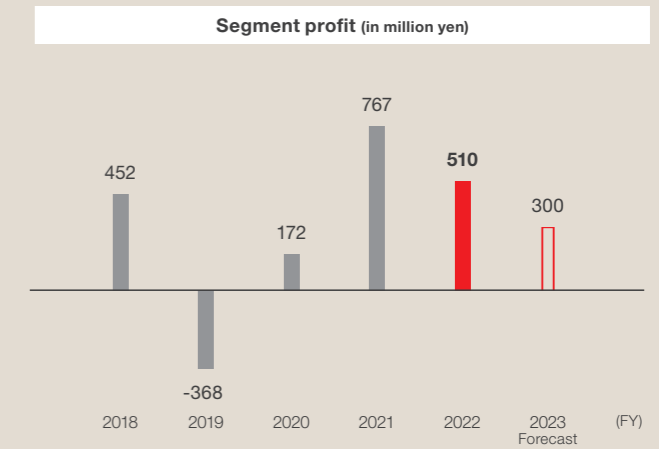
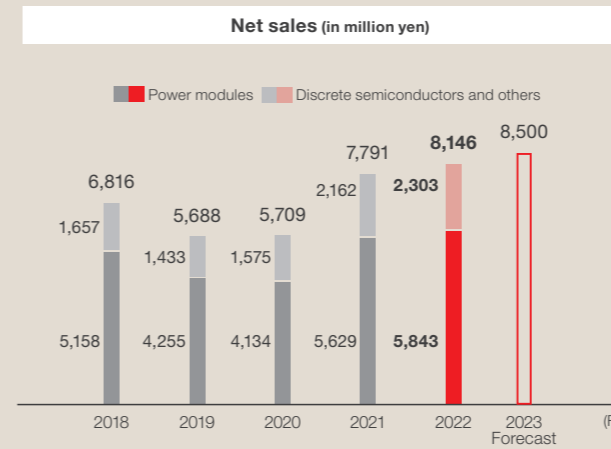
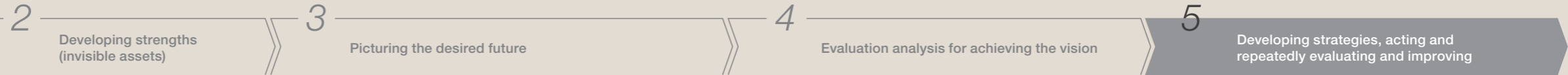
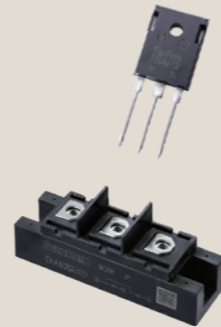


Growth strategy in the power semiconductor business

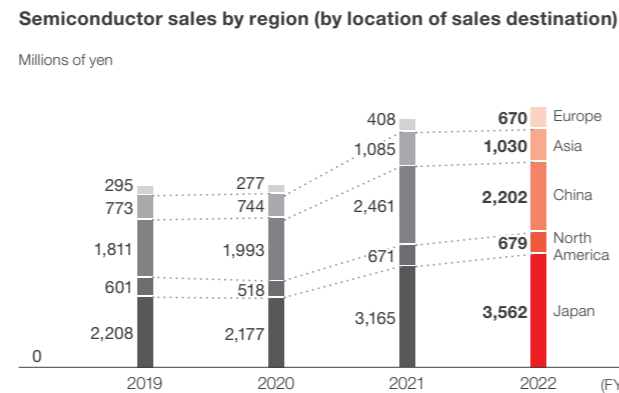
The Sansha Electric Manufacturing Group does not develop or manufacture integrated circuit semiconductors such as memory or microcomputers. Instead, it develops power semiconductors. These are used in diverse power supplies for the conversion of high voltages or currents between direct current and alternating current, for controlling the current and voltage levels and for other purposes. They are adopted to customers' different production systems and incorporated into a broad range of power supply products to play significant roles in them.



Review of FY2022

In FY2022, sales of inverters for industrial use and power modules for welders and various power supplies increased steadily reflecting capital investment and infrastructure investment. In addition, sales of chips remained strong.

In China, the Group's mainstay market, sales of products for air conditioners, elevators, and electric bidet toilet seats decreased due to the lockdown and economic slowdown related to real estate, which was a result of the COVID-19 pandemic. However, sales in the business as a whole increased due to the steady performance of products for the Japanese market. In Europe and the United States, we will continue to ensure that our SiC semiconductors appeal to universities, research institutions and other entities and look for business opportunities in new industries.



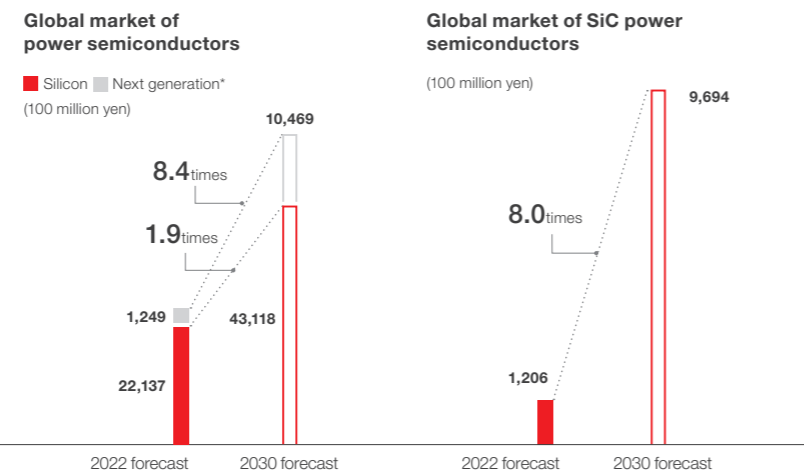
FY2023 forecast

While orders remain strong as of the beginning of the fiscal year, sales are expected to decline due to increases in capital investment, including automation equipment for streamlining and increasing production and the installation of solar power generation equipment at the Okayama Plant, and in R&D expenses, in addition to an increase in the costs of raw materials, electricity, logistics and other expenses.

Overview of capital investment	Objective	Estimated amount
Upsizing of wafers	Streamlining the wafer production process and increasing production	240 million yen
Lines for increasing production	Increasing and automating the production of redesigned products	530 million yen
Solar (PV) power generation	Streamlining and environmental measures	150 million yen
Total		1 billion yen

Business environment analysis

Some silicon carbide (SiC) power semiconductors are being used at present in industry for welders and induction heating, in addition to their use as inverters. It is expected, however, that SiC power semiconductors will see further growth in demand in fields such as automobiles and electrical components for improving power efficiency, reflecting the spread of electrified vehicles and charging infrastructure, in addition to an increase in demand in the field of information communication equipment, including server power supplies, and the energy field such as solar power generation.



*SiC, GaN, gallium oxide, diamond
Source: Fuji Keizai Co., Ltd., 2023 Current State and Future Outlook of Next-Generation Power Devices & Power Electronics-Related Markets

Priority measures

In the semiconductor business, we plan to continue enhancing the lineup of SiC semiconductors and strive to find new customers. Further, with the goal of it becoming a 10 billion yen business through the development of new products under the concept of low leakage current, low loss and low environmental impact and the development and sale of thyristors, diodes and other highly reliable devices for use in infrastructure, which are areas that are expected to expand mainly in emerging countries, our production, sales and engineering teams will work as one to achieve high profitability.

In addition, we are striving to make semiconductor products completely lead-free as a part of initiatives to reduce environmental impact. We are studying manufacturing process not involving the use of high-temperature lead solder, which was excluded from the application of the RoHS2 Directive (directive on restrictions on use of hazardous substances). We have introduced equipment for testing lead-free solder that will enable the full demonstration of the reliability performance of various module products. We will continue to expand the lineup of products using lead-free solder.

In the aspect of production, we will enhance productivity by standardizing materials, increasing the operating rate of equipment, and further improving work efficiency, addressing the increase in the cost of materials, electricity, logistics and other expenses.

- Technology**
 - Enhancing the lineup of SiC semiconductors
 - Enhancing the lineup of products under the concept of low leakage current, low loss and low environmental impact
- Production**
 - Standardizing materials and improving design efficiency
 - Introducing automated equipment
- Sales**
 - Finding new SiC semiconductor customers
 - Accelerating the market penetration of new products





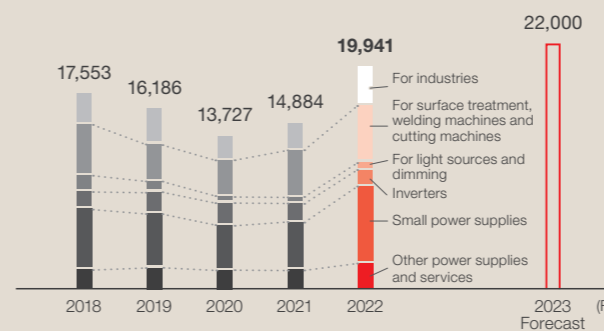
Growth strategy of power supply business

Since we developed a power supply for projectors ensuring the projection of stable images onto movie theater screens in 1933, we have been utilizing technologies that freely transform and efficiently convert electricity to develop and manufacture a wide variety of power supplies supporting the environmental and energy sectors, the infrastructure and facility equipment sectors and entertainment-related sectors.

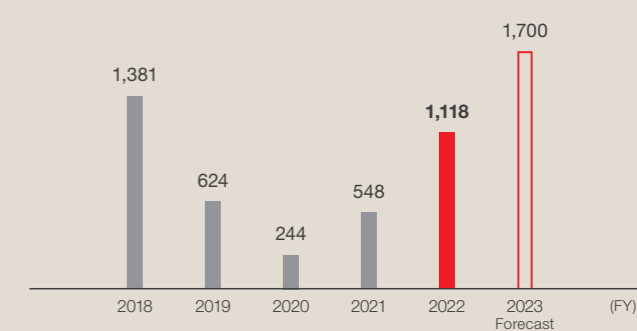
As we engage in integrated production including development, design and manufacturing, we are able to provide standard products and also customized products tailored to customers' requests with short delivery lead times. After delivering products to customers, we consistently provide maintenance and other support services.



Net sales (in million yen)



Segment profit (in million yen)



Review of FY2022

In FY2022, we achieved steady performance in the areas of power supplies for general industries, including those for processing materials used for lithium ion batteries, printed circuit boards and other products, seawater electrolytic processes, silicon pulling and other areas, as well as the high-precision power supplies for surface treatment, an area in which we excel, reflecting the growing demand for substrates that require high-precision surface treatments that are used in PCs, data centers and other places. Further, sales of small power supplies increased significantly and contributed to the growth of the

sales of the entire business, due to the remarkable recovery of the demand for small embedded power supplies for medical equipment and other products. By region, overall performance remained strong both in Japan and in other countries.

Meanwhile, on the production front, the procurement of raw materials (semiconductors, electronic components, resin molded products, etc.) has remained difficult. Further, soaring raw material prices and the weak yen put pressure on profit.

FY2023 forecast

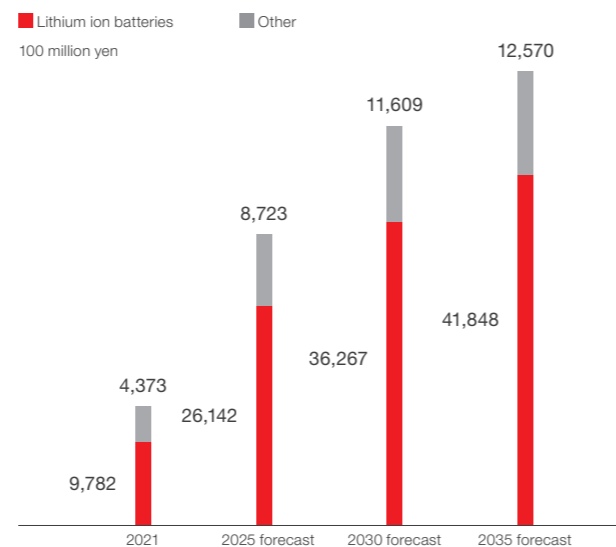
As of the beginning of the fiscal year, orders are strong and sales are expected to increase. In FY2023, sales are expected from major projects, including power supplies for the evaluation of power conditioners and power supplies for fine surface treatment. While we will continue to be impacted mainly by rising costs, including the costs of raw materials, electricity, and logistics, capital investment for replacing and building production systems and other systems, and an increase in development expenses, profits are expected to improve due to an increase in sales.

Overview of capital investment	Objective	Estimated amount
Equipment for streamlining processes	Process streamlining and increase of production	310 million yen
Equipment related to quality assurance and inspections	Quality improvement and legal compliance	160 million yen
Total		470 million yen

Business environment analysis

In 2022, demand for power storage systems increased, mainly reflecting the expansion and ubiquitization of renewable energy, robust investments in data centers and 5G communications, and preparations for natural disasters. Demand for power storage systems is expected to grow in the future as countries set decarbonization and carbon neutrality targets and the introduction of renewable energy accelerates.

The size of the power storage device market in the field of energy storage systems (ESS) and stationary storage batteries



Source: Fuji Keizai Co., Ltd.: Future Outlook of Energy, Large Secondary Batteries and Materials 2022 - ESS and Stationary Storage Batteries



Inverter for storage battery

Priority measures

In the power supply business, we will work on the development of products related to new energy and renewable energy which are growth fields. We will also develop power conditioners for fuel cells, which use hydrogen, leveraging the technologies for solar inverters that we have cultivated. In the fundamental business, we will develop new products with higher power conversion efficiency. Further, we plan to propose not only standalone inverters but also systems that also include storage batteries, network functions and other features. In addition, we will enhance the maintenance services of Sansha Solution Service Co., Ltd., our subsidiary, aiming to increase our market share for uninterruptible power supplies and other products.

On the manufacturing front, we will introduce automated equipment, increase the use of outsourced services, increase efficiency through the improvement of business and implement other initiatives to be ready to increase production.

- Technology**
 - Enlarging the hydrogen and new energy and environmental sectors
 - Collaborative projects with business alliance partners
 - Strengthening the fundamental business (new products, improvement of existing products)
- Production**
 - Design standardization
 - Introducing automated equipment
- Sales**
 - Expansion from sales of standalone inverters to sales of systems
 - Proposing high value-added products
 - Accelerating price pass-through



Maintenance and inspections by Sansha Solution Service