

Sino-American Silicon Products Inc.
Company Investments in clean tech

Overview of Technology and R&D

In recent years, the Company has devoted itself to improving the production of silicon wafer, precision processing and cell module. The increase of productivity of polycrystal wafer, the improvement of power consumption, the improvement of crystal quality, the improvement of the conversion efficiency of wafer and cell, etc. have delivered excellent performance. Many technical indicators have become international benchmarks. In addition, we have also actively deployed patent and business secret management to protect the company's intellectual property rights. In recent years, the Company exploits deep technology foundation and rigorous process technologies to improve the crystalline quality continuously and expands to the silicon material application products. Customization based on clients' needs and expanded product applications.

Amid the long-term global trends of energy transition and technological advancement, SAS continues to optimize its product portfolio and market positioning, strategically focusing on high-barrier niche segments. Gradual progress has been observed in space technology applications and the international solar market. In the space technology sector, applications demand exceptional material reliability, durability, and performance stability. The high entry barriers and extended customer validation cycles create clear technological differentiation. Leveraging its advanced process capabilities and stable product quality, SAS has successfully passed the stringent reliability testing required for low Earth orbit (LEO) satellite applications. Related products are currently undergoing end-application validation with customers, with commercialization progressing and supporting the Company's entry into overseas markets.

- A. The proportion of research and development expenditure in net operating income in the last two years is as follows:

Unit: NT\$ thousands

Year	2025	2024
R&D expenses	3,383,009	3,385,490
Net operating revenues	78,170,966	79,678,547
R&D expenses as a percentage of net revenue (%)	4.33%	4.25%

- B. Technologies or products successfully developed in recent years and up to the date of publication of the annual report

Name of Program	Description of Program
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Development of high quality silicon materials products for silicon-based application	Rigorous process technology is used to continuously improve the crystal quality and develop products that meet the specifications of various special polycrystalline silicon materials.
Development of Ultra-High Efficiency N-type Mono-Si Bi-facial Solar Cell Technology	Ultra-High Efficiency N-type Mono-Si Bi-facial Solar Cell Technology that can be mass-produced was successfully developed by purchasing advanced equipment, using processes developed by our R&D department, and combining rear-side polishing, advanced passivation methods, dual printing, and multi-busbar technologies Ultra-High Efficiency N-type Mono-Si bi-facial solar cells feature a front-side power that can be increased by 10% more than P-type solar cell, while backside generation power can be 10–20% of the front-side power according to environmental conditions.
Development of Customized Special Design High Efficiency Mono-Si Solar Cell	Based on customers' application requirements across different operating environments, the Company develops customized solar cell solutions on its existing P-PERC and N-TOPCon technology platforms. These products are designed to meet specific performance and reliability needs and are applied in rooftop power generation, low Earth orbit (LEO) satellite applications, and other specialized use cases.

Sino-American Silicon Products Inc. — Chunan Plant

A. Energy-Saving Equipment

In 2025, the Company invested NT\$2.081 million, generating total benefits of approximately **498,615 kWh of electricity savings per year**, as detailed below:

B. Equipment Efficiency Improvement:

1. FRIGAIID energy-saving additive project for the 800RT HVAC chiller
Reduced electricity consumption by 24,489 kWh per year.
2. Energy-saving improvement project for the circulation pump of the Air Pollution Wet Powder Mist #3 scrubber
Reduced electricity consumption by 30,802 kWh per year.
3. Replacement of the induction motor with a permanent magnet motor for the

AHU-F202 air handling unit

Reduced electricity consumption by 43,488 kWh per year.

4. Replacement project for the split-type air conditioner in the passenger/freight elevator machine room

Reduced electricity consumption by 32,133 kWh per year.

5. Replacement of energy-saving fans for the Marley cooling tower

Reduced electricity consumption by 19,904 kWh per year.

6. FRIGAID energy-saving additive project for the 1200RT HVAC chiller

Reduced electricity consumption by 155,079 kWh per year.

7. Energy-saving project for the scrubber circulation pump improvement work at the SSCW plant area

Reduced electricity consumption by 192,720 kWh per year.

Sino-American Silicon Products Inc. — Yilan Plant and Subsidiary Sustainable Growth Co.

A. Energy-Saving Equipment

In 2025, the Company invested NT\$3.481 million, generating total benefits of approximately 569,096 kWh of electricity savings per year.

B. Energy Management

1. Installation of an additional air compressor unit at the end of the compressed air pipeline to reduce energy consumption

Reduced electricity consumption by 430,036 kWh per year.

2. Installation of an additional cleanroom air handling unit to reduce the load of other air handling units

Reduced electricity consumption by 102,565 kWh per year.

3. Shutdown of the organic wastewater blower

Reduced electricity consumption by 23,234 kWh per year.

4. Adjustment of intake and exhaust airflow in the chemical storage area

Reduced electricity consumption by 9,728 kWh per year.

Subsidiaries and Investments in Renewable Energy Companies

The Company continues to focus on energy conservation and carbon reduction. Within the Group, subsidiaries Sunrise PV FOUR Co., Ltd. and Hsu-Hsin Branch are committed to renewable energy services and technology development, and actively invest in the development, construction, operation and maintenance of solar power plants.

In 2024, newly contracted renewable energy power plants added 3.7 MW of installed capacity, with new investment of approximately NT\$165 million. The estimated annual power generation is expected to reach 4.49 million kWh, reducing carbon emissions by approximately 2,220 metric tons.

As of the end of 2024, the cumulative installed capacity of solar power plants owned by GlobalWafers reached 49.7 MW. The estimated annual power generation is approximately 60.30 million kWh, reducing carbon emissions by approximately 29,787 metric tons per year, equivalent to the carbon absorption capacity of 76 Daan Parks. The cumulative total investment amounted to NT\$1.769 billion, including contracted projects that have not yet been grid-connected.

The Company also invests in energy storage and energy-saving businesses through its Susen Green Energy Co., Ltd. In 2025, the Company formed a joint venture with Billion Watts Technologies Co., Ltd., investing NT\$12 million to establish Relocate Energy Storage Co., Ltd. In addition, the Company formed a joint venture with Sky-Tech Engineering Co., Ltd., investing NT\$3 million to establish EcoSoar Energy Service Co., Ltd.

Relocate Energy Storage Co., Ltd. will be dedicated to creating safe, affordable and multi-functional energy storage solutions, while EcoSoar Energy Service Co., Ltd. will focus on providing the most energy-saving and efficient energy use solutions.

The subsidiary, Sustainable Energy Solution, is the first renewable energy retailer purchasing offshore wind power in Taiwan. In 2025, the green power supply reached 132.6 GWh, a 3.3-fold increase from 2024, and ranked among the top five electricity retailer companies in Taiwan.

EU Taxonomy Mapping

The EU Taxonomy aims to establish a common classification system and assessment framework for environmentally sustainable economic activities. To qualify as environmentally sustainable, an economic activity must substantially contribute to at least one of the six environmental objectives while meeting the requirements of "Do No Significant Harm" (DNSH) and complying with minimum social safeguards.

Based on the EU Taxonomy Climate Delegated Act, the business activities of Sino-American Silicon Products Inc. (SAS) have been assessed and mapped against the taxonomy criteria. SAS's solar cell manufacturing activities are classified under Activity 4.1 Manufacture of renewable energy technologies, which falls within the environmental objective of Climate Change Mitigation. This activity substantially contributes to climate change mitigation by manufacturing technologies that enable the generation of renewable electricity and support the transition to a low-carbon economy.

SAS manufactures high-efficiency solar cells utilizing advanced TOPCon technology. In 2024, the Company's TOPCon solar cells achieved a conversion efficiency of up to 25.87%, enhancing the power generation performance of photovoltaic systems and increasing renewable energy output. The annual production capacity of these solar cells is estimated to generate approximately 415 MW of renewable electricity, corresponding to an annual carbon emission reduction of approximately 257,175 tonnes of CO₂e compared with conventional electricity generation sources.

To further evaluate taxonomy alignment, SAS reviewed its relevant economic activities against applicable Technical Screening Criteria. The Company confirmed that the manufacture of solar cells contributes substantially to climate change mitigation and that related operations are conducted in accordance with environmental management, pollution prevention, resource efficiency, occupational health and safety, human rights, and business ethics requirements. Accordingly, the identified economic activities meet the DNSH requirements and comply with the minimum safeguards set out under the EU Taxonomy Regulation.

As a result, the revenue generated from the manufacture and sale of eligible solar cell products is regarded as Taxonomy-eligible and, where all applicable criteria are satisfied, Taxonomy-aligned under the EU Taxonomy framework.