

Creating Synergies

The Group's strength lies in our ability to create (incubate) new businesses by combining our abundant management resources, including human resources, technologies, and business models, from our diverse business portfolio, which we have cultivated with industrial gas as our core business. We will create businesses that contribute to solving social issues that cannot be confronted by a single business alone, generating the seeds for the next stage of growth.

Case 1

Confronting the food crisis and protein crisis by establishing a “land-based aquaculture platform” business

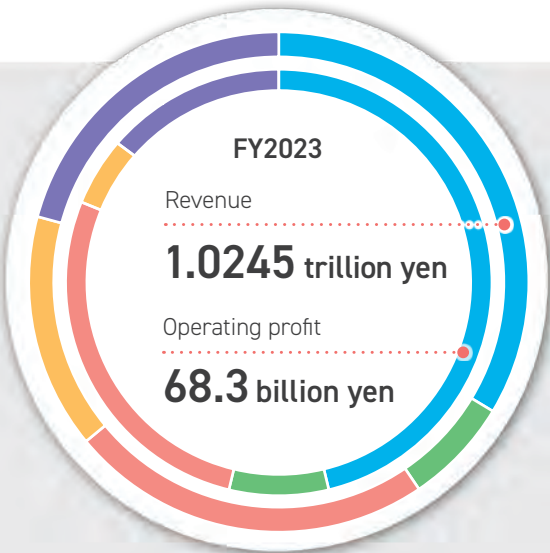
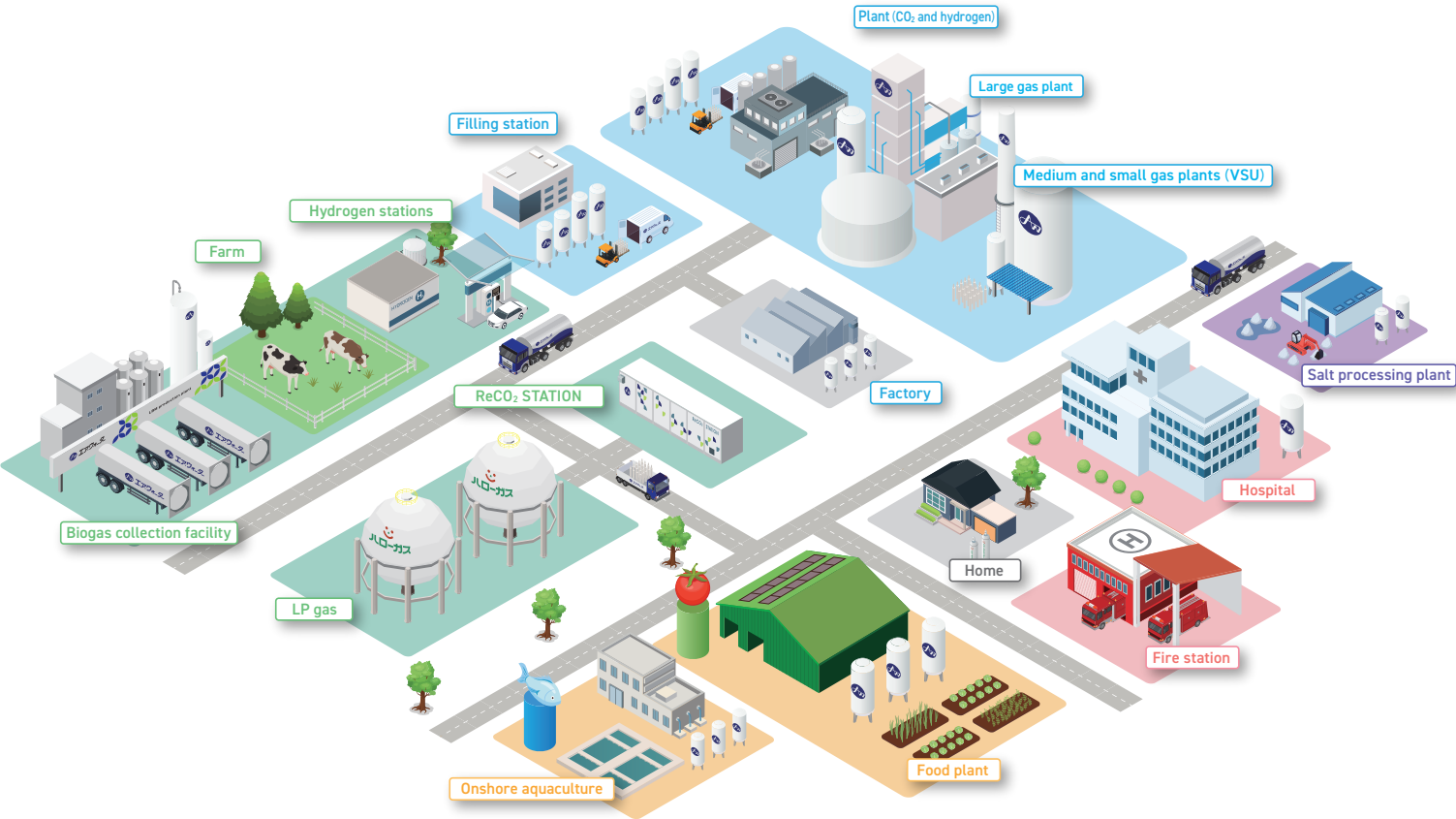
The Group possesses numerous technologies necessary for aquaculture operations, including oxygen and other gas supply, energy, artificial seawater, fish freshness preservation, and water treatment plant development and design, and is working to commercialize an “onshore aquaculture platform” that combines and packages these technologies.

Case 2

In addition to providing a stable supply of high-purity gases essential for semiconductor manufacturing, we will steadily capture demand from the ever-expanding semiconductor market by offering integrated in-house solutions ranging from developing of various equipment devices to manufacturing and sales.

Business Overview

Starting from the industrial gas supply, our business has expanded diversely in stable markets that are essential to manufacturing and people's daily lives. Our stable business portfolio is now able to generate sustainable growth, regardless of changes in the business environment.



	FY2023 (Results)		FY2024 (Forecast)*2	
	Revenue	Operating profit	Revenue	Operating profit
Digital & Industry	339.4	33.6	360	38
Energy Solutions	66.6	4	70	4.5
Health & Safety	230.9	15.1	245	17
Agriculture & Foods	162.6	6.9	180	8
Other	225.1	10.8	245	13.3
Adjustments*1		(2.1)		(2.8)
Total	1024.5	68.3	1100	78

*1 Adjustments: Elimination of intersegment transactions and profit/loss of the Company's headquarter divisions not allocated to each segment
*2 Figures are forecasts at the beginning of the period

Businesses Close to Manufacturing and Living

Digital & Industry

Besides a stable supply of industrial gases to support a wide range of manufacturing industries, the Group offers a wide range of products and services that support the entire value chain for the semiconductor manufacturing industry.

Industrial Gases



Industrial gases (For on-site / tank truck supply / cylinders)Gas applicationHydrogen

Electronics



On-site gas supplySpecial chemical materialsGas purifiersInformation electronic materials

Functional Materials



Quinone productsElectronic materialsPolishing padsMagnesia

Energy Solutions

In addition to sales of LP gas, kerosene, and LNG etc., the Group develops technologies aggressively for low-carbon and decarbonization. Also aims to establish a resource-recycling energy supply model supply that practices local production for local consumption.

Energy



LP gas / KeroseneLNGLNG transport equipmentBiomethane

Green Innovation



Energy-related equipmentLP gas mobile power supply vehiclesVERPA (a vertical solar power system)ReCO₂ STATION (a CO₂ recovery equipment)

Engaged in a wide range of businesses, including Global & Engineering, operating industrial gas businesses in North America and India; Logistics such as 3PL (third party logistics); Seawater, producing mainly commercial salt; and Electric Power, developing wood biomass power generation.

Global & Engineering



Industrial gas (India, SE Asia)Industrial gas (North America)EngineeringHigh-power UPS (uninterruptible power supply)

Seawater







SaltEnvironmental products (magnesium hydroxide, water and soil treatment agents, etc.)Nori (dried seaweed sheet), Furikake (rice seasoning)Artificial seawater

Health & Safety






Besides gases indispensable to the medical field, the Group offers a diverse range of products and services such as equipment installation, SPD (management of medical supply logistics including medical materials and pharmaceuticals), and sanitary materials. Also committed to safety and security in the disaster prevention field.

Medical Products




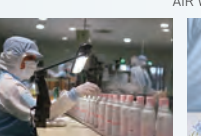


Medical gasMedical equipmentHome healthcareDental

Medical Services



SPDSterilizationSafety ServicesMedical facilitiesGas fire extinguishing equipment

Consumer Health



Injection needlesSanitary materialsAerosolCosmetics

*In Safety Services as it is operated by AIR WATER SAFETY SERVICE INC.

Agriculture & Foods

Having expanded from frozen foods to ham and delicatessen, wholesale, processing and retail of fruits and vegetables, beverage production and sales, we offer a wide lineup of products from commercial to retail.

Foods



Frozen foodAgroprocessingHam and DeliConfectionariesNatural Foods

Agriculture



Vegetable farmingFruit and vegetable wholesaleAgricultural machineryFruit and vegetable retailBeverages

Logistics

High-pressure gas transport



High-pressure gas transportGeneral cargo transportCryogenic logistics center

Food logistics

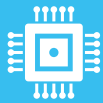


Food logisticsMedical & environmental logisticsVehicle modifications

Electric Power



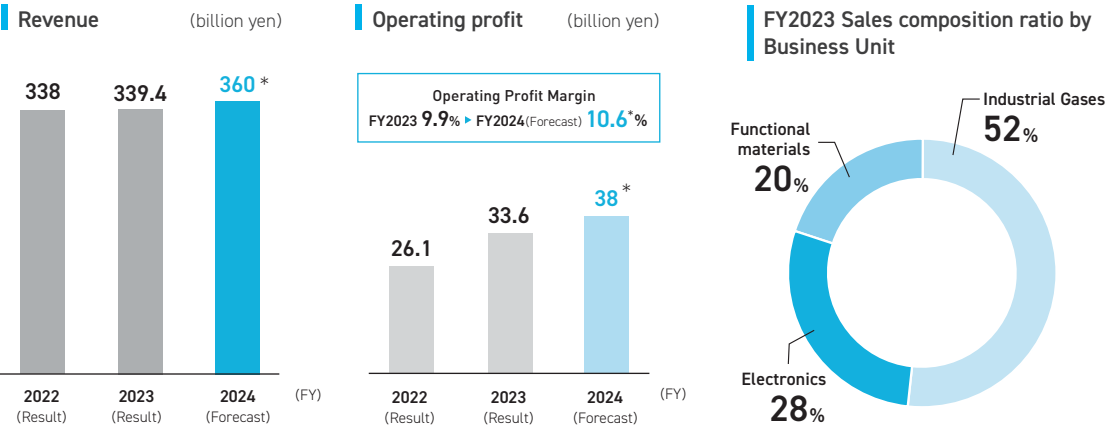
Wood biomass power generation



Digital & Industry

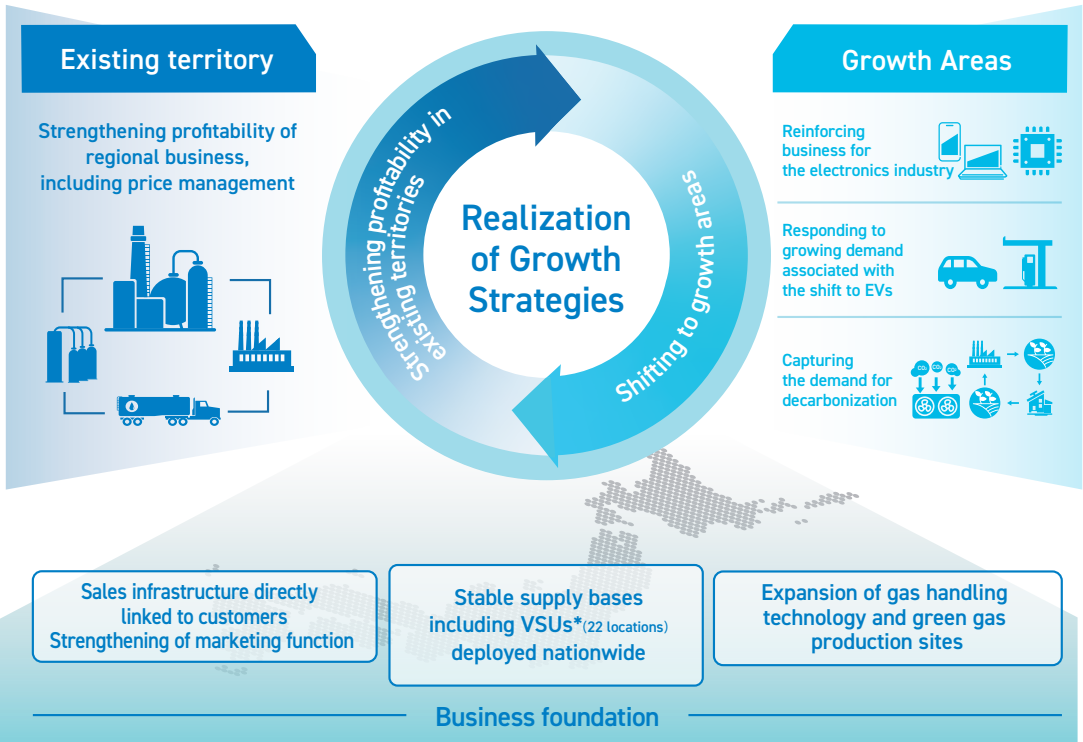
Business Overview

Supports various manufacturing industries by providing a stable supply of industrial gases through our nationwide network of bases. By leveraging Air Water's strength in handling both industrial gases and chemical products, also supports the electronics industry with a wide range of products and services.



*Figures are forecasts at the beginning of the period

Business Development Outline



*High-efficiency compact liquefied oxygen/nitrogen generator

Competitive edges

- Stable supply system through a network of manufacturing, storage, and distribution, including 22 VSUs optimally located nationwide
- Engineering technologies related to gas separation, purification and storage, including air separators, hydrogen production, CO₂ capture, etc.
- Product lineup that supports the semiconductor manufacturing value chain, such as chemical materials, related equipment, and outsourced logistics, in addition to industrial gases.
- Specialty chemical products with top domestic market shares (Magnesia for electromagnetic steel sheets, phthalic anhydride, sodium acetate)

External Environment

- ★ Opportunities

 - ★ Expansion of demand for the electronics industry, including semiconductors and EVs, driven by digitalization
 - ★ Expanding demand for CO₂ capture, low-carbon hydrogen, and other decarbonization-related products
- Risks

 - Impact on manufacturing and sales due to fluctuations in demand for semiconductors and other electronics-related products
 - Impact on industrial gas production costs from fluctuations in electricity prices
 - Decrease in carbon dioxide and argon production capacity due to consolidation of refineries and blast furnaces

Mid- to Long-Term Policy / Growth Strategy

- ① Reinforcing business for the electronics industry

 - Adding on-site gas supply plants to accommodate factory expansion by major semiconductor device manufacturers
 - Expanding comprehensive development of chemical materials, supply equipment, related construction work, contract logistics, recycling services, etc. in conjunction with expansion of on-site gas supply
 - Developing semiconductor and electronic materials by integrating technologies and expertise in the electronics and functional materials fields
- ② Strengthen profitability

 - Ensuring price management for the higher value of products and services
 - Responding to gas demand by expanding and optimally locating manufacturing bases, including securing raw material sources of carbon dioxide and enhancing argon production facilities.
 - Improving efficiency of business operations through the use of digital technology (logistics, plant management, etc.)
 - Reallocating personnel to growth areas such as the decarbonization-related and electronics
- ③ Bolstering initiatives for carbon neutrality

 - Establishing a new carbon dioxide gas production site using biomass-derived waste gas as feedstock
 - Developing a stable hydrogen supply system unaffected by trends in raw material sources, utilizing City gas reforming-based high-efficiency hydrogen generation system "VHR"
 - Realizing clean hydrogen production by installing CO₂ recovery system alongside city gas and methanol reforming type hydrogen generators
 - Producing and selling oxygen, nitrogen, and argon using green power

TOPICS

Progress in comprehensive development of Group's commercial products for semiconductor manufacturing plants

In addition to gas supply, the Group provides comprehensive support for semiconductor manufacturing, including sales of general/specialty chemicals and equipment/components, services from piping construction to logistics.

In 2024, we received an order for a "CMP Slurry Mixing/Supply System*" for a semiconductor plant to be built in Chitose City, Hokkaido by Rapidus Corporation, which aims to domestically produce cutting-edge semiconductors. Using this latest order as a stepping stone, we are promoting proposals for supply system solutions for domestic semiconductor plants, where further expansion of capital investment is expected in the future, and is strengthening its support for automation, labor savings, and stable operations at leading-edge semiconductor facilities even more than before. Also in 2024, we established a joint venture with Sanwayuka Industry Corporation, Japan's leading solvent recycling company, to recycle chemicals used in semiconductor manufacturing. We will contribute to the realization of a sustainable society through our efforts to create domestic resource circulation for chemical materials, which are highly dependent on imports from overseas.



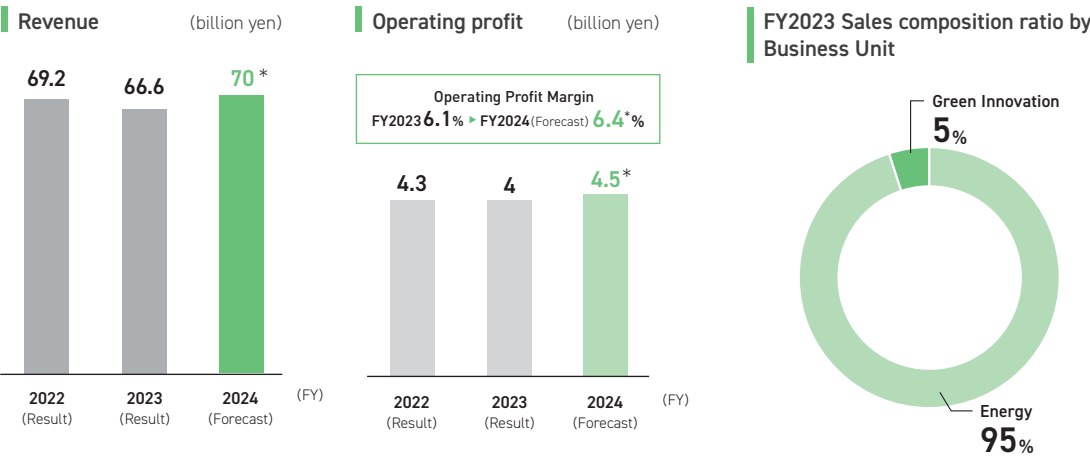
*Equipment that enables stable and highly accurate formulation of semiconductor CMP (polishing) process chemicals with uniform concentration and particle size according to the liquid type. Based on the basic technology developed in partnership with a U.S. company, the Group has been designing and manufacturing this system since 2006 as an optimal supply system for domestic semiconductor plants, with numerous successful implementations.



Energy Solutions

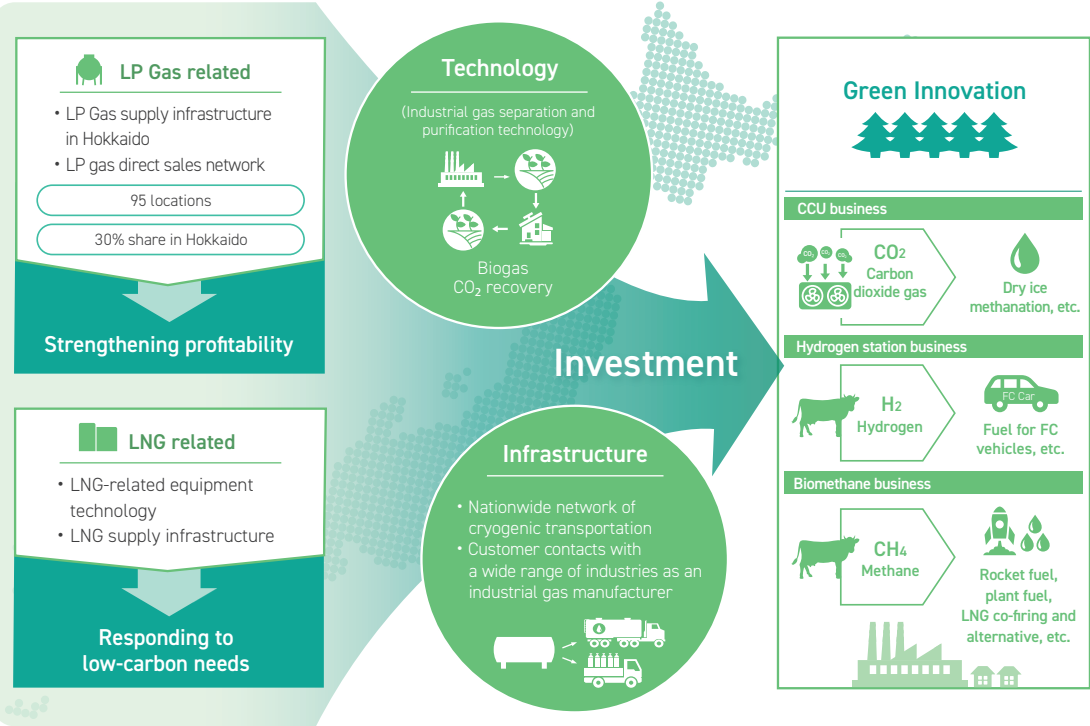
Business Overview

Retails LP gas for residential use mainly in Hokkaido and eastern Japan. Also develops LNG-related businesses against the backdrop of growing demand for low-carbon and decarbonized energy. Further, aims to establish a resource-recycling energy supply model that utilizes unused resources for local production for local consumption and to create new businesses such as CO₂ capture and reuse.



*Figures are forecasts at the beginning of the period

Business Development Outline



Competitive edges

- Low-carbon technologies such as LNG lorries and LNG-related equipment
- Decarbonization technologies, such as CO₂ capture and hydrogen, cultivated in the industrial gas business. Production of carbon neutral and low-carbon energy such as biomethane and biodiesel fuels
- Supply infrastructure of LP gas covering 95% of Hokkaido area (filling, distribution, sales offices)

External Environment

- ★ Opportunities

 - Expansion of carbon-neutral and low-carbon energy proposals and opportunities amid the accelerating shift to a low-carbon and decarbonized society
 - Expansion of potential commercial rights transfer and M&A opportunities, such as lack of successors for LP gas dealers
- Risks

 - Decreasing demand for LP gas and kerosene by depopulation, aging, shrinking population and global warming
 - Shortage of labor force due to decline in working-age population
 - Changes in the logistic structure in the BtoC market

Mid- to Long-Term Policy / Growth Strategy

- ① Strengthen profitability

 - Increasing direct LP gas sales ratio and strengthening initiatives for peripheral equipment and remodeling business
 - Improving efficiency of LP gas delivery, filling, metering, and safety operations through IoT
 - Optimizing prices for deliveries, filling fees, etc.
 - Improving operational efficiency through integration and reorganization of delivery and filling bases and group companies
 - Creating added value and reducing the costs through DX promotion in sales and administrative operations
- ② Responding to low-carbon needs

 - Driving fuel conversion amid the shift to low-carbon emission and expanding sales of LNG-related equipment
 - Expanding production and sales of biodiesel fuel*.
- ③ Switching a structure to a carbon neutral energy business

 - Creating new businesses responding to global warming issues, such as CO₂ capture and re-use, biogas, liquefied biomethane and carbon neutral hydrogen.
 - Establishing a locally produced, locally consumed, resource-recycling energy supply model, such as biomethane derived from cattle manure
 - Boosting sales of vertical solar power system "VERPA"

*Fuel produced by mixing diesel fuel with fuel derived from food residues

TOPICS

Vertical solar power system "VERPA" begins joint demonstration operation with seven-eleven

In August 2024, the Company and Seven-Eleven Japan Co., Ltd. began joint demonstration operations of the "VERPA" vertical solar power system in the parking lots of two Seven-Eleven stores in Tome City, Miyagi Prefecture and Yamagata City, Yamagata Prefecture. This is the world's first installation of a vertical solar power system installed in a commercial facility. VERPA, with its double-sided light-receiving panels arranged vertically, is not easily affected by snow accumulation and does not require height-limiting roof structures, making it ideal for installation in parking lots of roadside stores.

In this demonstration operation, we verified the power generation performance and winter practicality compared to the roof-mounted type. The electricity obtained is consumed by each store and can be used as an emergency power source in the event of a disaster or power outage. The demonstration period

will last until March 2027, and is expected to generate 20,000 kWh or more per store annually and reduce CO₂ emissions by 15%. We will continue to contribute to the realization of a carbon neutral society by installing VERPA in public facilities.

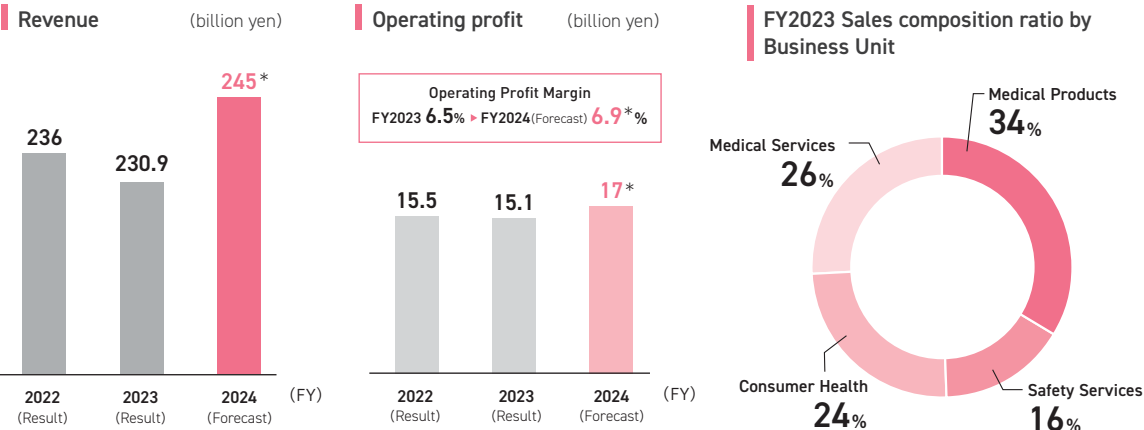




Health & Safety

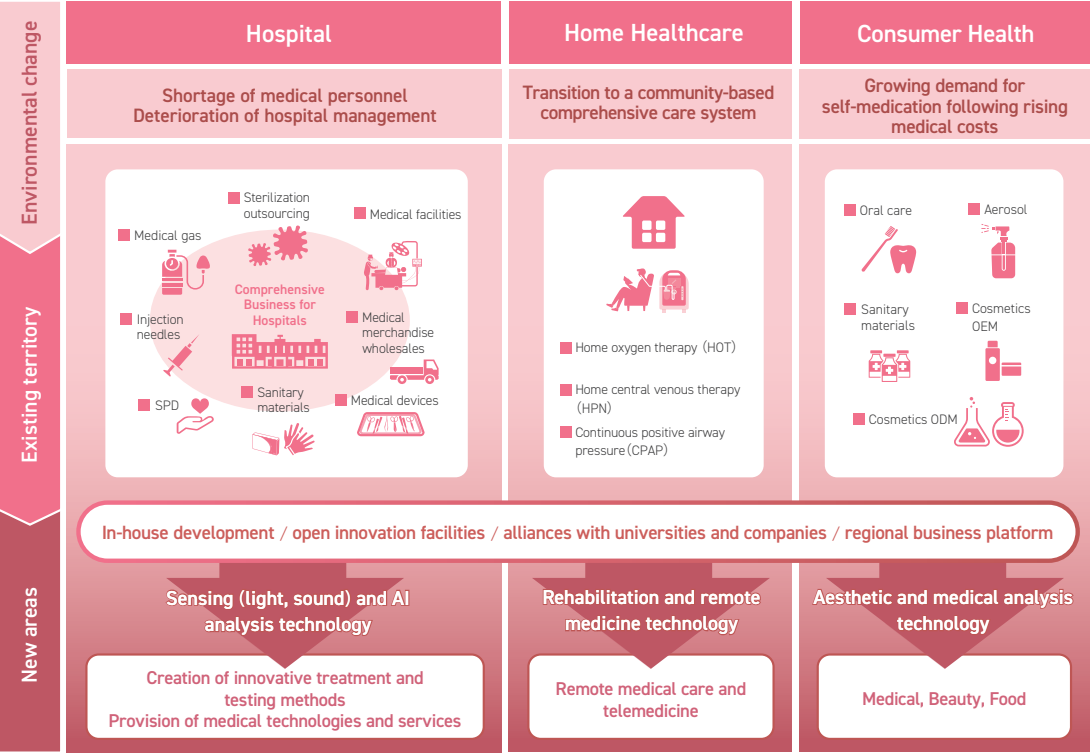
Business Overview

Provides solutions to the medical field by utilizing our diverse products and services, including medical gases, design, construction, maintenance, and inspection of hospital equipment, outsourcing of hospital operations, and sanitary materials. Also supports health and safety by developing businesses in home health care, oral care, consumer health, and safety services.



*Figures are forecasts at the beginning of the period

Business Development Outline



Competitive edges

- Comprehensive strength covering across diverse fields from acute care to consumer health
- Stable supply system of medical oxygen through the "VSU" network
- Solid revenue base with a high market share businesses in medical gases and hospital facility construction
- Infrastructure and network for home healthcare (home oxygen therapy), including its equipment manufacturing, delivery, and maintenance
- Products with a high market share in the safety services, such as breathing apparatus and gas extinguishing systems

External Environment

★ Opportunities

- ★ Growing needs for more advanced medical equipment and more efficient hospital operations at medical institutions
- ★ Expanding needs for comprehensive community-based care and home medical care
- ★ Growing needs for nursing care and preventive medicine
- ★ Progress in medical DX

★ Opportunities / Risks

- ★ Government health care cost containment

Mid- to Long-Term Policy / Growth Strategy

① Strengthen profitability

- Adjusting prices for medical gas, equipment construction, and other items in response to rising costs for materials and labor
- Reducing manufacturing costs in consumer health (injection needles, sanitary materials)
- Improving productivity through labor-saving investments in safety services and aerosols

② Strengthening proposal capabilities by leveraging resources

- Establishing integrated system for the development, manufacturing, sales, and maintenance of medical equipment and nursing care products, etc.
- Developing medical devices that utilize IoT technology to solve problems in the medical field

③ Expanding home healthcare and consumer health

- Creating new businesses related to home rehabilitation
- Expanding sales of injection needles, which require high technology
- Development of high value-added cosmetics

④ Reinforcing the safety services

- Capturing strong demand for data centers and shipbuilding in the gas fire extinguishing field and strengthening the installation system
- Expanding sales of vacuum sprinkler systems that can limit damage caused by water loss from leaks and accidental releases

TOPICS

Released "HVSI Monitor" an electronic stethoscope that digitally displays shunt sound level

- Easy to use, takes only a few seconds to complete measurements, and helps improve patient quality of life and dialysis management -

The Company focuses on developing products that accurately meet the various needs of the medical field, including usability, labor saving, and DX promotion, aiming to improve people's health, reduce the burden on medical workers, and improve patients' quality of life. In May 2024, utilizing our Healthcare Development Center's sound technology, we launched the "HVSI Monitor," an electronic stethoscope with sound analysis function built into the stethoscope body. The HVSI Monitor digitizes the shunt sounds* that medical professionals previously heard with a stethoscope, enabling objective and quantitative measurement of previously subjective and qualitative auscultation information through simple operation in just sounds. This HVSI monitor will contribute to the early detection of abnormalities, thereby reducing the patient's physical and mental distress and enabling accurate information sharing among related parties, which will also lead to the enhancement of remote and home healthcare systems.



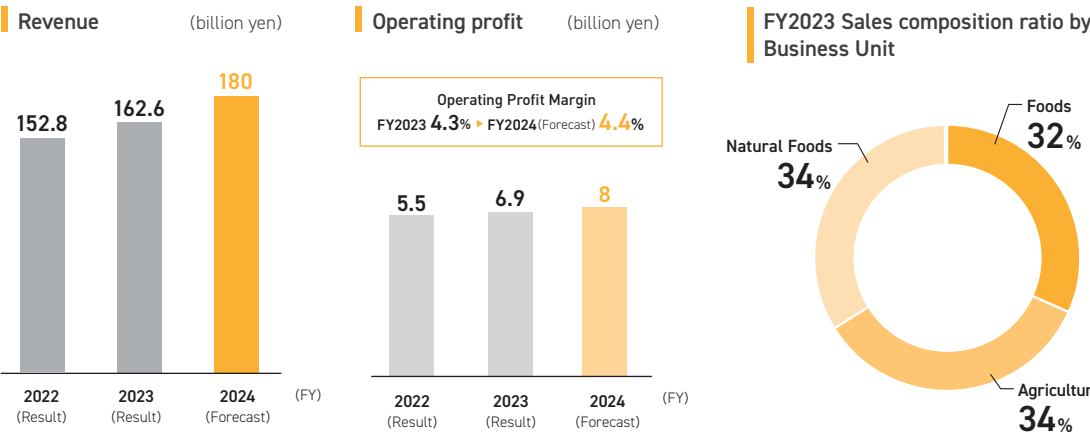
*Sounds produced by a "shunt vessel," a direct connection between a patient's arteries and veins, created to ensure an adequate blood volume during



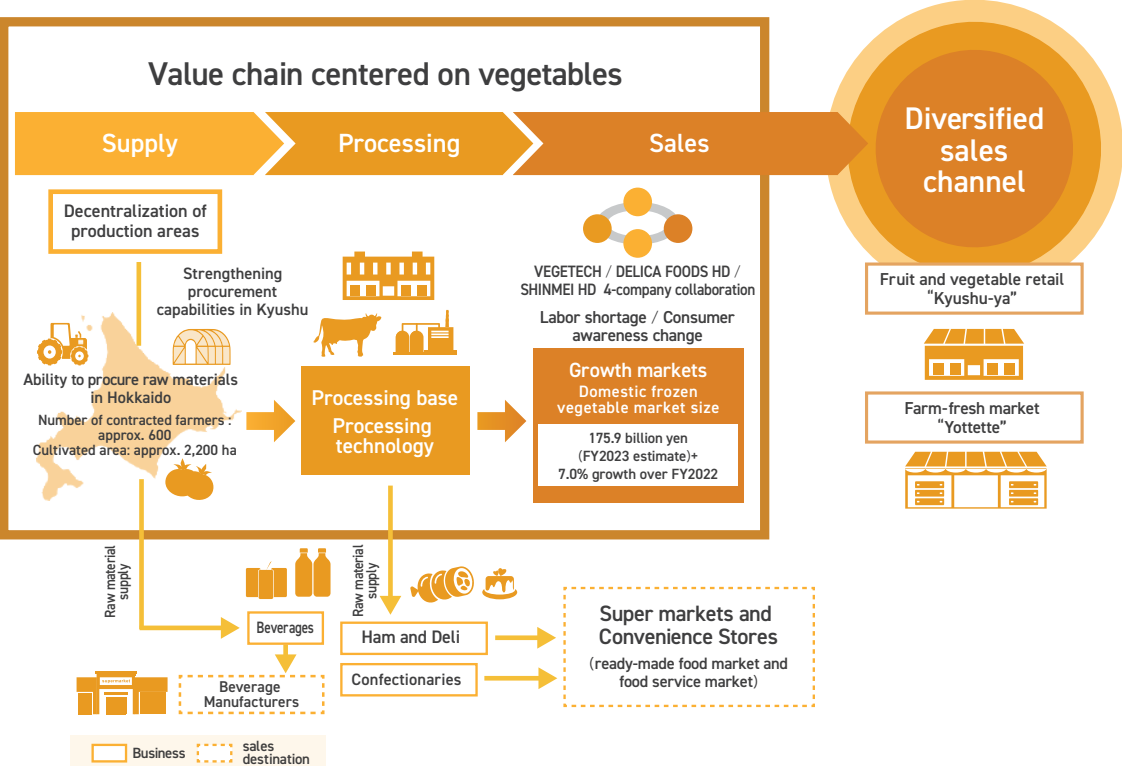
Agriculture & Foods

Business Overview

Starting with the production and sale of frozen foods using liquefied nitrogen, expanded its business from wholesale, processing, and retail of fruits and vegetables to the beverages production and other businesses. Continues to support safe and secure “food” in diverse areas by leveraging its strong ties with producers through the procurement of raw vegetable ingredients, product development capabilities, and processing technologies to realize them.



Business Development Outline



Competitive edges

- Stable procurement of raw vegetables through contract farming mainly in Hokkaido
- Nationwide "rice, fruit and vegetable distribution and processing platform" and cryogenic transportation technology utilizing the Group's logistics infrastructure and collaboration among 4 companies
- Diverse production and processing technologies for various food needs, from agricultural products to ham, delicatessen and confectionaries
- Value chain from farming to procurement, processing, logistics, and retailing
- Effective use of the "Hokkaido Brand" where our contract farms and processing plants are concentrated

External Environment

- ★ Opportunities

 - ★ Changing consumers' awareness of food (health-consciousness and growing need for simplified cooking)
 - ★ Decline and aging of agricultural workforce
 - ★ Expansion of the ready-meal and restaurant industry
- Risks

 - Shortage of raw material vegetables due to adverse weather conditions and fluctuating price
 - Fluctuating raw material and logistics costs

Mid- to Long-Term Policy / Growth Strategy

- ① Strengthen profitability

 - Optimizing production system (sites, items) in the Foods field
 - Optimizing production lines in the Beverages field (integrate, build new)
 - Improving procurement to reduce wasted fruits and vegetables in the retail field
 - Lowering logistics costs by leveraging the Group's logistic infrastructure
 - Adjusting prices in response to rising raw material prices
- ② Strengthen "rice, fruit and vegetable distribution and processing platform" through capital alliances with three major industry companies

 - Expanding the number of contracted farmers through the Agri-Support Business, and strengthening procurement ability for raw material vegetables by utilizing the resources of cooperative partners
 - Developing and expanding business partners, particularly in mutual sales of products and in the ready-made restaurant industry
 - Enhancing "rice, fruit and vegetable distribution and processing platform" by utilizing logistics networks, bases, and facilities
 - Jointly developing freshness preservation and food processing technologies
- ③ Delivering products that address needs and challenges of "food"

 - Expanding products for home like packaged meals and frozen vegetables for convenience stores
 - Full-scale entry into the frozen sweets business
 - Responding to customer's environmental needs by expanding circulating and paper-based container lines

TOPICS

Smart agriculture "prediction" and "observation" technologies, joint research results with the University of Tokyo announced

- Contributing to reduction of food loss and improvement of agricultural productivity -

In May 2024, the Company and Institute of Industrial Science (IIS), the University of Tokyo announced the joint research results on "prediction" and "observation" technologies that contribute to reducing food loss and improving productivity in the agriculture. This research developed a model that can predict optimal harvest period using only temperature data. Applying this technology, we have succeeded in predicting the optimal harvesting period for broccoli with an accuracy in less than 2.5 days. This will help prevent quality deterioration and reduce food loss caused by missing optimal harvest periods. Additionally, we provide a model that accurately predicts the number and quantity of harvests using drone-based observation technology.

In the future, Japanese agriculture is expected to move toward methods that increase land productivity while saving labor and manpower through the introduction of harvesting machinery. The Company and IIS will continue efforts toward practical implementation, including improving the accuracy of "prediction" and "observation" technologies and researching horizontal expansion to other crops such as tomatoes and pumpkins.





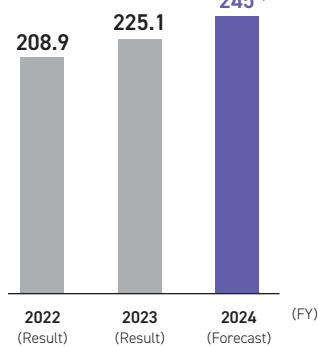
Other (Logistics/Seawater/Global & Engineering/Electric Power)

Business Overview

It is composed of "Logistics," which engages in 3PL and general cargo transportation, "Seawater," which operates a salt business, "Global & Engineering," which operates industrial gas businesses in India and North America, and "Electric Power," which operates wood biomass power generation.

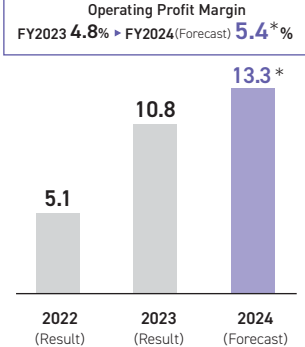
Revenue

(billion yen)



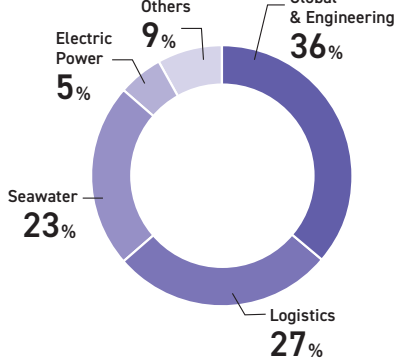
Operating profit

(billion yen)



Operating Profit Margin
FY2023 4.8% ▶ FY2024 (Forecast) 5.4*%

FY2023 Sales composition ratio by Business Unit



*Figures are forecasts at the beginning of the period

Business Fields

Logistics

Operates a wide range of businesses by utilizing cryogenic transport technology gained through our in-house delivery of industrial gases; including 3PL food logistics, medical logistics of transporting blood, as well as general cargo, chassis, and even design/building of truck bodies and other equipment.

Our nationwide logistics network

- 3,435 employees
- 81 sales offices
- 2,199 vehicles
- 48 warehouse sites



Chassis transport by ferry route



Kita-Kanto logistic center



Tomakomai logistic center

Global & Engineering (G&E)

Develops industrial gas-related businesses in India and North America, manufactures and sells related equipment indispensable for industrial gases and develop conducts engineering business. Also provides high-power UPS for data centers and semiconductor fields that require a stable supply of electric power. (→P30-31)

Seawater (Nihonkaisui Co., Ltd.)

Manufactures and sells industrial salt, boasting the top share in Japan. Also involved in environmental products such as magnesium hydroxide and adsorbents for water treatment, water supply and sewage facilities, investment in aquariums, supply of artificial seawater, and wood biomass power generation business.



Electric Power

Undertakes wood biomass power generation business in Iwaki City, Fukushima Prefecture, using the renewable energy feed-in tariff (FIT) system. Drives low-carbon and recycling-oriented society with less environmental impact.

Competitive edges

Logistics

- In-house logistics network across Japan
- Diverse service lineup including chassis transportation, 3PL, medical/environmental logistics, and vehicle body modification

Seawater (Nihonkaisui Co., Ltd.)

- High share of industrial salt in Japan
- Stable earnings base through a diversified business portfolio derived from salt manufacturing

Global & Engineering (G&E)

- Industrial gas and cryogenic equipment business bases in India and North America, and technology of plant engineering
- Rotary UPS with high market share and maintenance service available overseas

External Environment

★ Opportunities

- ★ (Logistics) Increasing cargo volume with growing demand for e-commerce and recycling
- ★ (Seawater) Expanding need to renew social infrastructure such as water and sewage water
- ★ (G&E) Growing demand in India for industrial gases, including for steel
- ★ (G&E) Growing demand for hydrogen and carbon dioxide gas related equipment for decarbonization
- ★ (G&E) Expanding demand accompanying new construction and expansion of data centers and semiconductor plants

■ Risks

- (Logistics) Japan's 2024 problem (work hour regulation, driver shortage, etc.)
- (Seawater / E-power) Increase in power generating fuel and maritime transportation costs
- (G&E) Differences in laws, regulations, and business practices in the local country

Mid- to Long-Term Policy / Growth Strategy

① Expanding overseas business

India

- Acquiring new on-site projects for steel. Also establishing a supply chain that includes infrastructure of manufacturing and logistics by expanding bases

North America

- Acquiring new on-site projects for the semiconductor (electronics) and chemical (decarbonization) fields, and building a network of gas production and sales bases
- Building a foundation for decarbonization-related business such as liquefied hydrogen, carbon dioxide, etc.

High-Power UPS

- Responding to expanding demand in the data center and semiconductor fields, and developing new products that meet market needs.
- Expanding business areas to Asian demand areas such as ASEAN, Taiwan, Japan, utilizing engineering expertise related to power supply systems

② Reinforcing the foundation of the logistics business

- Establishing a cold chain by developing trunk line transportation network
- Promoting efficiency in vehicle dispatching and distribution center operations through the use of IoT

③ Reinforcing the stable earnings structure in seawater (Nihonkaisui Co., Ltd.)

- Strengthening profitability of salt manufacturing and other existing businesses based on thorough price management
- Expanding urban infrastructure business, primarily by upgrading sewer pipes
- Reducing the risk of market price volatility by increasing the ratio of domestic materials for biomass power generation and enhancing procurement

④ Reinforcing the earnings structure of the wood biomass power business

- Reducing procurement costs and maintaining stable operations

TOPICS

Contributing to data center operations with high-power UPS business

In recent years, the data center market is expected to grow at a high rate, especially in Asia-Pacific, against the backdrop of the spread of generative AI and other technologies. Power supply abnormalities at data centers can cause significant operational losses. As the risk of sudden voltage drops and power outages caused by extreme weather increases, UPS (uninterruptible power supply) maintains a stable power supply at all times and protects important data in the event of such power supply problems.

The Group comprehensively supports stable power supply by not only developing and manufacturing high-power UPS equipment, but also handling everything from system design to installation and maintenance. In Japan, AIR WATER SAFETY SERVICE INC. is engaged in the engineering business, focusing on sales, installation, and maintenance. We will continue to respond to strong demand and support data center operations.

