Business Outlook

Industrial Batteries and Power Supplies

Message from the Business Unit Manager

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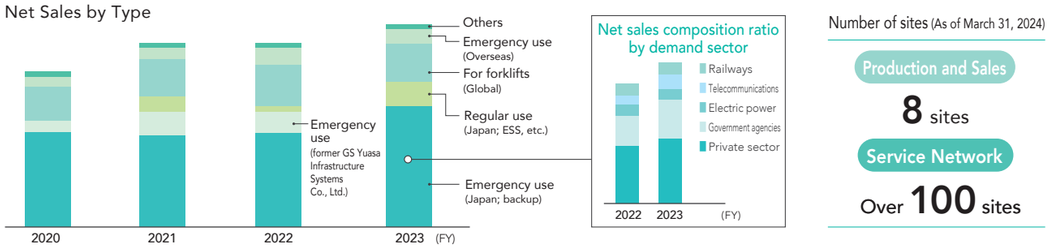
As the external environment surrounding society changes rapidly, the Company also needs to respond steadily to market changes without delay. In the emergency use field, we expect an expansion in demand for data centers, leading to an increased need for our proprietary technologies. However, on a global scale, it is also necessary to adapt to the trend toward lithium-ion batteries. In the regular use field, the market for energy storage systems (ESS) is expected to continue expanding, while responding swiftly amid intensifying competition remains a challenge.

For forklifts, the shift to battery-powered models still presents opportunities. However, the move towards lithium-ion batteries overseas also poses potential risks.

The period of the Sixth Mid-Term Management Plan is positioned as the Business Foundation Building phase within Vision 2035, during which we are working to strengthen our earning power. We believe that solving social challenges together with our customers will ultimately lead to an increase in our "earning power." Our business has expanded from the emergency field, where batteries were only used for backup during emergencies, to the regular field, which involves constant charging and discharging to regulate fluctuations in renewable energy. As a result, we believe that our role in realizing sustainable public infrastructure will continue to grow.

Basic information

Net Sales by Type



Number of sites (As of March 31, 2024)

Production and Sales
8 sites

Service Network
Over **100** sites

Note: In FY2022, the sub-segments were reviewed, and "For forklifts," which was previously included in "Overseas," was transferred to "For forklifts (Global)." Therefore, data in FY2020–FY2021 are also presented according to the classification after the change. GS Yuasa Infrastructure Systems was integrated into the industrial battery and power supply business in FY2023.

SWOT analysis

Strengths S
- High presence in Japan
- Delivering peace of mind and safety through a nationwide service network and *Koto-zukuri* (service creation)
- Seamless (all-in-one) system from design to manufacturing, construction, and maintenance

Weaknesses W
- Low market share overseas
- Delays in developing forklift batteries using our lithium-ion batteries
- Old buildings and equipment remaining at domestic factories

Opportunities O
- Increased demand for environmentally considered products due to the expansion of the renewable energy market
- Market growth of battery energy storage systems (BESSs)
- Transition of the forklift market to battery-powered models

Threats T
- Overseas competitors entering renewable energy markets
- Advancement of the shift to lithium-ion batteries in the forklift market
- Opportunity loss due to delayed response to the shift from lead-acid batteries to lithium-ion batteries

Outlook for the Sixth Mid-Term Management Plan

Policy

Building a business foundation to capture the growth of the next generation

Strategies and important tasks

Emergency field (Japan)
- Maximize profit by utilizing unparalleled superiority

▶ Future initiatives
- Optimize the organization through sales structure restructuring
- Change the image of lead-acid batteries to recycling-oriented products

Regular field (Japan)
- Set the stage for a second pillar of business

▶ Future initiatives
- Secure production capacity to meet strong demand
- Expand sales with new ESS products equipped with power conditioning systems (PCS)

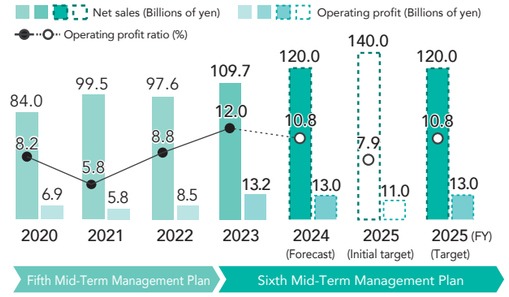
Emergency field (Overseas)
- Establish a global supply system to expand sales

▶ Future initiatives
- Introduce prior art into overseas production sites
- Promote OEM procurement by utilizing 2nd brand

For forklifts
- Survive through coexistence and co-prosperity strategies for lead-acid and lithium-ion batteries

▶ Future initiatives
- Establish an efficient production system through the operation of a new plant for lead-acid batteries for forklifts
- Expand globally centered on ASEAN with Thailand as a hub

Net sales, operating profit, operating profit ratio



Note: Some consolidated subsidiaries in the "Industrial Batteries and Power Supplies" segment were transferred to the "Specialized Batteries and Others" segment from FY2023. In conjunction with this change, figures for FY2022 were restated according to the modified segments.

Outlook for the fiscal year ending March 31, 2025

Emergency field
- Strong performance of battery power supply systems for nuclear power projects and others

Regular field
- Increase in sales volume and improvement in profitability

For forklifts
- Utilize batteries from other manufacturers to respond to the lithium-ion battery adoption in forklifts

TOPICS New Forklift Lead-acid Battery Plant Completed

In March 2024, we held the completion ceremony for the new forklift lead-acid battery plant constructed at the Kyoto plant site. The new plant building is a three-story structure with a total floor area of approximately 25,000 square meters, and it will produce lead-acid batteries used in forklifts, automated guided vehicles, electric wheelchairs, and more. The plant is scheduled to begin operations in June 2025.

Section 02 "Ability" for Value Creation

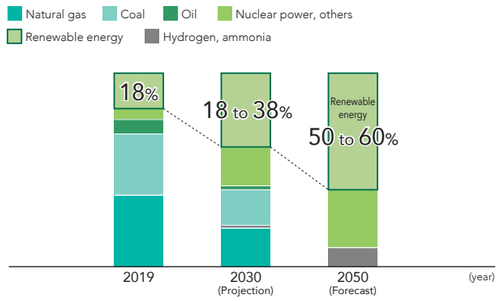
Initiatives in the Regular Use (Renewable Energy) Field

Market Environment

Renewable energy such as wind and solar power is attracting attention as the trend of carbon neutrality accelerates. In Japan, many subsidy programs related to renewable energy have been released, and their introduction and use are encouraged by various measures.

Under such circumstances, renewable energy is expected to account for more than half of Japan's energy mix in 2050.

Forecast of Power Supply Composition in Japan



Source: Prepared by GS Yuasa based on Agency for Natural Resources and Energy, Considerations for Achieving Carbon Neutrality in 2050 and Summary of the Sixth Strategic Energy Plan

Estimated budget related to renewable energy

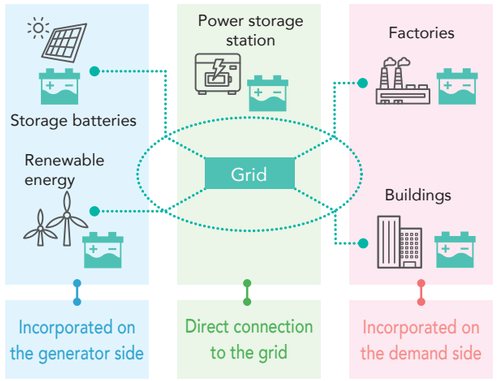
Project to support the introduction of power storage systems such as storage batteries for the electric power grid to expand the introduction of renewable energy	Proposed Budget for FY2024 **8.5 billion yen**
Project to support the introduction of consumer-driven photovoltaic power generation and storage batteries with renewable energy sources	Proposed Budget for FY2024 **10.0 billion yen**
Project to support the introduction of large-scale storage batteries for the electric power grid with a view to expanding the introduction of renewable energy (Tokyo Metropolitan Government)	Proposed Budget for FY2024 **13.0 billion yen**

Source: Project Summary for FY2024 Budget, Ministry of Economy, Trade and Industry
Tokyo Metropolitan Government: Project to support the introduction of large-scale storage batteries for the electric power grid with a view to expanding the introduction of renewable energy

Roles of Storage Batteries

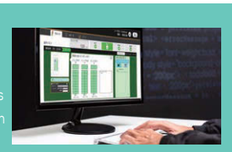
Renewable energy varies largely in energy generation depending on the weather and time zone and may adversely affect an electric power system in terms of stability. The key device that plays a role in mitigating such output changes is a storage battery. The market of storage batteries that are indispensable to control demand and supply is expected to expand rapidly with the spread of renewable energy. We think this is a great opportunity for us.

GS Yuasa will increase value to be offered to customers by packaging power conditioners and storage batteries and doing all-in-one business that can provide services from products to installation and maintenance through an integrated system. In addition, we will enhance our presence in the regular use market by taking advantage of our strengths: networks and footwork.



GS Yuasa's strengths

Network
Maintenance and operation services making use of digital transformation



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Footwork
Support services available 24 hours a day, 365 days a year

Major Orders Received and Delivery Records

Muroran Station, ENEOS Corporation (Muroran City, Hokkaido)

Operator	ENEOS Corporation
Date of operation	FY2023
Output	50 MW
Capacity	88 MWh


Muroran Station, ENEOS Corporation

Chiba Refinery, Osaka International Refining Company, Limited (Ichihara City, Chiba Prefecture)

Operator	ENEOS Corporation
Date of operation	FY2025
Output	100 MW
Capacity	202 MWh


Chiba Refinery, Osaka International Refining Company

Tagawa Power Storage Station (Kawara Town, Tagawa-gun, Fukuoka Prefecture)

Operator	NTT Anode Energy Corporation, Kyushu Electric Power Company Incorporated, Mitsubishi Corporation
Date of operation	From July 2023
Output	1.4 MW
Capacity	4.2 MWh


Image of after installation

Kitatoyotomi Substation (Toyotomi-cho, Teshio-gun, Hokkaido)

Operator	North Hokkaido Wind Energy Transmission Corporation
Date of operation	From March 2023
Output	240 MW
Capacity	720 MWh


Storage battery facilities
Source: Chiyoda Corporation

Kumamoto Factory, Honda Motor Co., Ltd. (Ozu Town, Kikuchi-gun, Kumamoto Prefecture)

Operator	Honda Motor Co., Ltd.
Date of operation	From April 2024
Output	2.6 MW
Capacity	20 MWh


Image of after installation

Hagigaoka Water Purification Plant (Wakkanai City, Hokkaido)

Operator	Wakkanai City, Hokkaido
Date of operation	From March 2022
Capacity	2 MWh


Storage battery system

Storage battery facility with new power conditioners (Konohana Ward, Osaka City), Osaka Gas

Partner to contract for demonstration experiment	Osaka Gas Co., Ltd.
Operation period for demonstration	April 2025 to March 2028 (Planned)
Equipment	Power conditioner: 500 kW Lithium-ion batteries: 840 kWh
What to verify	Verification of operation for multiple uses supporting multiple electricity markets and verification of patterns of optimal operation control in line with storage battery characteristics and operation of the storage battery facility

Division of roles

[Osaka Gas]
- Construction of equipment and provision of a site required for operating the storage battery facility
- Maintenance of the storage battery facility based on simulated transactions in electricity markets

[GS Yuasa]
- Provision of the Storage Battery Facility and implementation of action in terms of operation and maintenance (O&M)
- Implementation and review of equipment modifications and improvements based on data

Tsunokobaru Power Storage Station, Nijio Co., Ltd. (Oita City, Oita Prefecture)

Operator	Nijio Co., Ltd.
Date of operation	FY2026 (planned)
Output	25 MW
Capacity	50 MWh


Conceptional image
*Created by Chiyoda Corporation (using Google Maps and map data from the Geospatial Information Authority of Japan)

Eurus Shiratori Battery Park (Tagawa City, Fukuoka Prefecture)

Operator	Eurus Energy Holdings Corporation
Installation location	Tagawa City, Fukuoka Prefecture
Date of operation start	From January 2024
Capacity	4.58 MWh


External view of lithium-ion storage battery facility

Yatogo Energy Storage Station (Kumagaya City, Saitama Prefecture)

Operator	Bandou Power Storage Station No. 1 Limited Liability Company
Date of operation	February 2025 (planned)
Output	1.96 MW
Capacity	7.46 MWh


Conceptual image of Yatogo Energy Storage Station

Niraduka Energy Storage Station (Isesaki City, Gunma Prefecture)

Operator	Bandou Power Storage Station No. 1 Limited Liability Company
Date of operation	June 2025 (planned)
Output	1.96 MW
Capacity	7.46 MWh


Conceptual image of Niraduka Energy Storage Station

For our strategy in the regular field in Vision 2035, please refer to "Vision 2035." Vision 2035 P.20–25