in place for the collection of customer information, product design development, and production/manufacturing processes. Such systematic management ensures outstanding and stable product quality at all stages. SAS regularly convenes a series of meetings, including morning (production), weekly (operations), monthly (quality), management review, and annual review meetings, to ensure continuous product improvements. The PDCA cycle is constantly adopted to enhance products and services and cut down costs and expenditures. The costs saved are in turn contributed to the society.

2.3 Protection of Customers' Confidential Information

Customer Privacy

SAS is not only committed to providing excellent customer services, but also places great emphasis on protection of customer privacy and confidentiality. Confidentiality agreements are signed with customers to protect their privacy. Meanwhile, all staff members must abide by SAS's intellectual property (IP) policy and rigorously protect customers' confidential information during business activities.

Professional advice is a top priority during our service delivery process. Due to the complexity of industry chains, information confidentiality and privacy are of utmost importance. When carrying out official business with customers, we enter a confidentiality agreement with customers to protect the interests and rights of both parties. Internally, employees are strictly required to abide by SAS's intellectual property (IP) policy and regulations so as to protect customers' confidential information and reassure customers that any businesses carried out with SAS are kept strictly confidential. Audits are conducted periodically and from time to time to avoid the possibility of data breach. Under these management regulations, there were no customer complaints regarding breach of confidentiality or penalties imposed by the competent authority in 2022, which helped us to make a stronger impression on customers and accumulate our intangible asset.

Customer Service Principles

Protection of Intellectual Property

In 2010, SAS adopted the Taiwan intellectual property management system (TIPS). Since then, the company has successively obtained basic (2010–2011) and advanced certifications (2012–2015) as well as AA-level certification in 2016. We will remain committed to the protection and management of our intellectual properties. In recent years, we strengthened confidentiality control by building a data classification system, defining confidentiality levels for internal and external documents, and establishing different labeling and circulation control methods. Meanwhile, we established rules on the use of electronic equipment; introduced cloud virtual desktop, central data backup management, and outgoing email inspection systems; and created rules for use of electronic storage devices and in-plant video shooting management. We review folder permissions regularly, require key employees to sign NDAs, and strengthen management procedures for departing employees to eliminate information security problems. We completed creating electronic forms for TIPS internal audit, and regularly review stakeholders' expectations as well as internal and external issues in the TIPS system. With respect to patent management, we continued to optimize systems for patent submissions, patent maintenance, and patent evaluations. More importantly, SAS organizes regular intellectual property training to reinforce employees' understanding and awareness of confidentiality management and shape a corporate culture of confidentiality management. The goal is to effectively manage intellectual property, safeguard the rights and interests of the company and its customers, strengthen customer trust, and increase product market share.

2.4 Product Accountability

Product Safety and Accountability

A wide range of our products apply silicon materials. To ensure compliance with the EU RoHS (Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment) Directive, among other international regulations and customer requirements for hazardous substances, all of our products will be tested by a certified unbiased third-party laboratory and were verified to be in compliance with the EU RoHS Directive in 2022. SAS also requires its raw material and packaging material suppliers to submit regular hazardous substance test reports issued by a certified third-party laboratory to not only meet product safety and non-toxicity requirements but also be more protective of and friendlier to the environment.

SAS is fully aware of the risks associated with solar cells and back-end modules, such as the environmental impact of chemicals used in manufacturing processes, risks of product use in different environments, and risks at different stages of product life cycle. Currently, there are no international laws or regulations on the labeling of solar cell products. Nevertheless, following multi-faceted consideration, SAS still labeled its products with complete details, including product ingredients, hazardous substances, and usage safety, to put customers' mind at ease when using our products. In 2022, no stakeholders have complained about discrepancies in our product labels. In terms of marketing, SAS provides a detailed description of potential product risks in product manuals and ensures conformity to legal, environmental, and customer requirements imposed in each sales location.

2.5 Value chain

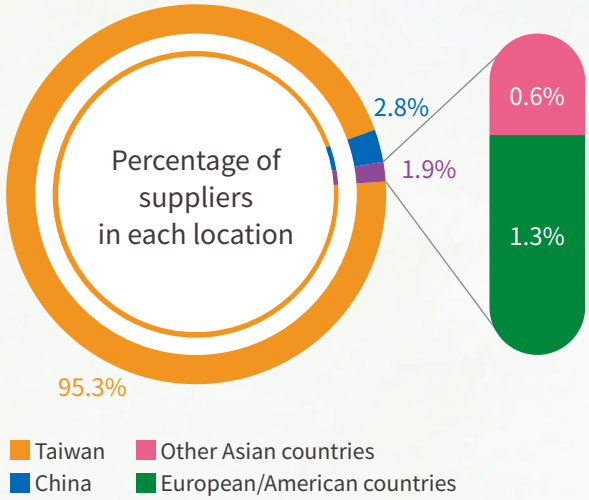
SAS upholds the principles of integrity and has grown into an internationally renowned enterprise after enduring through a series of challenges. Since its establishment through to its vertical integration in the solar energy industry, SAS has extended its reach from solar cells and modules to PV power stations, and engages in maintenance and operational management, becoming a global professional supplier of green energy solutions.

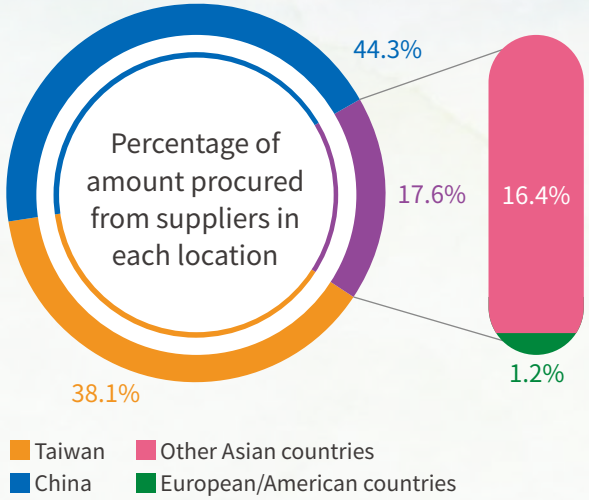
SAS recognizes that silicon, dopant, wafer, and electrically conductive paste are key materials that pose a risk to our business operation. Specifically, silicon materials and wafer are not entirely accessible in Taiwan due to geopolitical reasons and scale of economy. Therefore, we adopted various risk control strategies, such as supply chain diversification, material reserves, and silicon reuse. With respect to sustainable supply chain management, we established a Supplier Code of Conduct for all suppliers to comply with. In addition to requesting suppliers to comply with local laws and regulations of respective countries/regions, we also devised rules governing business conducts in various aspects, including labor, health and safety, environment, business ethics, and management systems. Moreover, suppliers must abide by the Responsible Business Alliance Code of Conduct, use conflict-free minerals, ensure compliance with domestic and international laws (RoHS, REACH, WEEE), and prioritize purchasing products with environmental protection labels.

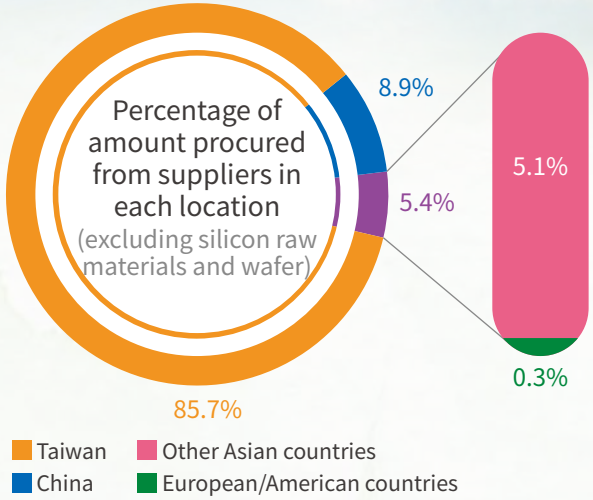
Supply Chain Localization

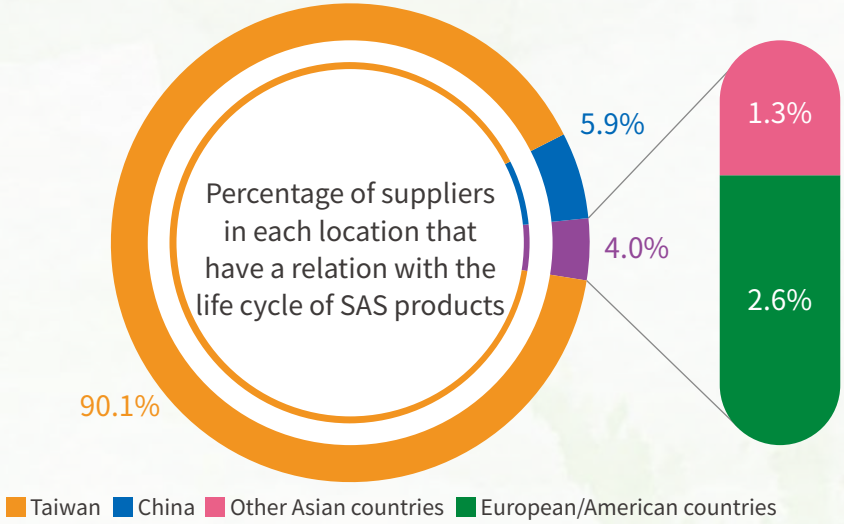
SAS has its main production base in Taiwan; therefore, the company actively cooperates with Taiwanese suppliers to achieve supply chain localization. In 2022, there were no significant changes to our supply chain; Chunan Branch, Yilan Branch, and Hsu-Hsin Branch worked with 705 suppliers in total, 672 or 95.3% of which are located in Taiwan. The amount purchased from them accounted for 38.1% of our total procurement. As mentioned previously, key materials such as silicon and silicon chip are not entirely accessible in Taiwan due to geopolitical reasons and scale of economy. If the procurement amount for these materials is not included in our calculation, then the amount of materials purchased locally accounts for 85.7% of our total procurement (excluding silicon raw materials and wafer). In addition, 303 of our suppliers have a direct relation to the life cycle of SAS products, and 90.1% of them (or 273) are local suppliers whose procurement amount accounts for 35.7% of the total amount associated with the company' s product life cycle.

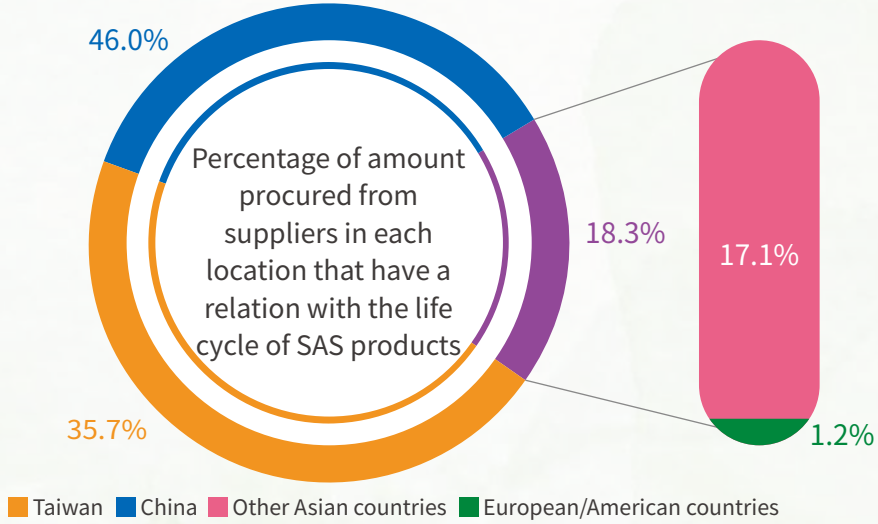
By implementing supply chain localization, we can gradually reduce production costs by lowering material transportation cost, reducing turnover inventory, and optimizing unit shipment, among other measures to strengthen industry competitiveness in terms of cost. Local procurement can enhance national competitiveness, increase local employment, stimulate local economic activities, minimize environmental impact and damage caused by long-distance transportation of raw materials, and thus reduce timeliness. Moreover, SAS insists on the practice of green procurement and prioritizes buying energy-efficient and EPA-certified products to reduce environmental impact and energy consumption.


Percentage of suppliers in each location
95.3%
2.8%
1.9%
0.6%
1.3%
Taiwan
China
Other Asian countries
European/American countries


Percentage of amount procured from suppliers in each location
38.1%
44.3%
17.6%
16.4%
1.2%
Taiwan
China
Other Asian countries
European/American countries


Percentage of amount procured from suppliers in each location (excluding silicon raw materials and wafer)
85.7%
8.9%
5.4%
5.1%
0.3%
Taiwan
China
Other Asian countries
European/American countries


Percentage of suppliers in each location that have a relation with the life cycle of SAS products
90.1%
5.9%
4.0%
1.3%
2.6%
Taiwan
China
Other Asian countries
European/American countries


Percentage of amount procured from suppliers in each location that have a relation with the life cycle of SAS products
35.7%
46.0%
18.3%
17.1%
1.2%
Taiwan
China
Other Asian countries
European/American countries

03

Climate and Energy Resource Management

3.1 Carbon Management

According to the 2023 Global Risks Report published by the World Economic Forum, six of the top 10 risks over 10 years were categorized as an environmental crisis. As opposed to 5 environment-related risks reported in the previous year, an additional risk, failure to mitigate climate change, was introduced this year and was even ranked No. 1. This investigation result was reflected by the key takeaways of the 2022 UN Climate Change Conference COP27. Many countries around the world are currently off course to limiting global warming to around 1.5° C within reach, which was one of the climate targets agreed upon at COP26, and therefore, they were requested to revisit the targets during (before) COP27 and strengthen/ update their climate plans.

Although performance at a national level during the Climate Change Conference was unsatisfactory, the 2050 net zero emissions target is now a global consensus, with Taiwan officially legislating the target through the Climate Change Response Act, which was passed in 2023. “Net zero” has become the ultimate goal of governments around the world. Corporate support for or realization of net zero transition will become inevitable. With the hope of becoming a supplier of total renewable energy solutions, SAS has been taking climate actions, beginning with GHG inventory through to energy management, clean production, and commitment to 100% renewable energy by 2050. In 2022, we vied for external aid/ resources, which are intended to build a net zero transition pathway for SAS and set clear short-term and medium-term targets.

3.1.1 GHG inventory

Since 2021, SAS has been launching and completing a system of GHG inventory (ISO 14064-1: 2018) and producing a list of GHG emissions. The boundary of reporting was expanded to include the headquarters, Chunan, Yilan, and Hsu-Hsin Branch in 2022 (only Chunan and Yilan Branches were included in 2021) and, as a result, our baseline date was changed to 2022. We then obtained third-party verification statement.

SAS adopted the “Operational Control Act” to set its organizational boundaries. Organizational operations emit direct (Scope 1) and indirect (Scope 2) GHG emissions as well as other indirect (Scope 3) sources of GHG emissions (Categories 3–6). Seven types of emitted GHGs as defined in the ISO 14064 standards: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), nitrogen trifluoride (NF_3) were calculated using emissions factors, which were obtained from Taiwan EPA GHG Emission Factor Management Table Version 6.0.4, EPA Carbon Footprint Calculation Service Platform, ITRI DoITPro Database, and relevant literature. Global warming potential (GWP) adopted in our calculation was obtained from IPCC AR5 (2013)Note. The emitted GHGs included CO_2, CH_4, N_2O, and HFCs. There were no GHG emissions from perfluorinated compounds. Scopes 1, 2, and 3 GHG emissions are described below:

Note: The GWP values adopted by GlobalWafers were based on IPCC AR5 and AR6.

Scopes 1 (direct) and 2 (indirect) Emissions

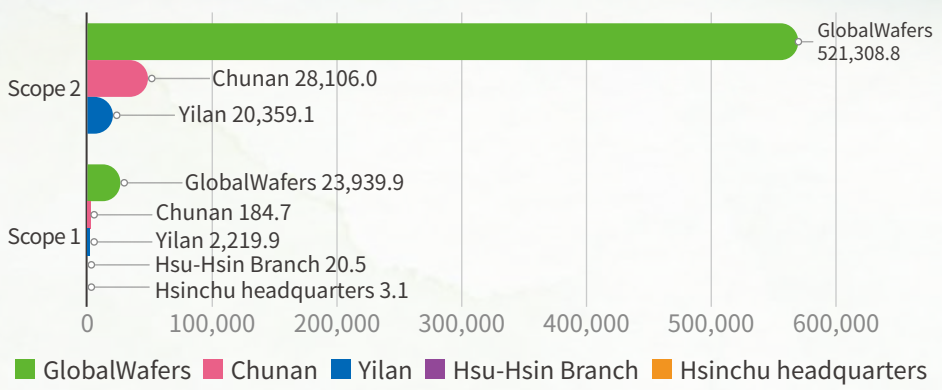
Category of Emissions				Source of Emissions
Scope 1	Direct GHG emissions	1.1	Direct emissions from stationary combustion sources	Fuels used in power generators, furnaces, lawn mowers
		1.2	Direct emissions from mobile combustion sources	Fuel combustion in mobile sources (vehicles, forklifts)
		1.4	Direct fugitive emissions from human-made systems	Fugitive emissions from refrigeration, fire suppression, anaerobically treated wastewater, stationary pollution sources (VOCs), septic tank, etc.
Scope 2	Indirect GHG emissions from purchased energy	2.1	Indirect emissions from purchased electricity	Externally purchased electricity

Scopes 1 and 2 GHG Emissions in 2022

Unit: ton CO_2e

Item		Scope 1	Scope 2	Scopes 1&2	GHG emissions intensity
SAS	Hsinchu headquarters	3.1	-	3.1	0.0073 ton CO_2e/KNTD
	Chunan	184.7	28,106.0	28,290.7	
	Yilan	2,219.9	20,359.1	22,579.0	
	Hsu-Hsin Branch	20.5	-	20.5	
GlobalWafers		23,939.9	521,308.8	545,248.7	
Total		26,368.1	569,773.9	596,142.0	

Unit: ton CO_2e



Note1.:Scope of statistics: Headquarters, Chunan Branch (Chunan Plant, Chunan Plant 2), Yilan Branch (Plant 1, Plant 3), Hsu-Hsin Branch, and GlobalWafers. Due to reporting boundary changes in 2022, only GHG emissions for 2022 were disclosed. Thereafter, the statistical interval will begin with 2022.

Note2.:Both headquarters and Hsu-Hsin Branch are offices and do not engage in production. They are located in a leased office area in the buildings of GlobalWafers-Hsinchu Plant and SAS-Chunan Plant 2, respectively. Both offices are not equipped with a standalone electricity meter and thus do not purchase electricity. Their electricity usage is included in the data calculated for GlobalWafers-Hsinchu Plant and SAS-Chunan Plant 2.

Note3.:According to the annual electricity emission factor announced by the Bureau of Energy, the 2021 electricity emissions factor was 0.509 ($kgCO_2e$/kWh).

Note4.:GHG emissions intensity: Scopes 1 & 2 total emissions (ton CO_2e) / Consolidated revenue (KNTD).

Scope 3 (other indirect) GHG emissions (Categories 3–6)

Categories 3–6 Scope 3 GHG Emissions in 2022

Unit: ton CO_2e

Category of Emissions	Hsinchu headquarters	Chunan Branch (Chunan Plant + Chunan Plant 2)	Yilan Branch (Plants 1 + 3)	Hsu-Hsin Branch	Total
Scope 3 Category 3 Indirect GHG Emissions	21.573	449.852	637.305	24.030	1132.760
3.1 Upstream Transportation and Distribution	0.034	131.922	269.782	0.007	401.745
3.2 Downstream Transportation and Distribution	None	255.629	44.832	None	300.461
3.3 Employee Commuting	21.539	62.301	316.166	22.186	422.192
3.4 Customer/Guest traveling	Not quantified	Not quantified	Not quantified	Not quantified	-
3.5 Business Travel	Not quantified	0	6.524	1.837	8.361

Category of Emissions	Hsinchu headquarters	Chunan Branch (Chunan Plant + Chunan Plant 2)	Yilan Branch (Plants 1 + 3)	Hsu-Hsin Branch	Total
Scope 3 Category 4 (Products Used by Organization) Indirect GHG Emissions	115.800	75,540.461	709,867.744	7.820	785,531.825
4.1 Purchased goods	None	74,509.981	709,529.744	None	784,039.725
4.2 Capital goods	115.800	945.976	Not quantified	7.820	1,069.596
4.3 Disposal of solid and liquid waste	None	84.504	338.000	None	422.504
4.4 Use of assets	None	None	Not quantified	None	-
4.5 Used services not described in the above subcategories	Not quantified	Not quantified	Not quantified	None	-
Scope 3 Category 5 (Products Used by Organization) Indirect GHG Emissions	4,479.889	700.564	-	-	5,180.453
5.1 Emissions from or removal of used products	None	None	None	None	-
5.2 Downstream leased assets	4,479.889	700.564	None	None	5,180.453
5.3 End-of-life treatment of sold products	None	Not quantified	None	None	-
5.4 Investments	Not quantified	None	None	None	-
Scope 3 Category 6 (Other) Indirect GHG Emissions	None	None	None	None	-
Total	4,617.262	76,690.877	710,505.049	31.850	791,845.038

3.2 Energy Management and Development

SAS uses electricity as its main source of energy, but also natural gas, diesel, and gasoline. Therefore, our improvement measures must give priority to energy conservation and solutions must be safe, affordable, and sustainable to achieve the optimal energy strategy.

3.2.1 Use and Sale of Energy

Energy Use

SAS Chunan and Yilan Branches purchased more electricity in the past three years because of production expansion in the first half of 2022. Specifically, their purchased electricity accounted for 99.88% of total energy consumption in 2022. Regarding renewable energy, Chunan is self-sufficient thanks to its installation of a 2.2 kW solar power system; 0.002%[Note] of the electricity it consumes was generated from renewable energy.

Note: Renewable energy use efficiency = renewable energy (GJ)/total energy used (GJ)

Energy Usage of Chunan and Yilan Branches

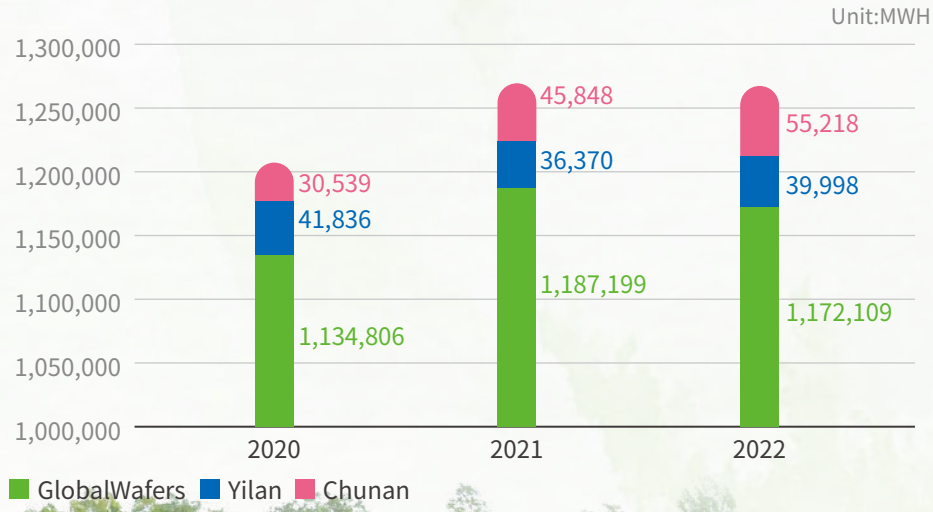
Unit: 1 billion GJ

	Item	2020	2021	2022
Energy Type	Externally purchased electricity	260,551.598	295,982.525	342,778.747
	Renewable energy (solar power)	6.505	6.836	6.178
	Natural gas	17.411	2.528	0
	Diesel	65.885	189.081	410.925
	Gasoline	0	3.266	9.319
Total		260,641.399	296,184.236	343,205.169

Note1: Conversion unit: 1 kWh of electricity = 0.0036 GJ; 1 cubic meter of natural gas = 0.0477 GJ; 1 L of diesel fuel = 0.0315 GJ; 1 L of gasoline fuel = 0.0327 GJ.

Note2: Both headquarters and Hsu-Hsin Branch are located in a leased office area (no production activities) in the buildings of GlobalWafers-Hsinchu Plant and SAS-Chunan Plant 2, respectively. Both offices are not equipped with a standalone meter and thus do no calculate their energy usage. Their energy usage is included in the data calculated for GlobalWafers-Hsinchu Plant and SAS-Chunan Plant 2.

Total electricity consumption



Sale of Energy

The solar power system installed at SAS generates electricity mostly for sale. In 2022, 1,898,181 kWh (6,833 GJ) of electricity was generated and sold.

Unit: kWh

	Item		2021	2022
Energy Type	Electricity sold (solar power)	Hsinchu headquarters	85,524	126,455
		Yilan Branch	1,771,991	1,653,130
		Hsu-Hsin Branch	129,298	118,596
Total			1,986,814	1,898,181

Note: Chunan Branch uses the energy generated from its own solar power system and thus does not sell electricity.

3.2.2 Energy Management and Energy Conservation

Energy Management

In the past, one-off improvements were generally made to in-plant energy conservation practices. Because of a lack of appropriate management mechanisms, the effectiveness of energy conservation efforts cannot be maximized. For this reason, SAS took progressive steps to adopt energy management systems (ISO 50001: 2018) for its existing production/manufacturing facilities, with both Chunan and Yilan Branches having built their own PDCA management system, which involves taking an inventory of the energy usage of in-plant equipment and from thereon identifying which equipment is energy-intensive and which must be prioritized for improvement. The identified equipment is subsequently monitored and measured, and improvement actions are adopted accordingly. Energy baseline and energy performance indicators corresponding to plant characteristics and energy usage results are then established, updated every month, monitored, and reviewed to determine if they are reasonable to continuously improve energy efficiency.

Chunan Branch further optimized its energy management practices, receiving assistance through the Intelligent Energy Management Pilot Project in 2022. Specifically, its existing independent in-plant monitoring systems and process monitoring systems were integrated into an energy performance monitoring and analysis system, which employs an integrated and intelligent management approach to obtain real-time data on indicator performance and measure equipment energy efficiency.

Energy Conservation Measures and Results

Each year, all SAS plants establish energy-saving plans, in which each plant must reduce electricity consumption by 1% annually as the short-term target. Both Chunan and Yilan Branches conserved 2,818,097 kWh (10,145 GJ) of electricity in 2022 compared with the previous year, which is equivalent to reducing approximately 1,434.4 metric tons of carbon dioxide emissions. If the energy conservation performance of GlobalWafers - Taiwan (i.e., GlobalWafers - Headquarters, Chunan Plant, and Taisil Plant) were included, then a total of 8,088,251 kWh (29,118 GJ) of electricity was conserved, equivalent to reducing approximately 4,116.9 metric tons of carbon dioxide emissions.

Energy Conservation Performance of Chunan and Yilan Branches in 2022

Type	Measures	Amount of Energy Saved (kWh)	Amount of Energy Saved (GJ)	CO_2 emissions reduced ($kgCO_2e$)
Processes	Developed large-sized ingot specifications to improve capacity utilization and reduce the energy consumption of the crystal pulling process • Amount of electricity saved: Electricity consumed per unit product before and after improvement to ingot specification × number of ingot mass produced	2,024,750	7,289	1,030,598
Air compressor system	⦿ Reduce the pressure of process compressed air supply Process equipment-supplied compressed air pressure was lowered from 7.0kg/cm^2 to 6.5kg/cm^2, thus reducing the amount of electricity consumed by an air compressor • Amount of electricity saved: Difference in amount of electricity used before and after improvement to air compressor system × utilization duration • Amount of electricity saved over the period from 2022/8~2022/12 ⦿ Add a water removal treatment unit to the air compressor system Installed heat exchanger at the front of desiccant air drye and used ice water condensation to remove moisture in compressed air, reduce regeneration frequency, and lower the amount of electricity consumed during regeneration • Amount of electricity saved: Statistical comparison of the amount of electricity used per day by air compressor system before and after improvement (Output during the statistical period was approximately equal to the number of equipment that was switched on) • Amount of electricity saved over the period from 2022/11~2022/12 ⦿ Install a new small air compressor in the wastewater treatment facility The use of in-plant energy (resources) was categorized for management; the aeration requirement for wastewater treatment facility was 4kg/cm2 compressed air and no dry treatment was required. A new 20HP variable-frequency air compressor was purchased for the wastewater treatment facility to replace low-pressure and low-quality air with high-quality air • Amount of electricity saved: Statistical comparison of the amount of electricity used per day by air compressor system before / after improvement (Output during the statistical period was approximately equal to the number of equipment that was switched on) • Amount of electricity saved over the period from 2022/12	167,760	604	85,390
Air conditioning system	⦿ Replacing energy-saving fans for cooling towers • Amount of electricity saved: Actual measurement of amount of electricity used before and after improvement to cooling tower × utilization duration ⦿ Service and maintain process chillers • Amount of electricity saved: Energy efficiency of chiller before and after improvement × temperature of ice water	617,826	2,224	314,474
Improve lighting equipment	Replace T5 traditional light tubes/bulbs with LED lamps *Amount of electricity saved: Amount of electricity consumed before and after replacement × number of tubes/bulbs replaced *Amount of electricity saved over the period from 2022/3~2022/12	7,761	28	3,950
Total		2,818,097	10,145	1,434,411

Note1: According to the annual electricity emission factor announced by the Bureau of Energy, the 2021 electricity emissions factor was 0.509 (kg CO_2 e/kWh)

Note2: 1 kWh of electricity = 0.0036 GJ (1 billion GJ)

Note3: Amount of electricity saved annually according to announcements by Bureau of Energy, Ministry of Economic Affairs, amount of electricity saved annually by implementing electricity saving measures is calculated from the month following the date of implementation and is limited to 12 months. However, if calculation period spans across multiple years, the amount of electricity saved will be calculated on an annual basis.

Note4: The statistics of energy-saving performance are mainly based on the energy-saving measures introduced in the current year.

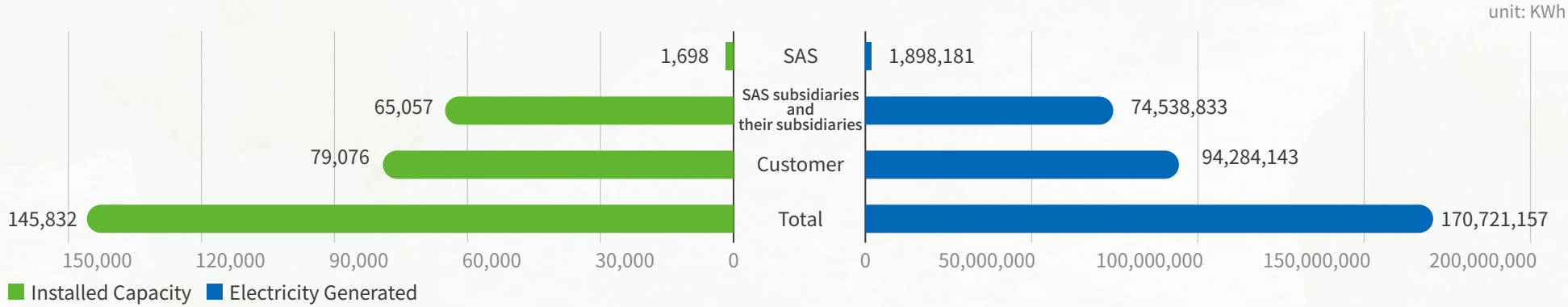
3.2.3 Renewable Energy Development

Renewable Energy Deployment

SAS continues to pay attention to the various climate action plans under the Paris Agreement. After TSMC pledged its commitment to the RE100 initiative, we are well aware that building and using renewable energy is a necessary and primary means for companies to achieve science-based targets. In terms of our strategic deployment, SAS spared no effort to enter the renewable energy market in Taiwan through Hsu-Hsin Branch and Yilan Branches (which established the Power Station Development Department in 2020), focusing on the planning, investment, and construction of roof-mounted, ground-mounted, and floating solar power plants. We also adopted a floating solar power system to lower water surface temperature and significantly increase the efficiency of solar panels. From the beginning (2014) to the end of 2022, the total installed capacity of solar power systems at home and abroad for the grid-connected operation was approximately 145.8 MW, with a total annual capacity of 170,721,157 kWh, which is projected to reduce 86,897 metric tons of carbon dioxide emissions[Note]. Moreover, the Taiwan government has been aiming for PV installation to reach 20GW in 2025. In response, SAS not only offers relevant energy management services, but in 2019, we also began investing NT$3 billion to build solar power plants, which will essentially transform our role as an energy management service provider role to a member of green energy provider.

Note: CO2 emissions: Because solar power was used to replace retail electricity, the amount of carbon dioxide emissions reduced was estimated based on the 2021 annual electricity emission factor (emission factor for Electricity Retailing Utility Enterprise) announced by the Ministry of Economic Affairs, Bureau of Energy, that is, 0.509 $kgCO_2e/kWh$.

Installation of Solar Power Systems (including commissions)



With an increase in the adoption of renewable energy, energy storage systems will have a vital role to play in grid stability and backup capacity. In 2022, a subsidiary of SAS invested in an energy storage system for its Yilan plant area, which is expected to turn into a 1.5 MW energy storage system for the electricity market in 2022, providing stable power grid scheduling services for the country. We will continue to build energy storage systems and improve our energy management services.

Going forward, SAS Group will continue to keep pace with the global trend of low-carbon green energy and build more high-quality solar power plants in Taiwan to strengthen energy security and create a green innovative economy.

Renewable Energy Declaration and Commitment

As a provider of total green energy solutions, SAS has extended the scope of its business to include the production, storage, and sale of green energy. We take actions to support and respond to the world' s, including Taiwan' s, net-zero transition initiative by pledging on behalf of the Group and its subsidiaries to achieve 100% use of renewable energy by 2050. We will also exert our utmost effort to help the group' s subsidiary, GlobalWafers, and its strategic partners to increase their use of clean electricity and strive to become a robust cornerstone for developing a green economy and creating a sustainable environment that makes living conditions friendly for a carbon-free society. According to our climate blueprint, our use of renewable energy will increase in phases: 20% by 2030, 35% by 2035, 50% by 2040, and eventually 100% by 2050.

3.3 Raw Materials and Water Resources Management

3.3.1 Raw materials management

Cleaner Production

Reduce the use of nitric acid per piece of solar cell by 50%

A large quantity of nitric acid is used in making solar cells. As a result, wastewater from this process will contain a high concentration of nitrate nitrogen (approximately 500 mg/L). To remove nitrate nitrogen, a considerable amount of wastewater treatment agents and service maintenance costs must be expended every month. For this reason, we developed a new process and purchased new equipment for Yilan Plant 1. Specifically, more than 50% of nitric acid used was replaced with KOH (potassium hydroxide), which is less hazardous to the environment and operators and can also reduce the risk of occupational hazards. After a few rounds of trial and error, mass production was commended in November 2022.

Renewable/Recycled Raw Materials

Solar Cell Products

Due to product characteristics, solar cells cannot be produced using recycled materials. The main raw materials (silicon wafers, screens, and chemicals) used are not renewable/recyclable (7,001,647 kg used in 2022).

Multi-crystalline Silicon Ingot Products

Multi-crystalline silicon application products are based on product specifications and customer requirements. The silicon materials used in the production of ingots are mainly pure and silicon recycled materials purchased externally cannot be used. Only in-plant silicon sapwood (silicon materials recycled from the furnace) can be recycled for reuse. However, after continuous communication with customers and obtaining customers' product verification, we gradually introduced externally purchased recycled silicon materials in 2022. The use of recycled materials in silicon ingots increased from 33.3% in 2021 to 41.4% in 2022, generating positive impacts not only at the source but also on product's carbon footprint.

Multi-crystalline silicon ingots are made with

41.4%

recycled materials

◈Use of Recycled/Renewable Raw Materials in 2022

Product Item	Non-Renewable Raw Materials (Pure silicon materials + boron)	Renewable Raw Materials (materials recycled from furnace, recycled materials purchased from external sources)	Recycling Rate
Multi-crystalline Silicon Ingot	1,168,610 kg	824,757 kg	41.4%

Note: Recycling rate = Total weight of renewable/recycled materials / (Total weight of non-renewable/recycled materials + Total weight of renewable/recycled materials)

3.3.2 Water

Use of Water Resources and Effluent

SAS plants use water supplied by Taiwan Water Corporation, which sources water from tap water and surface water. Therefore, our use of water will not cause environmental concerns such as over-extraction of water, land subsidence, and deterioration of the environment and ecology. As for our branches, Chunan Branch uses water supplied by Dongxing Water Treatment Plant, which sources raw water from Yongheshan Reservoir; Yilan Branch uses water supplied by Longde Water Treatment Plant, which sources raw water from Sincheng River where the sources of water are not designated as a national or international nature reserve and thus are not water bodies from a sensitive area (i.e., considered by experts as relative area, special function, rare, threatened, endangered system, or some endangered species living in the water source).

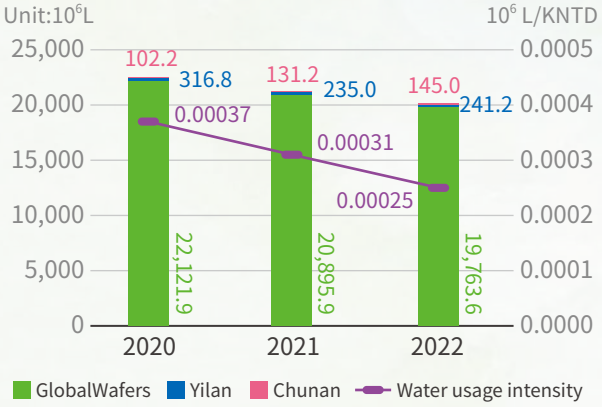
A reference to the Aqueduct water resource risk assessment tool indicated that the overall water resource risk of Taiwan was Levels 1–2 (low to medium risk), which makes the country a non-water-stressed area. Therefore, SAS does not extract water from, discharge water into, and consume water from water-stressed areas.

◈ 2020~2022 Water intake, discharge, and consumption volume

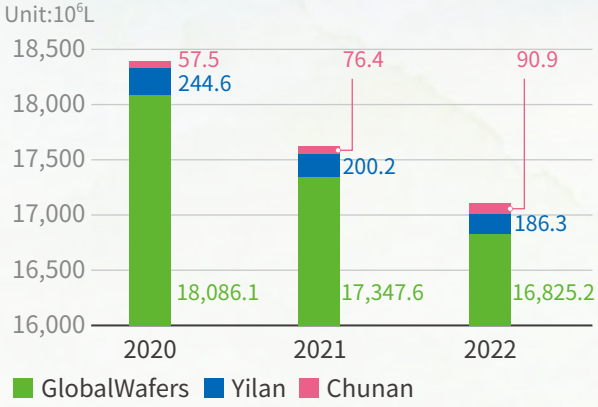
Unit: million liters (10^6 L)

Item		2020			2021			2022		
		SAS	GlobalWafers	Total	SAS	GlobalWafers	Total	SAS	GlobalWafers	Total
Water withdrawal quantity	Surface water	0.0	1,250.3	1,250.3	0.0	1,269.4	1,269.4	0.0	1,261.2	1,261.2
	Groundwater	0.0	10,810.2	10,810.2	0.0	9,492.5	9,492.5	0.0	8,274.2	8,274.2
	Seawater / Produced water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Tap water plant - Raw water	293.6	0	293.6	224.1	0	224.1	235.8	0.0	235.8
	Tap water plant	125.3	10,061.4	10,186.7	142.2	10,134.0	10,276.1	150.3	10,228.2	10,378.5
	Total	418.8	22,121.9	22,540.7	366.2	20,895.9	21,262.1	386.1	19,763.6	20,149.7
Water discharge quantity	Surface water	0.0	6,631.8	6,631.8	0.0	5,656.7	5,656.7	0.0	4,634.6	4,634.6
	Groundwater	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Seawater	0.0	4,652.8	4,652.8	0.0	4,738.0	4,738.0	0.0	4,435.1	4,435.1
	Wastewater treatment plant	302.1	6,801.4	7,103.5	276.6	6,953.0	7,229.6	277.2	7,755.6	8,032.8
	Total	302.1	18,086.1	18,388.2	276.6	17,347.6	17,624.2	277.2	16,825.2	17,102.4
Water consumption		116.8	4,035.8	4,152.6	89.6	3,548.3	3,637.9	108.9	2,938.4	3,047.3

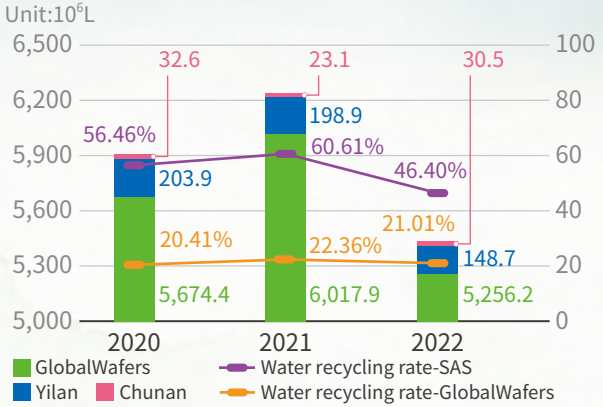
Water withdrawal quantity



Water discharge quantity



Water recycle quantity



Note1: Scope of statistics: Chunan Branch (Chunan Plant 2, Chunan Plant), Yilan Branch (Plant 1, Plant 3), and GlobalWafers

Note2: Water consumption density: Water consumption (10^6 L)/ consolidated revenue (KNTD)

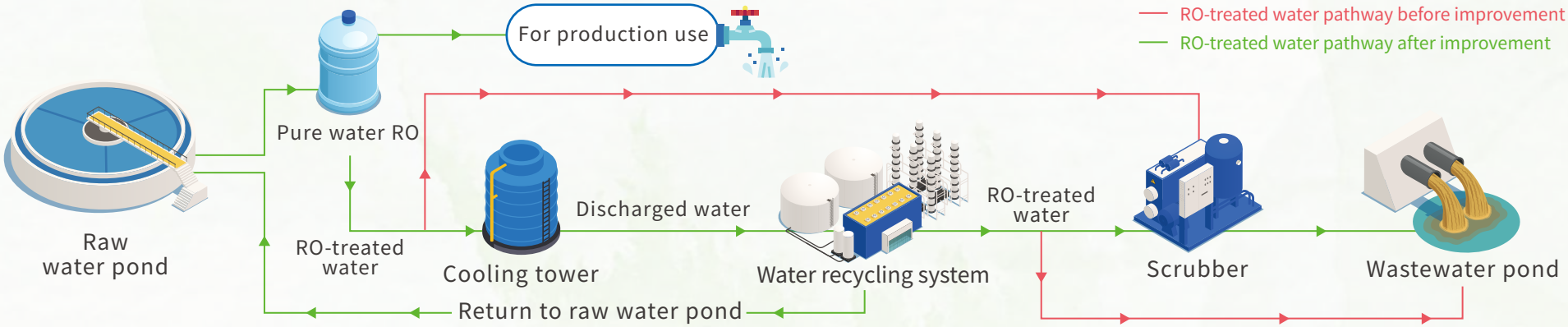
Note3: Recovered water rate: Volume of water recycled/ Total volume of water extracted

Water Resource Management and Conservation

Due to extreme weather problems in recent years, Taiwan has seen extreme precipitation levels, which pose challenges to the stability of the country' s water supply. In addition to maintaining its existing water-saving measures, at the end of 2021, Yilan Plant used water discharged from cooling water systems to supply the water needed for its scrubber. Through this, the plant managed to save 14,741 M^3 of water in 2022.

➔ Use water discharged from cooling water systems as a water supply for scrubbers

Scrubbers initially used reverse osmosis (RO)-treated water, supplemented by raw or tap water when needed. In 2020, our Yilan Plant installed a cooling water recycling system, which was intended to supply water for its scrubbers. This water-saving measure was completed in November 2021.



3.4 Pollution Prevention and Waste Reduction Management

Regarding pollution and emissions, SAS installs adequate pollution control equipment with corresponding treatment capabilities to maintain the efficiency of treatment equipment. Every piece of equipment is regularly serviced and inspected. Dedicated specialists are appointed to conduct relevant operations by relevant regulations to reduce pollutant emission concentrations, ensure compliance, and minimize environmental hazards and impacts, thereby achieving the vision of environmental protection and sustainability.

3.4.1 Air pollution prevention

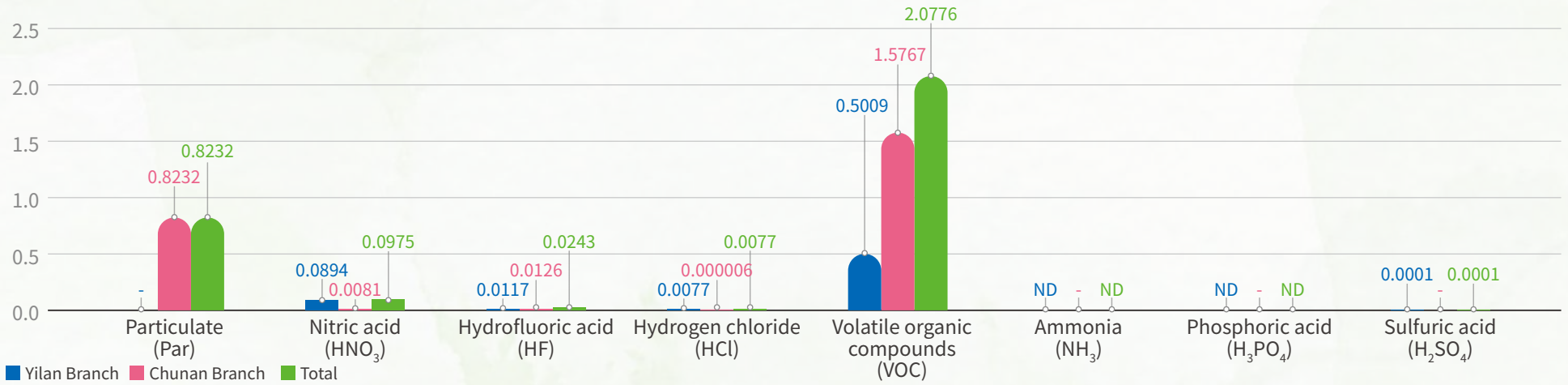
Air Pollutant Emissions

Production processes across SAS plants are different, so the process exhaust gas from each plant area differs slightly. Chunan Branch emits three types of waste gas: acidic, volatile organic compounds (VOCs), and particulates, whereas Yilan Branch (including Plant 1 and Plant 3) emits acidic, alkaline, and VOC gases. Both acidic and alkaline waste gases are treated by a central scrubber. VOC waste gas is treated differently, depending on plant characteristics. Chunan Branch uses scrubbers, while Yilan Branch uses activated carbon adsorption towers. Particulates are only produced in Chunan Branch and are thus treated by bag-type dust collectors and scrubbers.

Stationary pollution source testing is conducted as needed according to stationary pollution source permit specifications. Specifically, VOCs are tested annually, whereas acidic/alkaline pollutants and particulates are measured every 5 years.

Air Pollutant Emissions in 2022

Unit: (ton/yr)



Note1: Regular pollution source emission matter is disclosed according to the regular pollution source operation permit.
Note2: Emissions estimation: Pollution intensity based on third-party laboratory test data * annual output.
Note3: Year of test report: Data on each pollutant were derived from the 2022 test report.
Note4: 「ND」: represents "Negative for Limit of Detection" which means measurements below the limit of quantification

Air Pollution Emergency Response Drills

Process exhaust gases emitted from Chunan and Yilan plants contain restricted substances (hydrofluoric acid, hydrochloric acid) that are subject to control in the event of an air pollution emergency. A least one air pollution emergency drill is conducted every year for in-plant units that use controlled substances, and drill results are reported to the competent authority. Drills are implemented regularly to reduce environmental impact, injuries, and loss of equipment and property due to possible accidents; and enable the effective and immediate adoption of appropriate contingency measures in case of an accidental incident.

Hydrochloric Acid Storage Tank Leakage Drill at Yilan Branch

A drill is conducted in preparation for leakage from a hydrochloric acid storage tank and to test whether designated groups in a plant area are able to operate normally and wear the correct protective equipment. Test results show that designated groups in a plant area are able to operate normally.

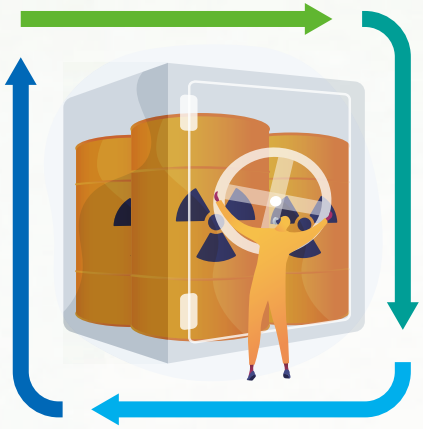
- Incident-reporting team immediately reports the incident to the departmental head and the EHS Department.
- Safety officer in charge assembles a regional emergency response team to explain the situation and assign tasks.
- Safety protection team implements preventive measures, issues alerts, and provides appropriate assistance, such as containing and cordoning off the leakage area and restricting access.
- Rescue team goes to the nearest emergency cabinet to collect Level-A PPE and self-contained breathing apparatus (SCBA).
- Rescue team is able to put on Level-A PPE and SCBA correctly and swiftly.

Implement preventive measures to contain leakage area

Report incident and contact relevant units

Put on Level-A PPE and SCBA in preparation for rescue operations(SCBA)

Review drill procedures and discuss aspects that can be improved.



Put on Level-A PPE and SCBA in preparation for rescue operations(SCBA)

Pump HF into a bulk container for post-disaster management

Check that Level-C PPE, gas mask, face mask, etc. are worn properly

Check that pump outlet valve is leaking/close pump inlet valve to stop leak

3.4.2 Water Pollution Control

SAS plants are located in different regions. Wastewater from in-plant activities is discharged into the Chunan Park Wastewater Treatment Plant and Letzer Industrial Park Wastewater Treatment Plant, both of which are managed by Hsinchu Science Park Administration of the Ministry of Science and Technology. To facilitate real-time monitoring and response before discharge, there are water volume and quality monitoring facilities (monitoring pH and fluoride ion concentration) in place, and regular wastewater testing and reporting are performed by law. The quality of wastewater discharged must meet or exceed regulatory requirements. The Administration also conducts random inspections at discharge outlets to double check the quality of discharged water. In 2022, each plant SAS was not involved in significant incidents of leakage or spillage.

SAS adopts a water pollution control strategy that prioritizes consideration for process source reduction and the principle of liquid waste distribution and reclassification treatment. Particularly, wastewater is classified according to its characteristics and then treated in our in-plant wastewater treatment facility. Chunan Branch and Yilan Branch Plant 3 have established a complete biological treatment system (anaerobic + aerobic treatment) in conjunction with a chemical treatment system to treat wastewater more efficiently. According to our discharged wastewater quality analysis results, in 2022, each plant effectively controlled the quality of its water discharge below the standards stipulated by the Science Park Administration and Letzer Industrial Park Management Center, which indicates that wastewater treatment equipment within each SAS plant is functioning effectively.

Wastewater Discharge Quality Control and Improvement

➔ **Improvement plan: 80% reduction in the use of polyaluminium chloride (PAC) water treatment agents**

In Yilan Plant, the standard procedure for treating fluorine-containing wastewater is as follows: Calcium carbonate, calcium chloride, polyaluminum chloride (PAC), coagulant (polymer), liquid caustic soda, etc. are added into a reactor so that fluorine-containing wastewater produces calcium fluoride and forms flocculated particles that readily settle, which are then dehydrated to produce calcium fluoride sludge for recycling and reuse.

In Yilan Plant 3, about 50 mg/L of PAC water treatment agents were originally added. Following jar testing to test the actual amount of PAC needed to achieve the desired wastewater quality, the test results showed that the amount of PAC to add can be reduced by 80% while still achieving clear water quality. Our Yilan Plant implemented this improvement plan in March 2022, and since then, the average amount of PAC used each month in 2022 has dropped by 85% compared with 2021.

Because the fast/slow-mixer tanks for treating fluorine-containing wastewater showed signs of corrosion and aging, in 2023, our Yilan Plant plans to purchase new tanks with double the capacity (i.e., a 100% increase in tank volume) to double the hydraulic retention time of the wastewater in the reactor. In doing so, overdosing treatment agents due to incomplete chemical reactions can be prevented, and the use of water treatment agents, such as calcium carbonate and calcium chloride, can be reduced by more than 10%.

3.4.3 Waste Management

SAS reduces waste generation by adopting a waste management strategy that prioritizes source reduction and focuses on process design improvement and reduced use of raw materials at the source. Subsequently, process materials are recycled for reuse, which reduces not only waste output but also use of the raw materials, outsourced semi-finished products, and consumables, as well as energy consumption during transportation processes. We also commission recycling or waste disposal companies to recycle resources for reuse or dispose of wastes by incineration, physical and chemical treatment, landfill, etc.

Information on solar panels discarded by SAS, such as the quantity of discarded PV panels and model numbers, must be registered on EPA' sDiscarded Solar Panel Recycling Service Management Information System platform, which then compares the serial number of the registered panels with factory information. After confirmation, the EPA then dispatches a removal and disposal agency to dispose of the discarded solar PV panels. Currently, all solar panels discarded by SAS are processed domestically, and there is no cross-border (overseas) processing.

Waste-Related Impact and Mitigation Actions

SAS mitigates the impact of waste generated from its operating activities by taking the following actions:

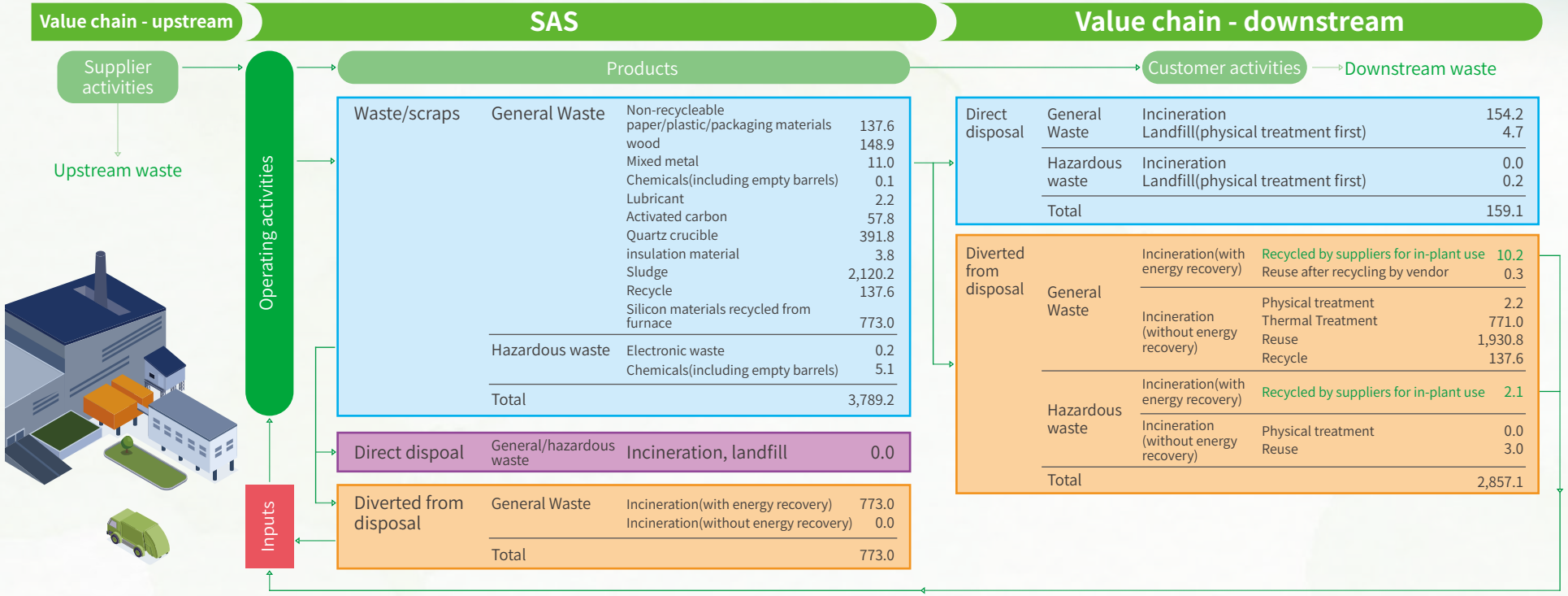
- Improve product efficiency: We continue to develop and improve the performance of ultra-high-efficiency mono-si solar cells. For example, beginning in 2023, our larger-sized solar cells (M10) will be made available in the market. These cells will generate greater wattage numbers and can facilitate the effective use of land, generating larger amounts of solar power on the same piece of land while reducing the amount of waste generated from discarding solar cells.
- Reduce the use of limited raw materials by using recycled/renewable materials: Multi-crystalline silicon ingot products are made using silicon materials recycled from the furnace. We also gradually introduced externally purchased recycled silicon materials in 2022. Our use of recycled materials in silicon ingots increased from 33.3% in 2021 to 41.4% in 2022.
- Use low hazardous materials as an alternative to high hazardous materials: We purchased new equipment for Yilan Plant 1. Specifically, more than 50% of nitric acid used was replaced with KOH (potassium hydroxide), which is less hazardous to the environment and operators.
- Treat waste resources by recycling them first for reuse: Some of the empty waste acid barrels and empty wire spools are returned to suppliers for recycling and reuse.

Waste Generation

SAS - Chunan and Yilan Branches generate waste from their operating activities. In 2022, the total waste generated (including silicon recycled from the furnace, and waste recycled by suppliers for in-plant use) was 3,789.2 metric tons. General waste and hazardous waste accounted for 99.86% (3,783.9 metric tons) and 0.14% (5.3 metric tons) of total waste, respectively. Wastes are treated first by diverting them from disposal and then reusing themNote. Wastes treated this way accounted for approximately 95.80% of total waste disposed. The types of waste generated in 2022 and their method of disposal are summarized below:

Note1: Reuse: Take a product or composition intended for waste and adopt the inspection, cleaning, or repair methods to reuse it for its original purpose.
Note2: Incineration (without energy recovery): Reprocess (chemical, physical, heat treatment, etc.) waste products or components to produce new materials.

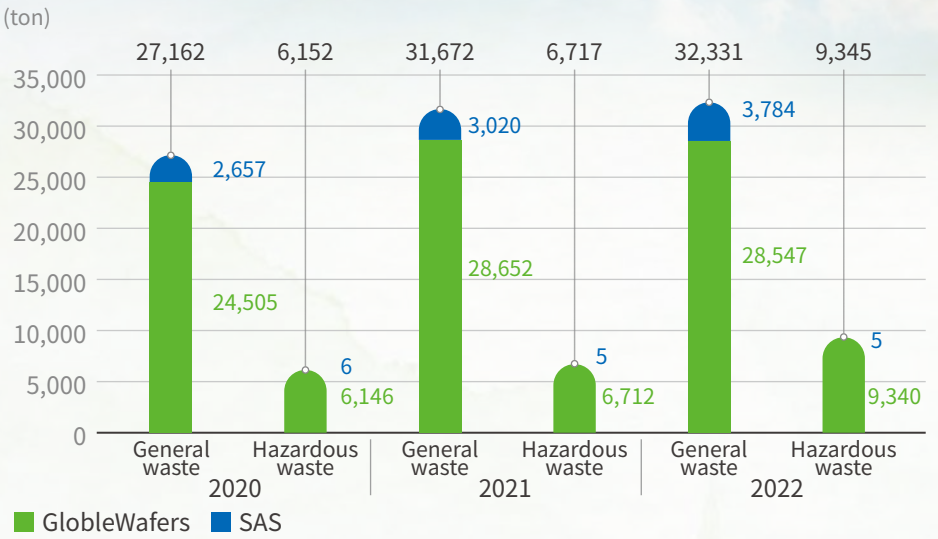
Statistics of Waste Generated by SAS in 2022



Unit: Metric Ton

Type of waste	Total output	Diverted from disposal				Direct disposal			
		Transfer method	onsite	Off-site	Total	Disposal method	onsite	Off-site	Total
General Waste	3,783.9	Incineration(with energy recovery)	773.0	10.5	783.5	Incineration	0.0	154.2	154.2
		Incineration(without energy recovery)	0.0	2,841.5	2,841.5	Landfill	0.0	4.7	4.7
		Total	773.0	2,852.0	3,625.0	Total	0.0	158.9	158.9
Hazardous waste	5.3	Incineration(with energy recovery)	0.0	2.1	2.1	Incineration	0.0	0.0	0.0
		Incineration(without energy recovery)	0.0	3.0	3.0	Landfill	0.0	0.2	0.2
		Total	0.0	5.1	5.1	Total	0.0	0.2	0.2
Total	3,789.2	Total	773.0	2,857.1	3,630.1	Total	0.0	159.1	159.1

Total waste output from SAS and GlobalWafers in 2020–2022



General waste and hazardous waste generated in 2020–2022

Note1: Scope of statistics: Chunan Branch (Chunan Plant 2, Chunan Plant), Yilan Branch (Plant 1, Plant 3), and GlobalWafers

Note2: Waste density: waste volume (ton)/consolidated revenue (KNTD)

Management of Outsourced Waste Removal/Disposal

SAS has established in-plant waste management and treatment agency procedures in accordance with the Regulations Governing Determination of Reasonable Due Care Obligations of Enterprises Commissioning Waste Clearance:

➔ Internal Waste Management

Regularly conduct routine self-check and audit on waste storage conditions, online reporting records, and vendor clearance qualifications, and keep track/records of proper waste disposal.

➔ Management of waste disposal agencies

⦿ To become qualified agencies, waste disposal agencies must be jointly inspected by the relevant units (officers in charge of waste disposal, safety and health, procurement, and legal matters) to ensure that the agencies and their employees have not violated the Waste Disposal Act or received any penalty fines. If a disposal agency is new to the company, a relevant in-plant unit will be dispatched to conduct on-site inspection of that agency to determine whether its treatment/recycling equipment (facility) is capable of treating the entrusted waste properly. An audit on the sales performance of re-manufactured/processed products is also conducted to reduce the risks of illegal waste dumping or disposal.

⦿ High-risk waste treatment/reuse agencies are inspected at least once a year to check their operational records, whether their products are legally saleable, sales/in-plant inventory status, environmental permits, and environmental compliance, etc. Inspection results are presented as grades A, B, or C. Those with grade C results (≧ 3 non-conformities) will not be hired. In 2022, the inspected agencies all received grade A ratings in their on-site audits.

04

Talent Development and Social Inclusion

4.1 Talent Recruitment and Human Resources

SAS holds the core value of respecting employees and putting people first. We observe and support the local laws and regulations of our business locations around the world; safeguard the legal rights and interests of full-time employees, contract workers and part-time staff, interns, and job seekers; and are committed to promoting cooperation and encouraging our partnering suppliers to adopt the same standard in their operating activities.

We recognize and support the spirit and basic principles of human rights protection mandated in international human rights conventions such as the "Universal Declaration of Human Rights", the "United Nations Global Compact", and the "International Labor Conventions". In an effort to creating an equal, safe, and dignified workplace environment, we abide by relevant labor laws and regulation; establish workplace violence protection management regulations to prevent physical or mental harm due to the actions of others during the execution of duties; post a workplace violence prevention statement on the factory' s announcement board; provide multiple complaint channels for employees; conduct regular workplace violence risk assessments; and devise relevant safety measures based on survey results.

For our human rights policy, please visit SAS Website.

Policy Goals

- Continuing to create opportunities for achieving diversity, inclusiveness, and equality and prohibit any forms of discrimination (including on the basis of gender, gender orientation, race, class, age, marital status, language, thought, religion, political party, place of origin, place of birth, appearance, facial features, disability, etc.)
- Prohibiting forced labor and child labor
- Creating a safe and healthy work environment
- Providing fair and reasonable salary and working conditions
- Providing avenues and environment for freedom of expression and respecting employees' freedom of association

SAS (Headquarter, Chunan, Yilan, Hsu-Hsin Branch) and GlobalWafers have had 8,020 employees in 2022. SAS has a total of 729 employees, with men accounting for 76.1% and women 23.9%. Of these employees, 12.1%, 81.2%, and 6.7% were aged <30, 30–50, and >50 years-old, respectively; by working location 4.9%, 27.2%, and 67.9% were based in Hsinchu, Chunan, and Yilan, respectively; 62.1% and 37.9% were direct and indirect personnel, respectively; 100% were permanent employees (there were no part-time employees); 9.7% and 90.3% were on fixed and non-fixed contract, respective; and 8.9% and 0.1% were foreign workers and employees located overseas, respectively.

◈ 2020–2022 Workforce Structural Analysis

Workforce structure \ Year		2020		2021		2022	
		SAS	GlobalWafers	SAS	GlobalWafers	SAS	GlobalWafers
By gender	Male	475	5,326	482	5,446	555	5,590
	Female	192	1,600	175	1,649	174	1,701
Regular/Non-regular	Regular (General Employees)	667	6,484	647	6,755	729	6,740
	Non-regular (Temporary, part-time)	0	442	10	340	0	551
By employment contract	Non-fixed term	642	5,912	636	6,095	658	6,371
	Fixed term (contract)	25	1,014	21	1,000	71	920
By nature of work	Direct	407	4,089	393	4,426	453	4,535
	Manufacturing	260	2,837	264	2,669	276	2,756
By education level	Doctorate degree	3	57	3	62	3	67
	Masters	87	499	82	493	83	543
	Junior College	411	1,451	401	1,752	463	1,556
	Senior high school and vocational school	146	4,492	151	4,344	156	3,515
	Junior high school and below	20	427	20	444	24	1,610
By age	< 30 years old	78	1,312	53	1,381	88	1,493
	30-50 years old	558	3,951	566	3,852	592	3,824
	30-50 years old	31	1,699	38	1,862	49	1,974
Region	Taiwan	667	1,592	657	1,674	729	1,711
	Offshore	0	5,334	0	5,421	0	5,580
Foreign worker		-	-	10	234	65	274
Overseas staff		-	-	1	2	1	2
Total		7,593		7,752		8,020	

Note1: In 2022, non-regular employees of SAS were temporary workers (SAS has no part-time or seasonal employees).
Note2: In 2022, SAS did not hire employees with non-guaranteed hours contract.

Hiring Locals and People with Disabilities

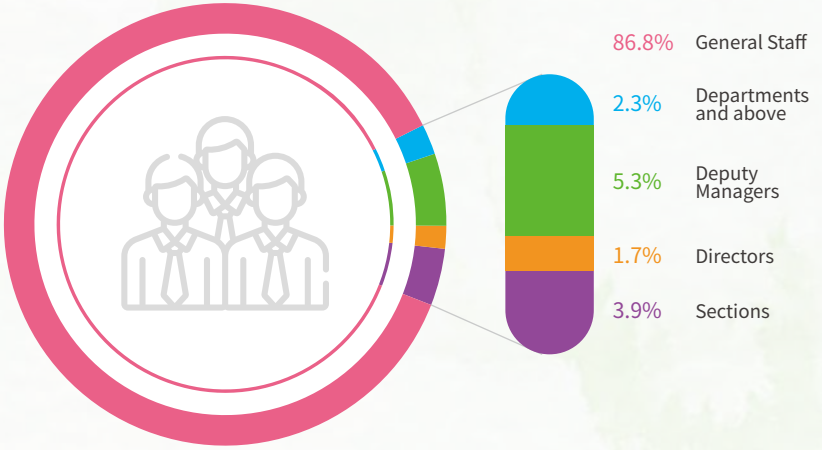
To care for the society, SAS supports the employment of people with disabilities and has established channels for hiring people from this demographic. As of 2022, SAS has employed a total of 9 people with disabilities, which accounted for 1.2% of all employees. SAS complies with the government' s regulations for hiring people with disabilities.

Supervisor

Regarding management level, SAS has 81 supervisors, 70.4% of which were men and 29.6% were women. Regarding management ranks, there are 17 high-level supervisors (department level or higher), 28 managers or deputy managers, 14 director-level personnel, and 22 sectional-level personnel.

◈ Distribution of Employees at SAS and GlobalWafers (Taiwan) by Category

All Levels	SAS (Headquarters and Chunan, Yilan, Hsu-Hsin Branch)				GlobalWafers - Taiwan (GlobalWafers Headquarters, Chunan Plant, Taisil Branch)				Total			
	Male	Female	Total	Percentage	Male	Female	Total	Percentage	Male	Female	Total	Percentage
Departments and above	12	5	17	2.3%	35	4	39	2.3%	47	9	56	2.3%
Deputy Managers	22	6	28	3.8%	71	31	102	6.0%	93	37	130	5.3%
Directors	12	2	14	1.9%	21	6	27	1.6%	33	8	41	1.7%
Sections	11	11	22	3.0%	59	14	73	4.3%	70	25	95	3.9%
Generral Staff	498	150	648	88.9%	1,034	436	1,470	85.9%	1,532	586	2,118	86.8%
Number of people	555	174	729	100.0%	1,220	491	1,711	100.0%	1,775	665	2,440	100.0%



Statistics of New Employee Hires and Employee Turnover

In 2022, the number of new employees at SAS and GlobalWafers was is 1,241, with new male and female hires accounting for 11.6% and 4.4% of the total number of employees for the previous year, respectively. In terms of age, new hires were mostly aged <30 years-old (9.5%), followed by those aged 30–50 years-old (5.8%). In 2022, 1,069 employees resigned, with male and female resignees accounting for 9.2% and 4.5% of the total number of employees for the previous year, respectively. In terms of age, resigned employees were mostly aged <30 years-old (6.6%), followed by those aged 30–50 years-old (5.5%).

When employees submit a resignation letter, the HR department would immediately schedule an exit interview to understand reasons for resignation, and actively assist in making changes and providing explanations concerning work contents, personal characteristics, and proposed problems so as to achieve the goal of talent retention. In addition, when the Group (including the solar business group and the semiconductor business group) has a job vacancy, priority will be given to each plant for internal recruitment. After the person who wants to transfer is approved by the unit manager, HR will assist employees with the interviews and subsequent transfer matters.

◈ 2020–2022 Statistical Analysis of New Employees

Year		2020											
Region		Yilan		Chunan		Hsinchu		GlobalWafers - Taiwan		GlobalWafers - Overseas		Total	
Age		Number of people	%	Number of people	%	Number of people	%	Number of people	%	Number of people	%	Number of people	%
Male	< 30 years-old	1	<0.1%	2	<0.1%	2	<0.1%	48	0.6%	282	3.7%	335	4.4%
	30-50 years old	3	<0.1%	9	0.1%	0	0.0%	68	0.9%	62	0.8%	142	1.9%
	>50 years old	0	0.0%	1	<0.1%	0	0.0%	3	<0.1%	20	0.3%	24	0.3%
Female	< 30 years-old	0	0.0%	0	0.0%	0	0.0%	20	0.3%	59	0.8%	79	1.0%
	30-50 years old	1	<0.1%	1	<0.1%	1	<0.1%	33	0.4%	28	0.4%	64	0.8%
	>50 years old	0	0.0%	0	0.0%	1	<0.1%	2	<0.1%	10	0.1%	13	0.2%
Total		5	0.1%	13	0.2%	4	0.1%	174	2.3%	461	6.1%	657	8.7%

Year		2021											
Region		Yilan		Chunan		Hsinchu		GlobalWafers - Taiwan		GlobalWafers - Overseas		Total	
Age		Number of people	%	Number of people	%	Number of people	%	Number of people	%	Number of people	%	Number of people	%
Male	< 30 years-old	1	<0.1%	30	0.4%	2	<0.1%	113	1.5%	223	2.9%	369	4.9%
	30-50 years old	8	0.1%	51	0.7%	0	0.0%	104	1.4%	99	1.3%	262	3.5%
	>50 years old	0	0.0%	2	<0.1%	1	<0.1%	3	<0.1%	22	0.3%	28	0.4%
Female	< 30 years-old	1	<0.1%	2	<0.1%	2	<0.1%	51	0.7%	72	0.9%	128	1.7%
	30-50 years old	2	<0.1%	4	0.1%	8	0.1%	71	0.9%	42	0.6%	127	1.7%
	>50 years old	0	0.0%	0	0	2	<0.1%	2	<0.1%	15	0.2%	19	0.3%
Total		12	0.2%	89	1.2%	15	0.2%	344	4.5%	473	6.2%	333	12.3%

Year		2022											
Region		Yilan		Chunan		Hsinchu		GlobalWafers - Taiwan		GlobalWafers - Overseas		Total	
Age		Number of people	%	Number of people	%	Number of people	%	Number of people	%	Number of people	%	Number of people	%
Male	< 30 years-old	53	0.7%	20	0.3%	0	0.0%	103	1.3%	358	4.6%	534	6.9%
	30-50 years old	48	0.6%	45	0.6%	0	0.0%	102	1.3%	143	1.8%	338	4.4%
	>50 years old	0	0.0%	0	0.0%	0	0.0%	1	<0.1%	29	0.4%	30	0.4%
Female	< 30 years-old	7	0.1%	0	0.0%	1	<0.1%	67	0.9%	129	1.7%	204	2.6%
	30-50 years old	11	0.1%	0	0.0%	2	<0.1%	48	0.6%	48	0.6%	109	1.4%
	>50 years old	0	0.0%	1	<0.1%	0	0.0%	3	<0.1%	22	0.3%	26	0.3%
Total		119	1.5%	66	0.9%	3	<0.1%	324	4.2%	729	9.4%	1,241	16.0%

◈ 2020–2022 Statistical Analysis of Resigned Employees

Year		2020											
Region		Yilan		Chunan		Hsinchu		GlobalWafers - Taiwan		GlobalWafers - Overseas		Total	
Age		Number of people	%	Number of people	%	Number of people	%	Number of people	%	Number of people	%	Number of people	%
Male	< 30 years-old	93	1.2%	3	<0.1%	3	<0.1%	37	0.5%	118	1.6%	254	3.4%
	30-50 years old	79	1.0%	9	0.1%	1	<0.1%	75	1.0%	54	0.7%	218	2.9%
	>50 years old	1	<0.1%	4	0.1%	2	<0.1%	9	0.1%	57	0.8%	73	1.0%
Female	< 30 years-old	7	0.1%	0	0.0%	0	0.0%	19	0.3%	63	0.8%	89	1.2%
	30-50 years old	17	0.2%	1	<0.1%	1	<0.1%	31	0.4%	38	0.5%	88	1.2%
	>50 years old	1	<0.1%	0	0.0%	1	<0.1%	3	<0.1%	17	0.2%	22	0.3%
Total		198	2.6%	17	0.2%	8	0.1%	174	2.3%	347	4.6%	744	9.8%

Year		2021											
Region		Yilan		Chunan		Hsinchu		GlobalWafers - Taiwan		GlobalWafers - Overseas		Total	
Age		Number of people	%	Number of people	%	Number of people	%	Number of people	%	Number of people	%	Number of people	%
Male	< 30 years-old	9	0.1%	15	0.2%	1	<0.1%	68	0.9%	106	1.4%	199	2.6%
	30-50 years old	35	0.5%	23	0.3%	3	<0.1%	105	1.4%	87	1.1%	253	3.3%
	>50 years old	1	<0.1%	0	0.0%	1	<0.1%	7	0.1%	48	0.6%	57	0.8%
Female	< 30 years-old	4	0.1%	0	0.0%	0	0.0%	31	0.4%	64	0.8%	99	1.3%
	30-50 years old	19	0.3%	7	0.1%	7	0.1%	52	0.7%	33	0.4%	118	1.6%
	>50 years old	0	0.0%	0	0.0%	1	<0.1%	7	0.1%	31	0.4%	39	0.5%
Total		68	0.9%	45	0.6%	13	0.2%	270	3.6%	369	4.9%	765	10.1%

Year		2022											
Region		Yilan		Chunan		Hsinchu		GlobalWafers - Taiwan		GlobalWafers - Overseas		Total	
Age		Number of people	%	Number of people	%	Number of people	%	Number of people	%	Number of people	%	Number of people	%
Male	< 30 years-old	12	0.2%	15	0.2%	0	0.0%	76	1.0%	246	3.2%	349	4.5%
	30-50 years old	28	0.4%	34	0.4%	0	0.0%	107	1.4%	120	1.5%	289	3.7%
	>50 years old	0	0.0%	3	<0.1%	0	0.0%	0	0.0%	76	1.0%	79	1.0%
Female	< 30 years-old	6	0.1%	0	0.0%	0	0.0%	35	0.5%	119	1.5%	160	2.1%
	30-50 years old	14	0.2%	0	0.0%	2	<0.1%	55	0.7%	67	0.9%	138	1.8%
	>50 years old	0	0.0%	1	<0.1%	0	0.0%	4	0.1%	49	0.6%	54	0.7%
Total		60	0.8%	53	0.7%	2	<0.1%	277	3.6%	677	8.7%	1069	13.8%

Note1: The percentage of new and resigned employees is based on the percentage of the total number of employees at the end of the previous year.
Note2: The statistics include region and age. Chunan encompasses the Chunan and Hsu-Hsin Branch of SAS. (Both Chunan and Hsu-Hsin Branch operate in Chunan).
Note3: GlobalWafers - Taiwan encompasses GlobalWafers Headquarters, Chunan Plant, Taisil Branch.

4.2 Remuneration and Benefits

Remuneration policies

SAS offers competitive salaries (including fixed salaries and holiday bonuses) to attract and retain outstanding talents. Annual salaries are adjusted to the company' s operational performance, industry standards, inflation, and employee performance. Depending on the company' s profits for the year, remuneration is provided to employees to strengthen employee loyalty and motivate employees to exceed annual business goals, thereby facilitating the co-creation and sharing of profits. Employees are recommended for promotion based on their annual performance review results.

◈ Number of full-time employees as well as the average and median salary of non-supervisory positions in 2022

Item		SAS (Headquarters and Chunan, Yilan, and Hsu-Hsin Branch)			GlobalWafers (GlobalWafers Headquarters, Chunan Plant, Taisil Branch)		
		2021	2022	Difference compared to the previous year	2021	2022	Difference compared to the previous year
Non-supervisory positions	Number of full-time employees (persons)	609	660	8.4%	1,563	1,593	1.9%
	Average salary (NT$ thousands)	1,302	1,432	9.9%	1,205	1,307	8.5%
	Median salary (NT$ thousands)	1,243	1,381	11.1%	1,124	1,228	9.3%

Note1: Full-time employees refer to those whose working hours have reached the company-stipulated regular working hours or statutory working hours, or those whose regular working hours are not stipulated and average weekly working hours have roughly exceeded 35 hours.

Note2: Full-time non-supervisory employees refers to the number of full-time employees after subtracting the supervisor positions, part-time positions, and those eligible for exemption from statistics from all employees. Employees in supervisory positions refer to Company managers or "managers" within the scope as defined by the regulations of the competent authority: President and equivalent; deputy president and equivalent; associate manager and equivalent; head of the financial department; head of the accounting department; and other persons who have the authority to manage the company' s affairs, provide authorization signatures, and consistent within the scope of insiders (managers) and (managers) declared by the annual shareholders meeting report.

Note3: "Salary" refers to the employee' s salary attributable to the current year according to the accrual basis based on the occurrence of powers and responsibilities. It shall include recurring salary (monthly basic salary, fixed allowance, and bonus), overtime pay (regardless of taxable or tax-free), and non-recurring salary (non-monthly allowances, bonuses, employee compensation, etc.).

Note4: The number of employees listed above is based on the statistical concept of weighted average (the average number of employees for each month), which differs from the statistical method of calculating the number of employees (employees still working as of December 31 of the current year) mentioned in Chapter 4.1.

Leave System

SAS provides a leave system and defines work systems and management rules in accordance with the Labor Standards Act. Our working hour policy abides by the stipulation that a worker shall have two regular days off every seven days, where one day is a regular leave and the other one is a rest day. We also sign contracts with our employees, respect their willingness to provide labor services, and will never by force, coercion, or other illegal means, compel a worker to perform work. Employees may use the HR system to inquire their personal attendance records and remaining leave hours to ensure their rights and interests regarding working hours and leave.

Insurance and Retirement System

In addition to health and labor insurance as required by law, each employee is also enrolled in group insurance policies that are superior to labor law requirements. Group insurance includes term life insurance, accidental injury insurance, aviation accident insurance, major burns insurance, medical injury insurance, and hospitalization medical insurance, etc., all of which afford comprehensive protection measures for employees to minimize losses.

For employees under the old pension system, SAS makes a monthly contribution equaling 2% of employee' s monthly salary to a retirement bank account held under the Bank of Taiwan, and appropriates sufficient amount of labor pension at the end of the year to ensure employees' rights to pension fund. For employees under the new pension system, a monthly contribution equaling 6% of employee' s monthly salary is made to each employee' s labor pension account.

Unpaid child care leaves

SAS provides employees with the right to parental leave. Employees who have worked for 6 months and have a child under the age of 3 may apply for unpaid childcare leave with the company to take care of their child. A total of 20 employees at SAS have applied for unpaid parental leave between 2020 and 2022.

◈ Execution results of unpaid child care leave application

Item	Gender	SAS			GlobalWafers - Taiwan		
		2020	2021	2022	2020	2021	2022
Total employee staff number eligible for unpaid child care leave	Male	48	40	34	58	60	41
	Female	9	10	13	16	24	21
Total number of employees who actually took unpaid child care leave	Male	2	2	2	4	2	7
	Female	7	3	4	8	11	8
Total number of reinstated employees upon the expiration of their child care leaves	Male	6	2	3	4	2	6
	Female	13	9	7	6	11	7
Total number of employees who actually resumed their duties upon the expiration of their child care leaves	Male	3	2	3	2	2	2
	Female	4	4	7	6	8	6
Ratio of employees who resumed their duties upon the expiration of their child care leaves (reinstatement rate)	Male	50.0%	100.0%	100.00%	50.0%	100.0%	33.3%
	Female	30.8%	44.4%	100.00%	100.0%	72.7%	85.7%
Total number of employees still active 12 months after being reinstated from unpaid parental leave	Male	0	2	1	0	2	0
	Female	7	2	4	7	5	7
Percentage of employees still active 12 months after being reinstated from unpaid parental leave (retention rate)	Male	0.0%	66.7%	50.00%	0.0%	100.0%	0.0%
	Female	116.7%	50.0%	100.00%	87.5%	83.3%	87.5%

Employee Meals

SAS provides free meals for employees at work. We have set up an employee canteen, where a comfortable dining environment and a variety of meal options are provided to cater to employees' different dietary requirements. A team of kitchen staff has been established to produce good-quality and nutritious meals for the health and safety of employees.

Welfare Committee System

SAS established an Employee Welfare Committee in 1988 to strive for employee benefits and welfare measures, including emergency aid and first-time cancer relief to help employees who encounter difficult circumstances; subsidies for marriage, childbirth, and funerals; cash gifts for birthdays and major festivals; scholarships for education; illness/hospitalization subsidies; discounts provided by designated vendors; regular travel subsidies; year-end banquets; sponsorship for social welfare activities; non-periodic family day outings, to which all staff members and their families are invited in order to build cohesion and identification with the Company; a family day trip to SAS production sites, which enable employees' spouse and families to better understand how the company operates, thereby promoting harmony in the family. We also create social clubs for employees to improve their physical and mental wellbeing, promote proper entertainment, foster teamwork, and cultivate emotional exchange among employees; hold beach cleaning activities as needed to contribute to the society and the natural environment; and set up an audio-visual facility to make employees' dining environment better and more comfortable.

During the COVID-19 outbreak, gift vouchers worth approximately NT$12,000 were distributed to each employee in lieu of company trips in spring and autumn. Such alternative not only eliminated unnecessary travel and crowd gathering but also subsidized employees' daily necessities. In addition, a vaccination incentive system was established to encourage vaccination against COVID-19.

4.3 Education and training

An All-Encompassing Learning Environment

Each year, SAS organizes training programs and provides a diversified all-encompassing learning environment to enhance employee skills and literacy, expand the use of human resources, and ensure continuous development. Training plans for the following year are formulated by various departments in line with the company's business goals, department KPI, and competency requirements. At the end of every quarter, reviews and assessments of goal achievement are conducted on courses offered in the said quarter. The results serve as the basis for improving upcoming courses. SAS' s training system encompasses the following five categories: competency training for new recruits, professional competency training, general management competency training, intellectual property training, and health and safety management training, to provide suitable training courses for employees in their different stages of career development.

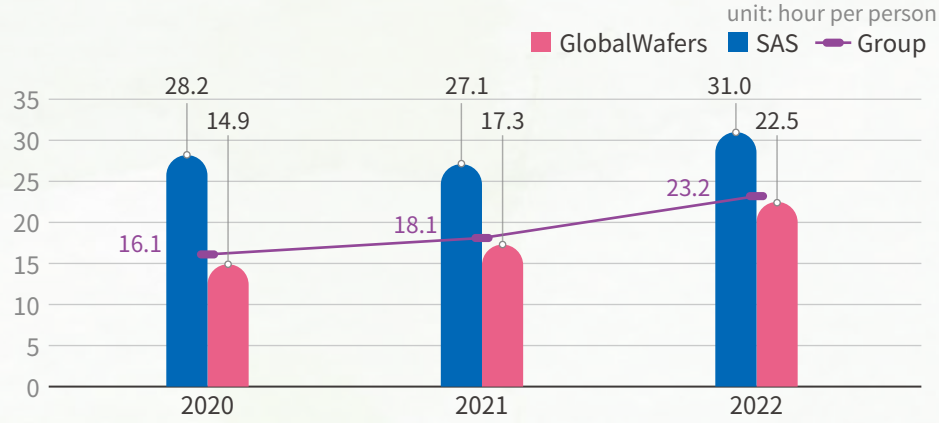
◈ SAS offers a comprehensive, diversified learning environment

SAS has established an E-Library Academy that furnishes employees with reading and exercise training materials whenever they have a need for it. The Academy offers a wide range of collections that are easily accessible to busy staff members, thereby fostering a reading culture in the company. It also offers training materials for various areas of expertise, granting self-improvement and personal growth opportunities for employees who have an interest in interdisciplinary learning. SAS firmly believes that continuous learning leads to continuous improvements in the company' s overall operational performance. In 2022, SAS and GlobalWafers devoted 186,322.4 hours of training in talent development.

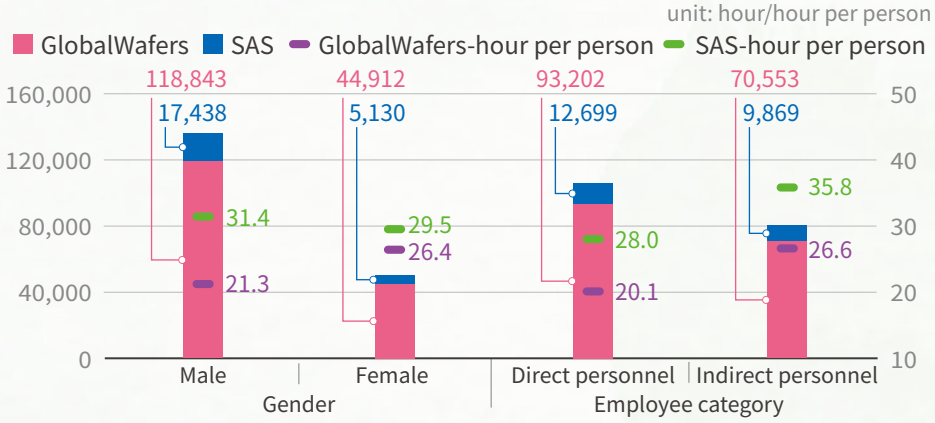
In terms of gender, men and women at SAS spent 31.4 and 29.5 hours on education and training, respectively; based on type of employee, direct and indirect personnel spent an average of 28.0 and 35.8 hours on education and training, respectively.

◈ Number of people and hours for education and training from 2020 to 2022

Type of training		2020				2021				2022			
		Number of sessions	Individuals	Total class opening hours	Total class hours	Number of sessions	Individuals	Total class opening hours	Total class hours	Number of sessions	Individuals	Total class opening hours	Total class hours
SAS	Competency training for new recruits	9	14	70.5	110.5	57	75	476.0	633.0	62	159	467.5	1147.5
	Professional competency training	1,103	20,941	1,659.0	17,088.0	831	17,589	1,589.0	15,285.5	911	15,130	2,210.5	16,114.0
	General management competency training	117	1,331	169.6	1,625.7	105	1,251	159.0	1,900.5	298	3,297	475.0	5,306.0
	Total	1,229	22,286	1,899.1	18,824.2	993	18,915	2,224.0	17,819.0	1,271	18,586	3153.0	22,567.5
GlobalWafers	Competency training for new recruits	126	921	747.0	7,546.5	295	1,092	1,571.0	9,258.5	441	1,422	3,284.0	26,529.0
	Professional competency training	1,670	14,308	5,462.3	47,371.0	1,426	12,513	24,830.0	57,709.0	1,580	15,471	5,462.7	80,770.0
	General management competency training	425	33,335	780.6	46,480.5	767	39,749	6,481.9	55,624.0	747	29,832	13,235.3	56,455.9
	Total	2,221	48,564	6,989.8	101,398.0	2,488	53,354	32,882.9	122,591.5	2,768	46,725	21,981.9	163,754.9
Total		3,450	70,850	8,888.9	120,222.2	3,481	72,269	35,106.9	140,410.5	4,039	65,311	25,134.9	186,322.4



Average employee education and training hours in 2020–2022



Average employee education and training hours in 2022 by gender and type of employee

Note1: Direct personnel: personnel who actually engaged in production-related operations such as technical workers and foremen at the production site.

Note2: Indirect personnel: workers who do not directly involved in production such as supervisors, product designers, accountants, procurement, or engineers.

Talent cultivation

SAS is firmly committed to the cultivation of academic talents in line with the value we place on innovation, R&D, and talent development for industries. In addition to organizing campus lectures with the goal of introducing current and future trends of the solar energy industry and providing students with assistance in career planning, the company also offers off-campus internship opportunities for relevant academic departments. These activities enable students to gain an early understanding of workplace environments and career planning through shared experiences and exchanges with SAS workers. To fortify ties with schools and universities and prepare for long-term cultivation of future talents, SAS sets up an industry–academia collaboration mechanism for students to put their learned knowledge into practice, and provides them with internship opportunities to prep them for transition into the workplace, thereby increasing their competitiveness in the employment market.

4.4 Social Engagement

Acting in the spirit of altruism to care for the society, SAS and its subsidiaries in Taiwan continued to internalize our core values of "respect for human dignity, social justice, responsibility, privacy, and authority" into social engagement activities. Since 2003, members of the Hsinchu Science Park have been launching a "Dream Come True" charity event during which Christmas gifts are collected before Christmas Eve for underprivileged children. SAS and subsidiaries in Taiwan continued to cooperate with Accton Cultural and Educational Foundation to promote the "Dream Come True" event. Every little gift is a path to realizing the children' s wishes. Through this event, everyone can be a Santa Claus sending hope and love to every child. Each year, our employees are all active participants of these gift-collecting activities to shower children with a mountain of gifts through social welfare organizations. We further consolidate and spread the charitable notions of our employees across disadvantaged groups by financially matching the moon cake donations that our employees make. In 2019, we began liaising with schools in rural areas, Huashan Social Welfare Foundation, and World Vision Taiwan to learn about the resources they might need help with and provide necessary assistance, such as making life in elementary schools more convenient or raising funds for elderly people who live alone. Our 2022 social engagement program covered two aspects: public welfare and education promotion in rural areas, so as to achieve social reciprocity and expand social influence by integrating employees' ideas with the company' s professional resources.

Social Contributions

To support public welfare initiatives, SAS began partaking in public fund-raising activities since 2020, such as "Caring for Rural Areas and Disadvantaged Individual" by matching donation proceeds at a 1: 1 ratio (i.e., the company donates the same amount as employees) to combine resources and spread love and warmth to places in need. Many people' s livelihoods were affected by the resurgence of COVID-19 in 2022. Since 2021, our plants have been launching public welfare proposal submission activities every six months to help the society. Meanwhile, our IT department voluntarily developed an internal donation platform that makes it easier for employees to pledge and make a donation wherever they are. The platform also helps to integrate resources for charity activities and encourages more people to support charity.

◈ Events Participated in 2022

Event	Organizer
Hsinchu Wujian Center Nutritional Supplement Program -Provided funding for World Vision Taiwan to purchase nutritional supplements	Northern Taiwan Representative Office of World Vision Taiwan
Angel Family Stress Relief and Respite Service Activities -Funded activities held by Angel Heart Family Social Welfare Foundation	Angel Heart Family Social Welfare Foundation
Disadvantaged Children Care Program -Funding for summer schools and education scholarships	Yilan Taiwan Fund for Children and Families
The Guardian of the Vegetative Home -Care expenses	Genesis Social Welfare Foundation

Event	Organizer
2022–2023 Hsinchu Children Safety and Home Safety Improvement Plan -Helped to improve the living environment of children and families in rural areas	World Vision Taiwan Taochumiao Office
2022 Charity Bazaar Event -Helped to organize and financially support charity bazaars	Association for Victim Support (ACS) Hsinchu Branch
White Canes for the Blind -Donated money to purchase canes and fund orientation and mobility training	Taiwan Foundation for the Blind
2022–2023 Education Programs for Families in Rural Areas -Mobile library, at-home family-friendly cooking, action learning	World Vision Taiwan Yilan Office

Behind the Scenes

Yilan Center of Taiwan Fund for Children and Families - Fundraising for Learning Care Program for Disadvantaged Children

World Vision Taiwan - 2022–2023 Hsinchu Children Safety and Home Safety Improvement Plan

2022 Charity Bazaar Event

Taiwan Foundation for the Blind - White Canes for the Blind

方案名稱	執行日期	方案內容	受益數(估列)
展望行動書車家庭教育方案	2022/10/1至2023/9/30	提供區域定點服務，以親子共讀、品格教育、DIY烘焙手作等互動教學方式，增強服務家庭親子間正向的互動關係、閱讀良好習慣，建立親子幸福時光。	400人
到宅親子料理家庭教育方案		提供特定戶家庭服務(多為親子關係緊張或衝突的家庭)，以親子共同製作餐點，培養親子感情與強化親子關係正向親密的相處模式，營造和樂的家庭氛圍。	30戶
助學行動	2023/02	提供南澳鄉南澳部落26名學了開學前助學金，使經濟弱勢家庭紓解壓力，兒童得以繼續實現就學的夢想。	26人

World Vision Taiwan - 2022–2023 Education Programs for Families in Rural Areas

Regeneration Education Promotion

SAS launched a Photovoltaic (PV) Seed Project in 2021, hoping that photoelectric education can start from a young age. The project involves discussion of real-life stories, topics extracted from activities of daily living, and hands-on solar energy exercises to teach children that solar PV is a safe, affordable, and sustainable source of clean energy and encourage them to apply it in real life.

In 2022, we continued implementing the PV Seed Project and held 14 lessons on solar PV systems to show the children which real-life PV applications are found locally or on school grounds, including bus stop signs and solar-powered water heaters, etc.

Renewable energy development is a major policy focus of various nations. An educational picture book, called “Grandpa’ s Roof can Generate Electricity” published by the Bureau of Energy was used in this project. The book was produced into an audiobook by our employees so as to elevate its authenticity, thereby helping children quickly immerse themselves in the field of solar energy. In addition, solar windmill DIY activities were held to make solar applications more impressionable on children.

We are not an expert in education; however, with a passion for imparting solar PV knowledge, we were able to bring the PV Seed Project, from lesson planning, material collection, practical tests, to learning exercises, to a successful conclusion. We will nevertheless continue to spread this enthusiasm and mission across elementary school children in rural areas of Taiwan. By imparting the theory and practice of PV systems using real-life examples, we aim to help children understand that solar PV is a safe, affordable, and sustainable source of energy, thereby inspiring them to take green, climate actions.

◈ The 14 solar PV lessons are summarized below:

County/ City	Township	No. of Lessons	Elementary School	
Hsinchu County	Jianshi Township	8	• Hsinle Elementary School • Chiahsing Elementary School • Jainshi Elementary School • Jinping Elementary School	• Hengshan Elementary School • Meihua Elementary School • Neiwan Elementary School • Dadu Elementary School
	Beipu Township	2	• Daping Elementary School	• Taoshan Elementary School
	Wufeng Township	1	• Huayuan Elementary School	
	Baoshan Township	1	• Baoshan Elementary School	
Kaohsiung City	Meinong District	2	• Longdu Elementary School	• Longshan Elementary School

05

Workplace Health and Safety

5.1 Safe Workplace

5.1.1 Occupational Safety and Health Management System and Organization

Occupational Safety and Health Management System and Policy Commitments

SAS values stakeholders' expectations as well as involvement from management and employees. We adopted an occupational safety and health management systemNote, so that occupational safety and health is no longer treated as "an independent operation" but a process that must be operated steadily and sustainably. We established an environmental health and safety (EHS) policy in accordance with ISO 45001:2018 and ISO 14001:2015 standards. The policy is approved by an executive management (Chairperson) and subsequently published on the company' s Intranet, procurement forms (or other external documents), and company website so as to inform stakeholders that we are committed to achieving the goals of "providing a safe and healthy working environment, fulfilling our environmental responsibilities, and adopting green operational practices." To this end, we developed several management procedures for the prevention / mitigation of health hazards in the workplace, and provided communication channels inside and outside of the organization to collect and address stakeholders' opinions. Relevant management approaches are described in later chapters.

Note: Scope of occupational health and safety management system: Management system verification covers SAS Chunan Branch, Yilan Branch, and GlobalWafers Taiwan. The management system applies to the jobs or workers at the workplace under the control of the preceding scope, including SAS headquarters and Hsu-Hsin Branch.

Environmental Health and Safety (EHS) Policy

As a manufacturer of solar ingot, wafers, and cells, SAS upholds the business goal of "providing a safe and healthy working environment, fulfilling our environmental responsibilities, and adopting green operational practices."

To achieve this goal, we are committed to:

Occupational Safety and Health Organization

In compliance with law, SAS established Occupational Health and Safety Committees for each plant, and convenes quarterly meetings with the committees, which are chaired by the President or by an appointed plant-based Vice President and attended by all department heads and labor representatives. Topics discussed during these meetings include occupational safety and health management plans, operating environment testing, improvements, and countermeasures, occupational safety and health education and training, audits, performance evaluation, accident propaganda and prevention, health management and promotion, and other relevant matters. Meeting minutes are produced for continuous follow-up and improvement.

◈ Percentage of labor representatives on the Occupational Health and Safety Committee

Item \ Plant	SAS		GlobalWafers - Taiwan	
	Chunan Branch	Yilan Branch	GlobalWafers Plant	Taisil Plant
No. of labor representatives	6	5	7	19
No. of committee members	17	14	20	37
Ratio	35%	36%	35%	51%

Note1: Percentage = No. of labor representatives/total no. of committee members*100%

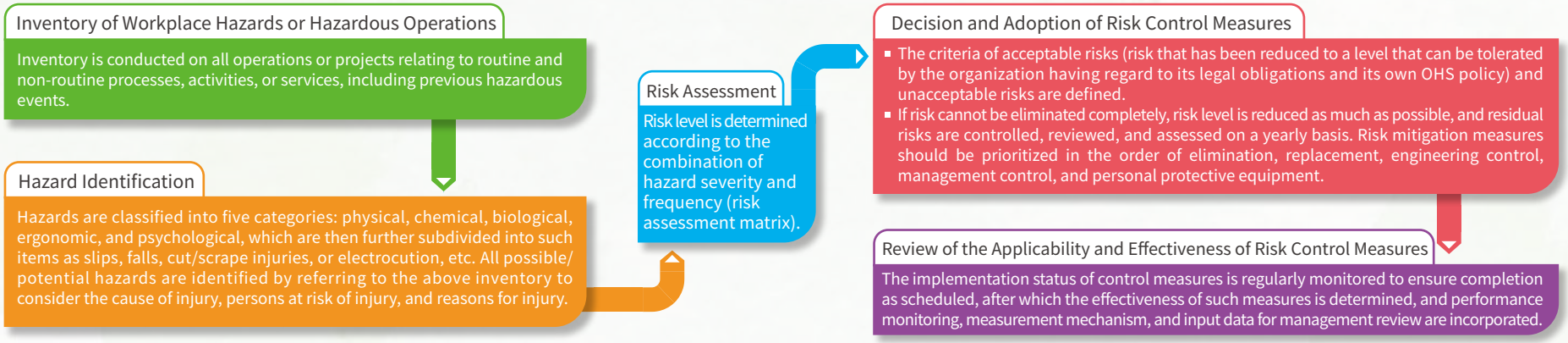
Note2: Both SAS Hsinchu Headquarters and Hsu-Hsin Branch have, in accordance with regulations, appointed officers to take charge of occupational safety and health; however, because the legal threshold was not met, they did not set up an occupational safety and health committee.

5.1.2 Occupational Safety Management

SAS is well aware of the importance of operating environment safety. On-site patrol-style management by managers of all levels is adopted to strengthen employee discipline and autonomy, raise employees' safety awareness, and establish a corporate safety culture.

Hazard Identification and Risk Assessment

Appropriate hazard identification and risk assessment can effectively control hazards and risks, prevent and reduce disasters, and improve occupational safety and health management performance. There are numerous hazard identification and risk assessment methods. SAS adopts the following risk assessment models for routine and non-routine in-plant operations: Job Safety Analysis (JSA), Failure Modes and Effects Analysis (FMEA), and What-If analysis. Qualified personnel are trained by each unit to perform hazard identification and risk assessment for their operations and activities, and the identification results are regularly reviewed annually.



Risk assessment process

Health Hazard Risk Management

In addition to the preceding risk assessment and control measures, operating environmental monitoring or quantitative exposure assessments are also conducted regularly on CNS15030-classified chemicals that pose a health hazard, such as strong acids/bases, oxidizing substances, or volatile organic compounds. Subsequently, control banding is performed on the exposure assessment results as follows:

- Level-1 management (exposure concentration is < 1/2 of permissible exposure concentration): Retain current control or management measures and reevaluate exposure concentration every 3 years.
- Level-2 management (1/2 of permissible exposure concentration < exposure concentration < permissible exposure concentration): Perform spot inspections on equipment, operating procedures, or operating methods (such as local exhaust facilities, respiratory protective equipment, or operating environment), encourage personnel to suggest improvements to the operating environment, and reevaluate exposure concentration every year.
- Level-3 management (exposure concentration > permissible exposure concentration): Take immediate improvement actions and reevaluate exposure concentration after improvement is completed to ensure that the concentration exposed to personnel is lower than the permissible concentration.

SAS does not use Substance of Carcinogenic, Mutagenic or Toxic for Reproduction (CMR) Category 1 (CMR substance, Category 1). Our health hazards chemical exposure assessment results indicated that all chemicals that we use require Level-1 Management (maintain current control or management measures).

Emergency Response

When an emergency occurs, generally, there is not enough time to decide the “who, what, and how” (i.e., who should be responsible, what to do, how to do it or how to seek external support). However, failure to take effective control measures as soon as possible will result in serious consequences. Each year, we conduct contingency drills for possible emergencies based on a plant’ s hazard identification and risk assessment results. In 2022, we optimized and improved our emergency response drills by setting disaster scenarios instead of following a script. Ideas and disaster response drills are developed by members of a drill team and put into practice. Such improvement avoids a script-based drill and strengthens the ability to respond to emergencies in a manner that more closely reflects real-life situations. For the drill procedures, we appointed an outside “observer” from various units to observe from a bystander perspective and identify matters that can be refined and improved based on the content suggested in a checklist. With reference to peer approaches, we planned to introduce a tabletop exercise in 2023, which is expected to help responders discuss and better remember response procedures for specific scenarios.

In-plant hazard identification and risk assessment results are included in emergency response drill plans to conduct drills from time to time.

Given the frequent occurrence of earthquakes in 2022, SAS not only incorporated new earthquake response and management procedures in pace with time, but we also conducted earthquake emergency response drills in each plant area.

Change Management

In the event of changes or modifications to processes, activities, or services, operating conditions or environment may deviate from the original safety range and control measures, thus engendering a disaster event. To prevent this situation and reduce disaster risks thereby ensuring personnel safety and health, SAS established a change management mechanism whereby an application must be submitted prior to any operational changes in processes, activities, or services (including operating conditions, methods, raw materials, machinery, equipment, or staffing changes), in addition to the following actions: pre-change hazard identification and risk assessment, review of updated procedures/documents, personnel notification and training, and safety inspection before initiation of change.

Procurement Management

SAS integrates engineering, property, or labor safety and health requirements into its procurement management operating procedures. When a procurement request is submitted, safety and health specification requirements, safety inspections, and relevant documents, including industrial safety facilities, protective gear, operator qualifications/ skills, safety devices that should be installed or equipped in mechanical equipment, equipment safety performance verification documents or test reports, and other items required by laws, regulations, or international standards, must be provided in order to prevent procurement-related safety and health hazards or risks and ensure compliance before acceptance.

Each year, external suppliers of main raw materials are subject to environmental and occupational safety and health inspections and evaluations, which include the following items: energy resource and pollution management measures, safety and health management systems (monitoring and measurement of operational hazards, emergency response drills, and occupational hazard investigations and statistics, etc.). Potential suppliers are qualified to be our supplier if they pass these evaluations. Regarding the qualification of contractors, they must undergo at least 6 hours of safety and health training and obtain insurance certification (separate set of rules are in place for special operations) before they can enter our plant for construction work. By leveraging the influence of the organization and our business relationships, we hope to improve the safety and health management practices of external suppliers and contractors, raise safety awareness, and protect workers against unexpected accidents, so as to reduce safety and health risks and impacts.

Consultation and Communication with Workers

Employee Communication

SAS established consultation and communication management procedures to effectively handle complaints and suggestions from anyone inside or outside of the company, and subsequently strengthen engagement with employees before implementing and planning any occupational safety and health systems. Aspects on which employees are consulted include occupational safety and health policies, how to fulfill legal and other requirements, occupational safety and health goals, supervision and measurement matters, and other relevant control measures. In addition, a communication platform—Environmental Safety Corner—has been created on the Company' s Intranet IT site to provide announcements concerning in-plant firefighting facility configurations, emergency response organization and information, accident investigation and analysis, operating environment monitoring, regulatory changes, and information promoting awareness of industrial safety and environmental protection (including social and industry accidents). We also established complaint mailboxes to strengthen employee awareness and communication.

Communication with Non-Employees

SAS actively communicates with other workers who are not employees, forges partnership with contractors, adopts operational management methods, and fulfills our commitment to health and safety. In addition to requiring the contractor to comply with the safety and health management laws and regulations, the contractor must also meet the Company's qualifications for construction personnel, equipment and materials, and safety protection before signing a contract with the Company. Before entering our production sites, contractors are informed of any hazards and risks in the work environment and operation or of relevant safety and health regulations, and are required to attend safety meetings held by safety and health management officers. We also created an electronic construction application system to control construction applications and pre/during/post-project management. Contractors are asked to assign on-site supervisors and convene daily pre-construction toolbox meetings to coordinate operational safety matters.

Contact information is provided on our company website for stakeholders to communicate their opinions via email or phone.




Toolbox meeting

Occupational Safety and Health Education and Training

SAS devises EHS education and training plans with reference to employee feedback, management system requirements, and external issues. EHS training applies to new and existing employees, managers of all levels, and contractors and serve to raise workers' awareness of occupational safety, health, and compliance, and foster response capability. In 2022, we organized occupational safety and health training courses for new and existing employees, as well as the following courses as needed: training on dangerous and hazardous substances, construction safety management (safety management of contractors, supervisors, and special in-plant operations), respiratory protective equipment fit test and training, and wearing of personal protective equipment, etc.

As stipulated by law, our operators of machinery and equipment, supervisors in charge of operations, persons in charge of occupational safety and health, and first-aid personnel have all completed training and obtained relevant certification.



Respiratory protection fit test and training



SCBA (self-contained breathing apparatus) training

5.1.3 Accidental Incidents and Management

Investigation and Correction

According to Frank Bird's iceberg theory, every 641 out of 1.75 million industrial disaster incidents involve 1 disabling injury, 10 minor injury incidents, 30 financial loss events, and 600 near miss incidents. In other words, occupational disasters are merely the tip of the iceberg. According to American scholar Heinrich, who studied the direct causes of accidents as recorded in the occupational accident claims database for the insurance industry, 88% of accidents were due to unsafe actions, 10% were due to unsafe conditions, and 2% of accident reasons were unpreventable. Therefore, 98% of accidents can be prevented by management measures.

SAS have incident reporting, handling, and investigation procedures ands non-conformity correction management procedures in place, both of which, including emergency rescue procedures (including government / hospital instant messages, emergency chemical spill handling), are promoted on our Intranet platforms—Environmental Safety Corner and Health Corner. All incidents must be investigated regardless of severity by management officers, supervisors, and operators in charge of incident-related investigations and labor representatives, all of whom have been trained to conduct investigations. Tools such as the 5-WHY and 8D report are used during incident investigations to find the root causes. Hazard risk assessment, remedial actions taken, as well as improvement measures must be reviewed and adjusted to eliminate the cause and prevent recurrence. Follow-up and reviews are conducted by officers in charge of safety and health.

If any immediate danger at workplace is discovered, the worker can stop the operation and retreat to a safe location on his/her own without endangering the safety of other workers, and immediately notify the on-site supervisor without receiving any unfavorable punishment from the Company.

Occupational Disaster Management

Employees

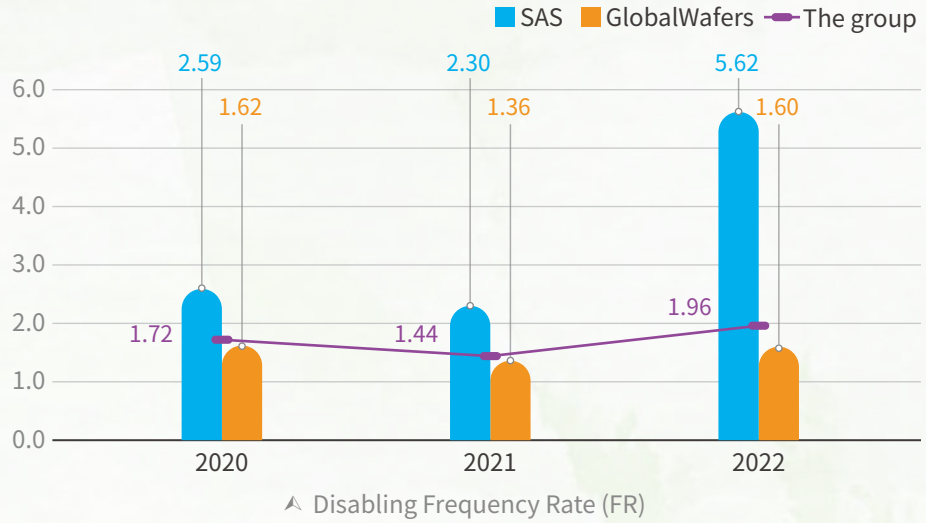
In 2022, there were no incidents of work-related death, occupational disease, or major occupational disasters. The Company recorded 10 occupational injuries (excluding incidents that occurred during employees' commute), 5 of which involved falling, 2 entrapment, 1 chemical exposure, 1 falling off, and 1 injury due to improper actions. We launched special investigations into each occupational incident, adopted improvement measures (such as improving facilities/equipment, establishing systematic documentation, or strengthening education and training) based on the cause of the incident, and applied these improvements to other departments to prevent similar incidents.

The Ministry of Labor-defined disability injury frequency rate (FR) was 5.62, and disability injury severity rate (SR) was 144. Both injury frequency and severity increased in 2022 compared with previous years. In response, in Q3 of 2022, our senior executives launched a self-inspection of occupation safety on each unit across all plant areas of the Group, and monitored progress until improvement was completed.

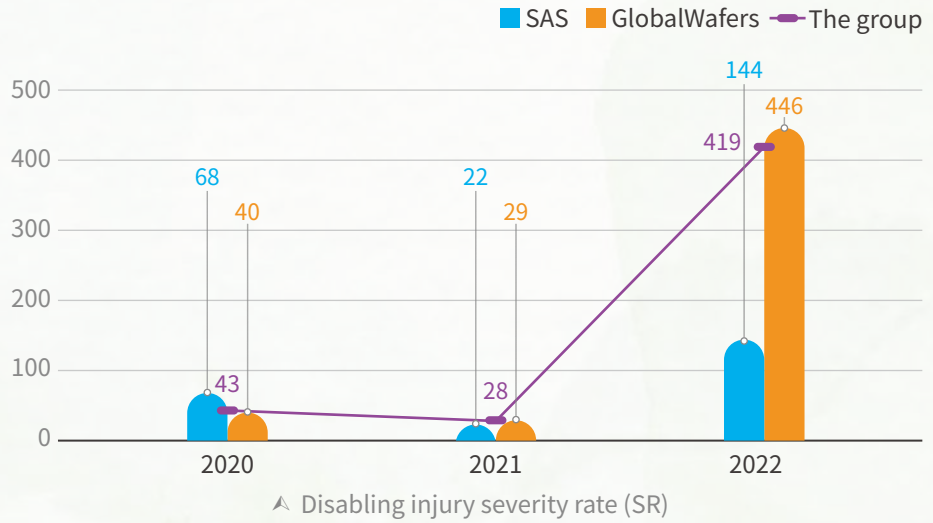
In 2015, we began organizing activities to promote a safety culture, such as disaster-free/working hour/near miss initiatives and occupational safety self-management by each department. Through these activities, we saw a reduction in the number of occupational injury incidents (excluding traffic accidents). However, the number of occupational injury incidents increased considerably in 2022, which implies that employees have grown tired of these activities and lowered their safety awareness. Therefore, our current safety culture activity was upgraded to an occupational safety promotion program, which was launched in Q1 of 2023. The program is expected to kick-start safety management practices and gradual behavioral changes to effectively promote a safety culture, thereby eliminating occupational incidents.

Workers who are not employees

Workers who are not employees of SAS mainly include engineering/maintenance contractors and other contractors (e.g., security guard, janitors, kitchen staff) who have a contractual relationship with the company. In 2022, there were no occupational injuries to workers who are not employees of SAS but worked at SAS plants.



Note1: Disabling Frequency Rate (FR) = Number of disabling injuries*106 / Total work hours



Note2:Disabling Severity Rate (SR) = (Number of disabling injuries*Total number of work days lost to injuries)*106 / Total work hours

◈ 2020–2022 Major Occupational Disaster Statistics

Item	2020				2021				2022			
	SAS		GlobalWafers (Taiwan)		SAS		GlobalWafers (Taiwan)		SAS		GlobalWafers (Taiwan)	
	Employees	Non-employee workers	Employees	Non-employee workers	Employees	Non-employee workers	Employees	Non-employee workers	Employees	Non-employee workers	Employees	Non-employee workers
Number of people	667	115	1,592	92	657	195	1,674	88	729	294	1,711	110
Work Hours	1,546,725	338,300	3,158,528	271,790	1,303,846	573,932	3,321,216	265,810	1,422,974	867,088	3,408,312	320,011
No. of disability injuries	4	0	2	0	3	0	3	0	8	0	7	0
Days of disabling injuries	105	0	6	0	30	0	14	0	205	0	6,218	0
Death toll due to work	0	0	0	0	0	0	0	0	0	0	1	0
No. of severe occupational accidents	0	0	0	0	0	0	0	0	0	0	0	0
No. of recordable occupational injuries	8	0	10	0	5	0	10	0	10	0	34	0
Recordable occupational injury rate (IR)	1.034	0	0.633	0	0.767	0	0.602	0	1.406	0	1.995	0
Occupational disease rate (ODR)	0	0	0	0	0	0	0	0	0	0	0	0

Note1: Non-employee workers: Refer to workers who are not employees but whose work and/or workplace are controlled by the organization. Divide the total number of workers for the year by 365 to calculate the average number of people entering the plants every day.

Note2: Work hours: Employees - calculated based on the actual work hours of the year. Other non-employee workers - calculated based on the total number of workers for the whole year, followed by 8 hours per day.

Note3: Severe occupational disasters: Injuries in which workers are unable or cannot recover to their pre-injury health status within 6 months after the occupational injuries.

Note4: Recordable occupational injuries: Refer to occupational injuries that caused death, loss of work, restricted work, or work transfer; emergency care or higher level medical treatment; loss of consciousness; and serious injury or illness diagnosed by a doctor.

Note5: Recordable occupational injury rate (IR): (recordable occupational injury number / total working hours) * 200,000

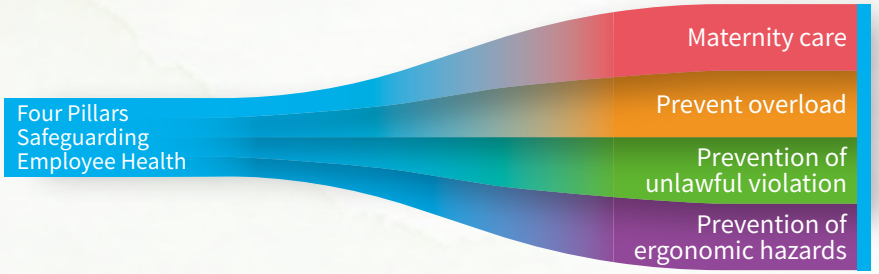
Note6: Occupational disease rate (ODR): (total number of occupational diseases / total working hours) * 200,000

Note7: SAS headquarters is included in the scope of occupational safety and health management system adopted by GlobalWafers headquarters. Information relevant to other workers who are not employees is included in the statistics for GlobalWafers headquarters.

5.2 Health Promotion and Care

Healthy employees are key to stronger corporate competitiveness. All plants of SAS have established health centers where full-time nurses and physicians are available to provide a variety of health care services for employees, conduct follow-up management of employee health problems, and provide referral or medical services.

Focusing on the four pillars of maternity care, prevention of ergonomic injuries, overwork prevention, and prevention of wrongful harm, SAS continues to safeguard the physical and mental wellbeing of employees by organizing various health care solutions, health lectures, and health promotion activities. In 2021, SAS was awarded a mark that labels us as an enterprise committed to Corporate Health Responsibility (CHR), which was organized by the Common Health Magazine. This achievement drives us further toward creating a benchmark for a healthy and happy workplace.



◈ Four main ways to protect the health of employees

Main theme	Execution direction	2022 results
Maternity care	Conduct health risk assessments for pregnant female employees who want to return to the workplace after childbirth, offer physician consultation and care services, and provide expecting mothers with a good maternity pack to protect the physical and mental health of pregnant, postpartum, and breastfeeding colleagues.	Levels 1–3 management: 26 (SAS-12 people; GlobalWafers Taiwan-14 people) Health risk assessment completion rate: 100%
Prevent overload	Employees' health examination data, Framingham Risk Score, and overwork scale, among other data are used to analyze groups that are at risk of overwork. In-plant medical consultation and protection guidance are provided to high-risk groups. Nurses also regularly send them health-related information on overwork prevention and keep track of their health status.	Tracking management: 281 (SAS-44 people; GlobalWafers Taiwan-237 people)
Prevention of unlawful violation	To provide a healthy and positive workplace, we conduct a risks assessment for the entire factory once every two years. Positivity courses like unlawful violation and spiritual growth are arranged to construct an excellent work environment.	All new recruits have completed the education and training on workplace violence prevention and sexual harassment within 30 days of arrival. We arrange lectures on prevention of workplace violence, sexual harassment, and interpersonal relations, and publish experience-sharing articles every month to care for employees' physical and mental wellbeing.
Prevention of ergonomic hazards	We conduct ergonomic hazard risks surveys on all departments based on their work content/operation. Operation observation, personnel interviews and medical treatment record investigation are conducted to screen and identify priority improvement targets (operation). Next, based on their operation hours, loading of weight, postures and work conditions, a quantitative risk assessment is in place for the risk grade calculation (KIM) to gradually improve the operation/construction by the year and to prevent the ergonomic hazards.	Improvements to ergonomic hazards/risks: 2 entries (SAS-2 entries, GlobalWafers Taiwan-0 entry)

Note: This statistics included SAS and GlobalWafers Taiwan.

Maternity Health Protection

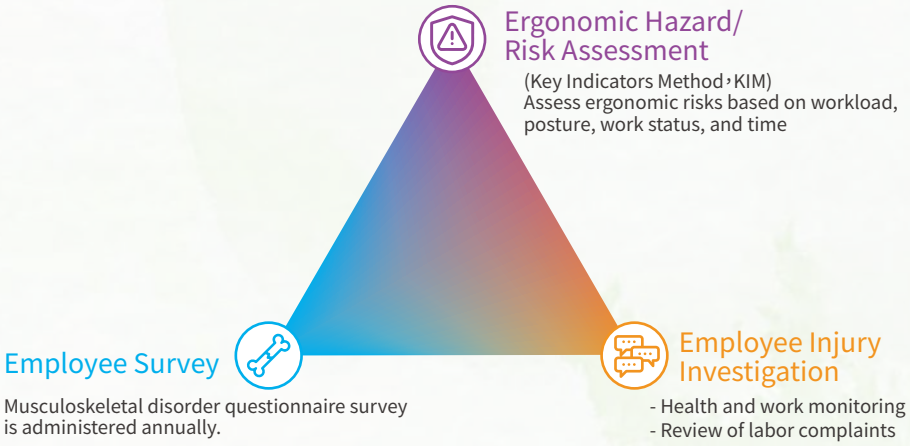
To prevent workplace health hazard exposure to female colleagues, we have established a maternal health protection plan and implemented the maternal health risk assessment accordingly in order to protect the health of female colleagues of childbearing age in the workplace and prevent female colleagues who are pregnant or have a child of less than 12 months old from exposure to health hazards at workplaces that may affect embryonic development or affect the health of mothers and infants during pregnancy or lactation. The Company has implemented hierarchical management and work adjustments after referencing comprehensive evaluations from professional medical doctors to provide exclusive parking spaces, breast collection rooms, care armbands for pregnant colleagues and create a friendly working environment for working mothers. To encourage pregnant colleagues to report the pregnancy as soon as possible so they can receive immediate maternal workplace health assessment and initiate protective measures, the Company has started offering the "Good Pregnancy Pack - a breastfeeding pillow (moon pillow)" in 2021. The goal is to create a mother-friendly workplace environment so colleagues can feel at ease while nurturing new life at work.

Prevention of Diseases Triggered by Irregular Workloads

To prevent diseases triggered by work shifts, nighttime work, long work hours, and other irregular workloads, we have established plans to prevent diseases triggered by work overloads. The summarized analysis is conducted based on all employees' health examination data, work hours, and overwork questionnaire results. Tier management is implemented, and high-risk groups are listed accordingly via occupational doctor interviews, health guidance, and relevant preventive measures. We have also delivered regular health and fatigue prevention articles to help reduce disease risks and ensure colleagues' physical and mental health.

Human-factor injury prevention

SAS establishes ergonomic hazard prevention procedures for its plants and ranks risks by using the results of employee injury surveys, questionnaires, and ergonomic hazard risk assessment. When a risk is ranked ≧ 4, target improvement plan must be established. In 2022, Chunan and Yilan plants each implemented one risk-related improvement.



Three Elements of Ergonomic Hazard Assessment

Prevention of unlawful violation

To provide a friendly workplace environment, we establish in-plant workplace violence protection management measures to prevent physical or mental harm due to the actions of others during the execution of duties; post a workplace violence prevention statement on the factory's announcement board; provide multiple complaint channels for employees; conduct regular workplace violence risk assessments; devise relevant safety measures based on survey results; and periodically arrange lectures on prevention of workplace violence, sexual harassment, and interpersonal relations to ensure employees' safety and physical/ mental wellbeing.

➔ Ergonomic Improvements to Lifting, Holding and Carrying of Loads in Chunan Plant

- Before improvement: At Processing Station No. 1, silicon materials are extracted from a machine and moved to a pallet; at Processing Station No. 2, silicon materials on the pallet are carried to a sink for cleaning. During this process, operator must bend to lift up materials, which is a posture that results in physical overload, and spatial conditions are restricted. Before improvement, Key Indicator Method (KIM) rating was medium-high load (risk level 3), representing a risk of ergonomic injury.
- After improvement: A trolley was incorporated, allowing operator to move materials on the trolley, which minimizes physical overload during lifting, holding and carrying of loads and also reduces the number of trips required to move the materials. After improvement, KIM rating was medium load (risk level 2).

➔ Ergonomic Improvements to Warehousing Operations in Yilan Plant

- Before improvement: Warehouse staff felt discomfort in left shoulder (not an occupational injury), which makes pushing/pulling a pallet jack a strenuous task.
- After improvement: Alternative work arrangement was made (i.e., staff was assigned to tasks involving small parts/components so as to avoid having to push/pull a pallet jack to elevator platform), and an electric pallet jack was introduced to reduce physical load for operators.

Health promotion and reinforcement of health concepts

SAS implements diversified health care for employees. Each year, the Company formulates health management and improvement plan based on a data analysis of employees' overall health exam reports to ensure the physical health of employees. The relevant physical and health exams are also provided to operators of different ethnic groups. All of the implementation items and frequency have exceeded the regulation requirements. Free medical institution cancer screenings for colorectal cancer, cervical cancer, mammography, oral cancer, etc., are also provided to employees so they may better grasp their health status. Upon completion of health check operations, professional on-site medical personnel will conduct follow-up tracking regarding abnormal results. This data serves as a key reference for health improvement activities and health promotion initiatives.

New recruits	Existing employees	Senior managers	Catering personnel
General physical examination	General health check-up	Exquisite health examinations	Health examination for food catering personnel
Completed in designated hospitals before arriving for work	Implemented in line with regulations regarding labor health protection	Implementation exceeding standards as required by regulations regarding labor health protection	In line with Clause 322 in the occupational health and safety facilities regulations
Assessment record archive for work selection operation	Assessment record archive for the work distribution operation	Assessment record archive for health risks	Catering contractors conduct self-assessments and submit the record/ report to the company

Health promotion activities promoted by SAS include cancer screening, health lectures (e.g., how to lead a healthier lifestyle for stronger immune system, information on COVID-19 vaccines, how to prevent osteoporosis), and first aid courses to impart the correct health care knowledge and improve health care awareness. In 2022, 9,740 people participated in these activities. We also disseminate a comprehensive range of health-related information (e.g., major illnesses) from time to time to raise employees' health awareness and improve their weight management know-how. Free flu vaccine shots are offered to help employees prevent infectious diseases (influenza, etc.) and other illnesses. Comprehensive in-plant vaccination and consultation services are provided to make vaccinations convenient for workers and build a safety net that safeguards the health of employees.

◈ 2020–2022 Health Promoting Activities

Unit: Individuals

Year	2020	2021	2022
SAS (Headquarters and Chunan, Yilan, Hsu-Hsin Branch)	665	2,813	2,517
GlobalWafers - Taiwan (GlobalWafers Headquarters, Chunan Plant, Taisil Branch)	4,136	4,589	7,223
Total Number of People	4,801	7,402	9,740

Our Health Center identifies medium- and high-risk groups by analyzing annual health examination results of new and existing employees, work burnout questionnaire results, and working hour data. Case management measures such as one-on-one consultation with physicians, individual health education guidance, and work pattern adjustments are adopted to minimize risks for identified groups. Blood pressure self-check stations for employees have been set up in the company for convenient access. Health education related information is posted in office areas to reinforce self-health care awareness among employees.

To improve workplace safety, our plants are equipped with an around-the-clock automatic external defibrillator (AED). In-plant employees are trained on CPR+AED to acquire the basic ability to administer first aid at the scene of an incident, thus creating a healthy and safe working environment for employees. For this reason, we obtained a safe workplace certification from the Ministry of Health and Welfare.

CPR and AED Training Courses

How to lead a healthier lifestyle for stronger immune system, information on COVID-19 vaccines, how to prevent osteoporosis

Tracking and Caring for the Health of Special Populations

SAS health centers keep abreast of the health and wellbeing of new employees, employees with abnormal health test results, high-risk groups, and prospective mothers. Medical consultations are arranged for those that need it to provide psychological support.

In addition, the Company will also provide care to colleagues who have suffered a public injury or traffic accident by offering psychological support, insurance claims service instructions, and on-site physician consultation to help colleagues return to work as soon as possible.

◈ Number of services for special ethnic groups and number of people tracked from 2020 to 2022

Number of service sessions		2020	2021	2022
SAS	Yilan Branch	269	539	933
	Chunan Branch	236	377	497
	Hsu-Hsin Branch	27	19	31
	Hsinchu headquarters	47	23	38
	Total	579	957	1,499
GlobalWafers - Taiwan		1,298	1,247	1,690
Total		1,877	2,205	3,189

Number of people were tracked		2020	2021	2022
SAS	Yilan Branch	39	138	163
	Chunan Branch	59	90	103
	Hsu-Hsin Branch	7	2	7
	Hsinchu headquarters	11	13	11
	Total	116	243	284
GlobalWafers - Taiwan		1,113	915	1,069
Total		1,229	1,158	1,353

Note1: Definition of special ethnic group: (1) Overload (follow up on B2 or higher in the current year), (2) Maternity (case follow-up for the year), (3) Disability (follow-up once every 2 years), (4) Newcomers (abnormalities), (5) Class 2 tasks with special health hazards, (6) Annual health examination (Level 4 or higher), (7) Work-related injuries (from the day of occurrence), (8) Psychology (score of >19 / suicidal intent).

Healthy and Safe Workplace

SAS aims to create a healthy workplace where employees can work with peace of mind. The company is committed to implementing a maternity protection plan and actively improving workplace-friendly measures that are superior to legal requirements. In addition to comfortable breastfeeding room, maternity subsidies, and exclusive discounts for contracted corporate nurseries and kindergartens, the Company also began giving our a Pregnancy Care Package in 2021 to expectant mothers, which contains a breastfeeding pillow (moon-shaped pillow). Pregnant employees are encouraged to report their pregnancy so that they can receive both workplace health assessment and protective measures for pregnancy as soon as possible. In doing so, a mother-friendly workplace environment in which employees can feel at ease at work while nurturing a new life.

Based on a statistical analysis of annual health exam results, a series of topic-specific health promotion activities, lectures, and consultations with on-site physicians, are arranged in conjunction with medical and healthcare services provided by partnering hospitals, to promote preventive medicine and disease prevention while strengthening employees' health awareness. In 2022, we organized lectures and activities involving four types of cancer screening programs (cervical, breast, colorectal, and oral cancer), lung cancer screening, and influenza vaccination to provide employees with the correct health knowledge and concepts.

We attach importance to the prevention and management of epidemic diseases. Therefore, the Company established a comprehensive epidemic prevention mechanism and set up an active infectious disease reporting system to ensure business continuity. From time to time, we keep employees informed of global health-related emergency news and publish relevant information on our Intranet as a reminder for employees to practice hygiene and remain vigilant. We have organized free influenza vaccination activities in the plants each year to strengthen employees' flu resistance, and provided "epidemic prevention kits" for colleagues to carry along during business trips to provide epidemic and disease prevention related information as well as health promotion, and help to protect colleagues from the threat of disease during business trips.

Physical and mental balance and a blissful workplace

SAS believes that employees are a company' s most important asset. Only with healthy employees can we raise corporate productivity. Therefore, we are committed to creating a safe, healthy, and friendly workplace.

In 2021, SAS introduced the Employee Assistance Program Center (EAPC) to provide comprehensive care for employees. Services provided include emotional management, interpersonal relationship, law, career, family and child care, finance, and a wide range of other consultation services. Each employee is entitled to two free sessions of one-to-one consultation service every year. For those with high scores on the mood thermometer questionnaire, the nurse refers them to EAPC and keeps track of their status. During orientation training for new employees, EAPC services are described and contact cards are described. Articles about mental health activities are regularly distributed. The goal is to help employees resolve and eliminate problems through professional counseling services so that they can work with ease and peace of mind.

◈ Employee Assistance Program Center (EAPC)

Employee Assistance Program Center (EAPC)			2021	2022
Live chat, E-mail consultation service	SAS+ GlobalWafers Taiwan		23 people	38 people
One on one Expert advisor consultation	SAS	Yilan Branch	0	1 people
		Chunan Branch	0	0
		Hsu-Hsin Branch	0	0
		Hsinchu headquarters	0	0
	GlobalWafers - Taiwan		8 people	7 people
Total number of consultation			31 people	46 people
Employees' overall satisfaction with on-site psychological counseling services			100 points	97%

Each year, several company trips are organized through our Employee Welfare Committee for employees to recharge and build teamwork. Family members are also encouraged to participate in these trips so that employees are given the opportunity to strengthen their family bonds outside of work and strike a balance between work and life.

SAS listens to the opinions of its employees. Employees can communicate freely their opinions and thoughts through various channels, such as labor-management meetings, employee suggestion boxes, and meetings with Occupational Safety and Health Committee, supervisory committee of workers' retirement reserve fund, and Employee Welfare Committee, during which exchanges and discussions facilitate effective two-way communication between employers and employees, thereby creating mutually beneficial outcomes for both parties. In addition, the HR Department sends out electronic weekly.

newsletters containing articles, columns, English learning sections, and events, and health information. Through these newsletters, employees can learn about new knowledge and information on internal and external events, achieve a work–life balance outside of work, and maintain their wellbeing physically, emotionally, and spiritually.

For foreign blue-collar workers, we appoint a dedicated management officer to provide assistance at work-related and daily living assistance, organize annual activities regularly, and constantly ask after them to learn if they have any needs and problems. Such timely communication and assistance enable foreign workers to live and work happily in Taiwan.

GRI Guideline Index

Statement of Use	Sino-American Silicon Products Inc. prepared this report in accordance with the GRI Standards. The reporting period of this report is 2022 (January 1 to December 31, 2022).
GRI1 used:	GRI 1: Foundation 2021
Applicable GRI Sector Guidelines	None

GRI 2:一般揭露 2021

GRI Guideline	Disclosure Item	Corresponding chapters	Page	Omission/Note	External assurance
2-1	Organizational details	SAS - Company Profile	10		◎
2-2	Entities included in the organization's sustainability reporting	SAS - Company Profile	10		◎
2-3	Reporting period, frequency and contact point	About This Report	2		◎
2-4	Restatements of information	3.4.3 Waste Management	71	2020–2021 total waste output from GlobalWafers and associated charts were revised following regulatory amendments regarding wastes produced by overseas plants of GlobalWafers.	◎
2-5	External assurance	External Verification Statement	107		◎
2-6	Activities, value chain and other business relationships	2.2 Customers and Products/ Services 2.5 Value chain	53 56		◎
2-7	Employees	4.1 Talent Recruitment and Human Resources	75		◎
2-8	Workers who are not employees	5.1 Safe Workplace	88		◎
2-9	Governance structure and composition	Sustainable Management	15		◎
2-10	Nomination and selection of the highest governance body	1.1. Corporate Governance	36		◎
2-11	Chair of the highest governance body	Sustainable organization 1.1. Corporate Governance	16 36		◎
2-12	Role of the highest governance body in overseeing the management of impacts	1.1. Corporate Governance	36		◎

GRI Guideline	Disclosure Item	Corresponding chapters	Page	Omission/Note	External assurance
2-13	Delegation of responsibility for managing impacts	Sustainable organization	16		◎
2-14	Role of the highest governance body in sustainability reporting	Sustainable organization	16		◎
2-15	Conflicts of interest	1.1. Corporate Governance	36		◎
2-16	Communication of critical concerns	1.1. Corporate Governance	36		◎
2-17	Collective knowledge of the highest governance body	1.1. Corporate Governance	36		◎
2-18	Evaluation of the performance of the highest governance body	1.2 Operation performance	45		◎
2-19	Remuneration policies	1.1. Corporate Governance	36	2-19-b Remuneration policies are not yet completely linked to ESG performance.	◎
2-20	Process to determine remuneration	1.1. Corporate Governance	36		◎
2-21	Annual total compensation ratio	-		No calculation	◎
2-22	Statement on sustainable development strategy	Sustainable organization	16		◎
2-23	Policy commitments	1.1. Corporate Governance 3.1 Carbon Management 4.1 Talent Recruitment and Human Resources	36 59 75		◎
2-24	Embedding policy commitments	1.1. Corporate Governance 3.1 Carbon Management 4.1 Talent Recruitment and Human Resources	36 59 75		◎
2-25	Processes to remediate negative impacts	Sustainable organization	16		◎
2-26	Mechanisms for seeking advice and raising concerns	1.1. Corporate Governance	36		◎
2-27	Compliance with laws and regulations	1.1. Corporate Governance	36		◎
2-28	Membership associations	SAS - Participation in external associations	14		◎
2-29	Approach to stakeholder engagement	Sustainable Management - Stakeholders engagement	18		◎
2-30	Collective bargaining agreements	-	-	N/A. No trade unions.	◎

GRI 3: Material Topics 2021

GRI Guideline	Disclosure Item	Corresponding chapters	Page	Omission/Note	External assurance
3-1	Process to determine material topics	Sustainable Management - Analysis of Material Topics	17		◎
3-2	List of material topics	Sustainable Management - Analysis of Material Topics	17		◎
3-3	Management of material topics				◎
Business Performance					
GRI 201-1	Direct Economic Value Generated and Distributed by Organizations	1.2 Operation performance	45		◎
Business continuity management					
-	-	Climate Change Risk Management 1.2 Operation performance 1.3 Risk Management	28 45 47		◎
Risk Management					
GRI 201-2	Financial implications and other risks and opportunities due to climate change	Climate Change Risk Management 1.3 Risk Management	28 47		◎
Sustainable Supply Chain Management					
GRI 204-1	Proportion of spending on local suppliers	2.5 Value Chain	56		◎
Climate and Energy					
GRI 302-1	Energy consumption within the organization	3.2 Energy Management and Development	61		◎
GRI 302-4	Reduce Energy Consumption	3.2 Energy Management and Development	61		◎
GRI 305-1	Direct (scope 1) GHG emissions	3.1 Carbon Management	59		◎
GRI 305-2	Energy indirect (Scope 2) GHG emissions	3.1 Carbon Management	59		◎
GRI 305-3	Other indirect (Scope 3) GHG emissions	3.1 Carbon Management	59		◎
GRI 305-4	Intensity of greenhouse gas (GHG) emissions	3.1 Carbon Management	59		◎

GRI Guideline	Disclosure Item	Corresponding chapters	Page	Omission/Note	External assurance
GRI 305-5	Reduction of GHG emissions	3.2 Energy Management and Development	61		◎
GRI 305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	3.4.1 Air Pollution Control	68		◎
Waste Management					
GRI 306-1	Waste Generation and Significant Waste Related Impacts	3.4 Pollution Prevention and Waste Reduction Management	68		◎
GRI 306-2	Management of significant waste-related impacts	3.4 Pollution Prevention and Waste Reduction Management	68		◎
GRI 306-3	Waste generated	3.4 Pollution Prevention and Waste Reduction Management	68		◎
GRI 306-4	Waste diverted from disposal	3.4 Pollution Prevention and Waste Reduction Management	68		◎
GRI 306-5	Waste directed to disposal	3.4 Pollution Prevention and Waste Reduction Management	68		◎
Talent development					
GRI 404-1	Average hours of training per year per employee	4.3 Education and training	82		◎
GRI 404-2	Programs for upgrading employee skills and transition assistance programs	4.3 Education and training	82		◎
Talent recruitment and retention					
GRI 201-1	Direct Economic Value Generated and Distributed by Organizations	4.2 Remuneration and Benefits	80		◎
GRI 401-1	New employee hires and employee turnover	4.1 Talent Recruitment and Human Resources	75		◎
GRI 401-2	Benefits provided to full-time employees	4.2 Remuneration and Benefits	80		◎
GRI 401-3	Parental leave	4.2 Remuneration and Benefits	80		◎
GRI 405-1	Diversity of governance bodies and employees	4.1 Talent Recruitment and Human Resources	75		◎
Workplace Health and Safety					
GRI 403-1	Occupational health and safety management system	5.1.1 Occupational Safety and Health Management System and Organization	88		◎

GRI Guideline	Disclosure Item	Corresponding chapters	Page	Omission/Note	External assurance
GRI 403-2	Hazard identification, risk assessment, and incident investigation	5.1.2 Occupational Safety Management 5.1.3 Accidental Incidents and Management	89 92		◎
GRI 403-3	Occupational health services	5.2 Health Promotion and Care	95		◎
GRI 403-4	Worker participation, consultation, and communication on occupational health and safety	5.1.1 Occupational Safety and Health Management System and Organization	88		◎
GRI 403-5	Worker training on occupational health and safety	5.1.2 Occupational Safety Management	89		◎
GRI 403-6	worker health	5.2 Health Promotion and Care	95		◎
GRI 403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	5.1.2 Occupational Safety Management	89		◎
GRI 403-8	Workers covered by an occupational health and safety management system	5.1.3 Accidental Incidents and Management	92		◎
GRI 403-9	Work-related injuries	5.1.3 Accidental Incidents and Management	92		◎
GRI 403-10	Work-related ill health	5.1.3 Accidental Incidents and Management	92		◎
Product quality and safety					
GRI 416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	2.4 Product Accountability	56		◎

Sustainable Accounting Standards Board (SASB) Standards

Disclosure Topics	Index No.	Disclosure Index	Nature	Corresponding chapters/description	Page
Greenhouse Gas (GHG) Emissions	TC-SC-110a.1	Global Total Emission Volume (Scope 1) Total emissions from perfluorinated compounds	Quantitative	3.1 Carbon Management	59
	TC-SC-110a.2	Discuss long- and short-term strategies or plans for managing Scope 1 emissions, emission reduction targets, and performance analysis	Qualitative	Sustainable Management	15
Energy Management in Manufacturing	TC-SC-130a.1	Total Energy Consumption Ratio accounted for by electricity grid compared to total energy consumed Ratio accounted for by renewable energy compared to total energy consumed	Quantitative	3.2 Energy Management and Development	61
Water	TC-SC-140a.1	Total water intake and ratio of areas with high water stress Total water consumption and ratio of areas with high water stress	Quantitative	3.3.2 Water	66
Waste Management	TC-SC-150a.1	Hazardous waste generated in the manufacturing process and the ratio recycled	Quantitative	3.4.3 Waste Management	71
Employee Health and Safety	TC-SC-320a.1	Describe how to assess, monitor, and reduce employee exposure to hazardous environments	Qualitative	5.1 Safe Workplace	88
	TC-SC-320a.2	Total monetary damages due to legal incidents related to employee health and safety	Quantitative	1.1.4 Legal Compliance 5.1 Safe Workplace	43 88
Recruit and manage global professional talents	TC-SC-330a.1	Explain (1) foreign employees and (2) ratio of overseas employees	Quantitative	4.1 Talent Recruitment and Human Resources	75
Product Lifecycle Management	TC-SC-410a.1	Ratio of product revenue including IEC62474 substances	Quantitative	Stakeholders are mainly concerned about the RoHS directive and REACH Substances of Very High Concern (SVHC) in relation to the company’ s products; product test results conform to the standards.	—
	TC-SC-410a.2	The processor’ s overall system-level energy efficiency: (1) Server (2) Desktop (3) Notebook	Quantitative	Not terminal product manufacturer, no corresponding content	—
Raw material procurement	TC-SC-440a.1	Describe the risk management method for critical materials used	Qualitative	2.5 Value Chain	56
Intellectual property protection and competitive behavior	TC-SC-520a.1	Total monetary damages attributed to legal events related to anti-competitive conducts	Quantitative	1.1.2 Ethics and Integrity	40
Activity Metrics	TC-SC-000.A	Total output	Quantitative	1.2 Operation performance	45
Activity Metrics	TC-SC-000.B	Percentage of output from self-owned factories	Quantitative	1.2 Operation performance	45

Verification Statement

DNV

Independent Assurance Statement

Scope and Approach

Sino-American Silicon Product Inc. ("SAS" or "the Company") commissioned **DNV Business Assurance Co., Ltd.** ("DNV" or "we") to undertake independent assurance over the 2022 Sustainability Report for the year ended 31 December 2022 ("the Report").

We performed our work using DNV's assurance methodology VeriSustain™[1], which is based on our professional experience and international assurance best practices, including International Standard on Assurance Engagements 3000 (ISAE 3000) and the Global Reporting Initiative (GRI) Sustainability Reporting Standards.

The Report also incorporated disclosures with reference to relevant sustainability reporting guidelines, such as the Sustainability Accounting Standards Board's (SASB) Sustainability Accounting Standard for the Semiconductors industry (version 2018-10) and the Recommendations of the Task Force on Climate-related Financial Disclosures.

We understand that the reported financial data and information are based on the data from the Company's Annual Report and Accounts, which are subject to a separate independent audit process. The review of financial data taken from the Annual Report and Accounts is not within the scope of our work.

We planned and performed our work to obtain the evidence we considered necessary to provide a basis for our assurance opinion. We are providing the evaluation of reporting principles with a Type 1, Moderate level of assurance, according to the DNV VeriSustain™ Protocol.

Responsibilities of the Directors of Sino-American Silicon Product Inc. and of the Assurance Providers

The Directors of SAS have sole responsibility for the preparation of the Report. In performing our assurance work, our responsibility is to the management of SAS; however, our statement represents our independent opinion and is intended to inform all of SAS's stakeholders.

DNV was not involved in the preparation of any statements or data included in the Report except for this Assurance Statement. DNV has provided further services to the Company, none of which constitutes a conflict of interest with the current assurance engagement under the established policies and procedures.

DNV's assurance engagements are based on the assumption that the data and information provided by the client to us as part of our review have been provided in good faith. DNV expressly disclaims any liability or co-responsibility for any decision a person or an entity may make based on this Assurance Statement.

Basis of Our Opinion

A multi-disciplinary team of sustainability and assurance specialists performed work at the Company and site level. We undertook the following activities:

- Review of the current sustainability issues that could affect SAS and are of interest to stakeholders.
- Review of SAS's stakeholder engagement approach and recent outputs.
- Review of information provided to us by SAS on its reporting and management processes relating to the Principles.
- Interviews with selected senior managers responsible for the management of sustainability issues and review of selected evidence to support the issues discussed.
- Site visits to SAS's Chunan Branch in Miaoli and data checks with the Hsinchu Headquarters and major operations in Yilan, to assess processes and systems for preparing site-level data and implementing sustainability strategies.
- Review of supporting evidence for key claims and 2022 data in the Report, as reported information beyond 2022 is not within the scope of the current engagement. Our checking processes were prioritised according to materiality, and we based our prioritisation on the materiality of issues at the consolidated corporate level.
- Review of the processes for gathering and consolidating the specified performance data and, for a sample, checking the data consolidation. Where data on financial performance and greenhouse gas emissions had been checked by other assurance providers or engagements, we tested the transcription from these sources to the Report.
- An independent assessment of SAS's reporting according to the Global Reporting Initiative (GRI) Sustainability Reporting Standards.
- The verification was conducted based only on the Chinese version Report.

[1] The VeriSustain™ Protocol is available on dnv.com

DNV

Opinion

On the basis of the work undertaken, nothing came to our attention to suggest that the Report does not properly describe SAS's adherence to the Principles.

In terms of reliability of the performance data, in accordance with Moderate level assurance requirements, nothing came to our attention to suggest that these data have not been properly collated from the information reported at the operational level nor that the assumptions used were inappropriate.

Observations

Without affecting our assurance opinion, we also provide the following observations.

Stakeholder Inclusiveness
The Company has identified the expectations of stakeholders through internal mechanisms in dialogue with different groups of stakeholders. The stakeholder concerns are well identified and documented, and the significant sustainability issues identified through this process are reflected in the Report. As progress is made to develop longer-term sustainability strategies, for instance, on the net-zero roadmap and business continuity management, we encourage the Company to broaden the basis of continuous engagement with potential stakeholders.

Sustainability Context
The Report provides an accurate and fair representation of the level of implementation of related corporate sustainability policies and meets the content requirements of the GRI Standards. We acknowledge the important efforts in incorporating the concept of impact and encourage further consideration across the Company's expanding business areas and along value chains.

Materiality
The process developed internally has not missed out any significant, known material issues, and these issues are fairly covered in the Report. A methodology has been developed to evaluate the priority of these issues. On the basis of current material topics identified with the revised methodology, we encourage the continual development of systematic and long-standing impact management, supported by coordinated annual targets and indicators.

Completeness
The Report covers performance data against the GRI Standards disclosures that are identified as material within the Company's reporting boundary. The information in the Report includes the Company's most significant initiatives or events that occurred in the reporting period.

Accuracy and Reliability
The Company has developed the data flow for capturing and reporting its sustainability performance. In accordance with Moderate level assurance requirements, we conclude that no systematic errors were detected which causes us to believe that the specified sustainability data and information presented in the Report are not reliable.

For and on behalf of DNV Taiwan
Date: 19 May, 2023

Yu Chung Chen
Lead Verifier
Business Assurance
DNV Taiwan

David Hsieh
District Manager,
Business Assurance
DNV Taiwan

Statement Number: C598766-2022-AG-TWN-DNV


SAS
中美矽晶製品股份有限公司
Sino-American Silicon Products Inc.