Return to the Table of Contents

Feature 1 Initiatives in the Regular Field to Achieve Carbon Neutrality

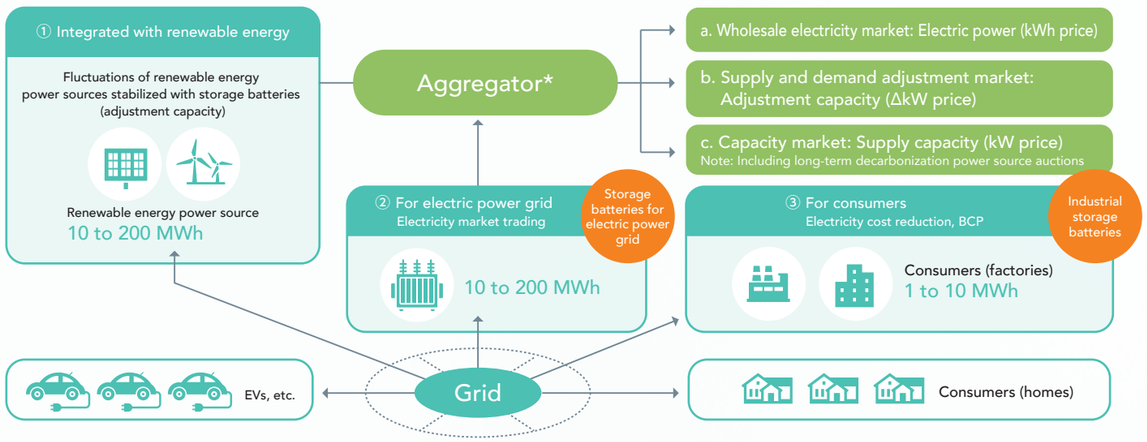
Efforts to achieve carbon neutrality are accelerating to address environmental issues on a global scale. Among such initiatives, the utilization of renewable energy is an indispensable element of achieving carbon neutrality, and the stabilization of the power supply has become extremely important as renewable energy installations are expanded. This is the context for the rapid increase in demand in the regular field, and subsidies and other policy support from the national government are also providing a favorable tailwind.

At GS Yuasa, we see these trends as an opportunity and are actively promoting businesses that position the regular field of the industrial battery and power supply business as one of our growth drivers. This Feature describes our initiatives in the regular field.

What Is the Regular Field?

The regular field refers to applications used for daily, uninterrupted charging and discharging in renewable energy, energy management, and other areas. Our storage battery products are devices that currently play a key role in adjusting the balance between supply and demand for renewable energy; specifically, wind and solar power generation. Furthermore, demand is growing from a wide range of facilities and means of transportation that use electric power, such as the substations responsible for power transmission, large factories, buildings, residential homes, and railways, resulting in further expansion of our fields of contribution.

There are three main methods of utilizing storage batteries in the regular field: (1) Integrated with renewable energy, (2) For electric power grid, and (3) For consumers.



Note: This was created based on the "Battery Industrial Strategy" issued by the Public-Private Council for the Storage Battery Industry Strategy of the Ministry of Economy, Trade and Industry of Japan.
* A vendor that controls the balance between electric power companies and consumers in order to control the amount of demand from consumers and maintain the power supply and demand.

Market Environment

Based on growing market demand and the high levels of trust that we have built with customers, we have experienced increasing business demand, with inquiries exceeding our production capacity continuing to rise year by year. As a result, we face the issue of needing to increase our supply capacity to meet this demand.

In addition to further enhancing our products and service capabilities, we are also expanding our production capacity. Furthermore, we are considering future expansion overseas, including the construction of overseas production sites and the establishment of training plans in each region. We will clarify the future direction in more specific terms during the period covered by the Seventh Mid-Term Management Plan.

Government budget related to renewable energy (partial)

Description	Period	Support amount, etc.
Subsidies for electric power grid storage batteries	Up to 2026; Up to 2027	40.0 billion yen/1.3 GWh; 40.0 billion yen/1.3 GWh
Tokyo Metropolitan Government subsidies for electric power grid storage batteries	Up to 2030	13.0 billion yen/0.6 GWh
Support for storage batteries integrated with renewable energy power sources	Planned continuously (period not decided)	16.0 billion yen/0.5 GWh

Note: Support amount is the total amount for three years, including the national debt burden

GS Yuasa's Strengths

We can respond to the various needs of our customers at a high level from all of the perspectives of QCDS (Q: Quality, C: Cost, D: Delivery, and S: Service). This response capability is a strength of GS Yuasa.

High quality / Post-delivery after-sales service / Cost effectiveness

Thorough dedication to product performance

- Safety (maintaining and improving high manufacturing quality and implementing safer designs)
- Long-life system that can withstand about 20 years of operation
- Highly efficient charging and discharging performance

Highly cost effective

- Understand customer needs to delivery both low cost and quality

Strict process management and backup system

- Execute tight process plans and formulate backup plans to deal with unexpected situations
- Build systems so that in the event of a problem, we can quickly present solutions and continue production at all times

After-sales service and trust-based relationships with customers

- Provide peace of mind with remote monitoring systems
- With sites nationwide built through both networks and footwork, our service system is available 24/7/365

Initiatives for improving QCDS

The Lithium-ion Batteries Business Unit is leading efforts to improve production, with the aim of further improving QCDS.

1

We enhanced production capacity by modifying production lines in FY2024, resulting in a 30% increase of cell assembly capacity per line.

2

We respond flexibly to production needs at all times based on close inter-departmental sharing of information about production results and delivery times between the Lithium-ion Batteries Business Unit and the Industrial Batteries and Power Supplies Business Unit.

3

We conduct cross-departmental activities to improve processes and yields, and in FY2024, we changed the manufacturing conditions for the polar plate manufacturing process, which improved quality.

Quality in the regular field

The reason we are highly rated by customers in the regular field is our quality control system, which keeps defective products to an extremely low level near 0%. This strength leverages the know-how that we have cultivated in the automotive lithium-ion battery business, where extremely strict quality control is required.

Also, when developing products in the regular field, although the required performance is similar to that for BEVs, this performance cannot be achieved unless detailed changes are made to the structure. At GS Yuasa, we have researched battery recipes that are suitable for the regular field for more than ten years, and this enables us to sell batteries that satisfy customer needs.

In the future, we will improve quality even more while also continuously developing new products with the aim of improving cost effectiveness.

Check Development of new products

We are developing products that ensure safety even as they guarantee quality that meets the needs of our customers, and we succeeded in developing a battery with high energy density. Usually, it is extremely difficult to achieve both high energy density and high levels of safety in the same product. However, in the new lithium-ion battery that we developed, we achieved both these characteristics by building a mechanism that prevents adjacent cells from exploding in succession, and we also took measures to prevent them from burning in the first place. This development meets customer needs and is also a big technological leap forward for GS Yuasa.

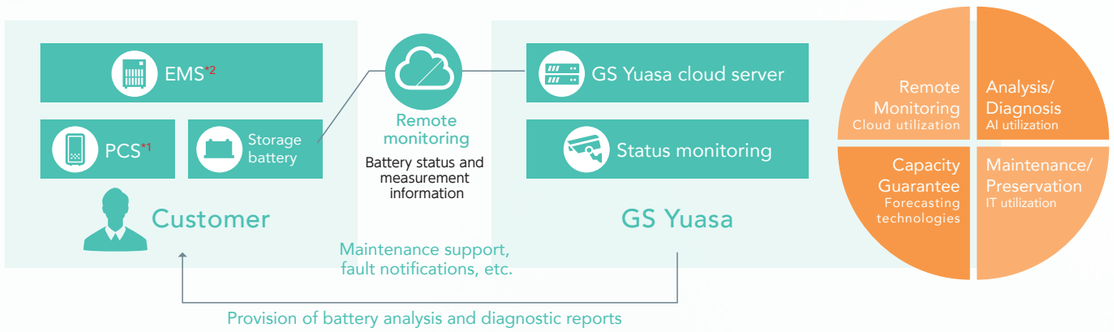
After-sales service in the regular field

In the emergency field, the main applications are for backup in case of emergency, and under normal circumstances, there is almost no opportunity for actual operation. However, storage batteries in the regular field adjust electric power by continuously charging and discharging electricity, making after-sales service very important. While maintaining the foundations of our service capabilities that we cultivated in the emergency battery field, we made new investments to strengthen our after-sales service. Our high-quality after-sales service is one way that we differentiate ourselves from competitors.

Network: STARELINK® Service

STARELINK is a maintenance service that uses proprietary remote monitoring technology and forecasting and preventive technologies. We offer preventive maintenance services that use AI and DX to maintain the stable operations and optimal control essential for power generating facilities used for extended periods, which ensures long-term recurring revenue.

Service flow



For more information on STARELINK Service, please refer to the website.
▶https://ps.gs-yuasa.com/products/service/starelink/ (in Japanese)

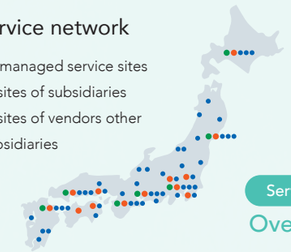
*1 Power conditioners *2 Energy management system

Footwork

GS Yuasa's strength is our proprietary maintenance and service network that spans 14 sites across Japan and is made up of 1,036 people, which we have built over more than one hundred years of history. Our industry-leading support system provides 24/7/365 maintenance and helps customers achieve their BCP, making it widely recognized as offering added value unique to GS Yuasa.

Field service network

- Directly managed service sites
- Service sites of subsidiaries
- Service sites of vendors other than subsidiaries



Service sites are available nationwide, and they coordinate with the STARELINK® Service Center if a problem occurs in storage battery facilities to enable a fast response

Service sites
Over 100 sites across Japan

VOICE Comment from an employee at GS Yuasa Fieldings Ltd.

General Manager of Kansai Construction Division, GS Yuasa Fieldings Ltd.
Yoshiharu Hirano

GS Yuasa Fieldings Ltd. provides comprehensive engineering services for industrial storage batteries and power systems. Our company deploys 1,036 technical staff throughout the nation, including those from certified partner companies, supporting the stable operation of diverse facilities such as lifelines and transportation systems. In the event of natural disasters such as typhoons or earthquakes, our staff capitalize on their mobility to swiftly arrive on the scene and dedicate themselves to emergency response efforts, including installing temporary power sources and restoring equipment to its original state. Our ability to respond with such mobility has earned high praise from many customers as "reassuring," and we will continue to strive to provide the same level of service hereafter as well.

TOPIC Installation of world's largest storage battery facilities at Kitatoyotomi Substation, North Hokkaido Wind Energy Transmission Corporation

From July 2020 to November 2021, we carried out the construction of lithium-ion battery facilities at the Kitatoyotomi Substation in Hokkaido, consisting of the world's largest capacity of 720 MWh (equivalent to 45,000 BEVs) and 3,840 storage battery cabinets (an installation area equivalent to two soccer fields). We received the order for this project thanks to the reputation for highly reliable technical skills and long-term support capabilities that we have cultivated over the years. This substation started commercial operation in April 2023. GS Yuasa will provide maintenance for the storage batteries for 20 years after the start of operation.

Customer voice Comment from North Hokkaido Wind Energy Transmission Corporation

President
North Hokkaido Wind Energy Transmission Corporation
Toru Sumiyoshi

As they installed the world's largest storage battery facilities, GS Yuasa responded diligently to our strict safety and reliability requirements. In particular, with so much recent attention focused on the safety of lithium-ion batteries, GS Yuasa pursued a design that did not compromise on safety anywhere, from the cell level to the system level. When they passed the final testing of NITE*, the tears of joy from the manager showed how much effort he had spent, and it warmed the hearts of my employees and I. This project will bring major benefits because it allows the installation of large-scale wind power generation to address the power transmission issues facing northern Hokkaido, and it will contribute to the realization of carbon neutrality.

GS Yuasa also designed a remote monitoring system in meticulous detail that we are now using after the start of operations, and we are deeply grateful for their technological capabilities and assiduous attitude.

* National Institute of Technology and Evaluation

Major orders received and delivery records

Kitatoyotomi Substation
(Toyotomi Town, Teshio District, Hokkaido)

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

Storage battery facilities
Photo courtesy of Chiyoda Corporation

Tagawa Power Storage Station
(Kawara Town, Tagawa District, 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

Installation example

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, Limited

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

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

Hosoe Outboard Engine Plant, Honda Motor Co., Ltd.
(Hamamatsu City, Shizuoka Prefecture)

Operator	Honda Motor Co., Ltd.
Date of operation	From April 2025
Capacity	2 MWh

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 conditioners: 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	From February 2025
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	From June 2025
Output	1.96 MW
Capacity	7.46 MWh

Conceptual image of
Niraduka Energy Storage Station