

# Feature

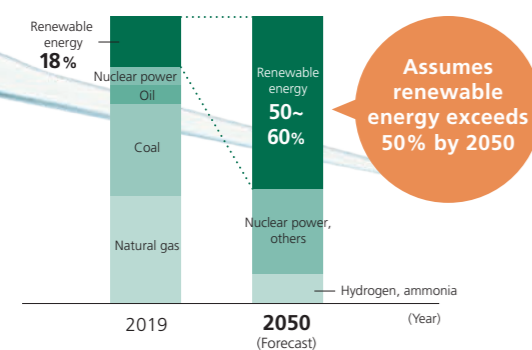
## Tackling the Challenges of the Growing Renewable Energy Market

### Market environment

As the transition to carbon neutrality accelerates, renewable energy such as wind and solar are attracting attention. Many renewable energy-related subsidy programs have been announced in Japan, and subsidies are being introduced and utilized under various measures. Under this environment, renewable energy is expected to account for a majority of Japan's power supply composition by 2050.

On the other hand, the amount of power generated by renewable energy fluctuates greatly depending on the weather and time of day, which can have adverse effects on the electric power grid in terms of stability. Storage batteries are key devices that play a role in mitigating fluctuations in output. As renewable energy becomes more widespread, the market for storage batteries, which are indispensable for controlling supply and demand, is expected to grow rapidly, and we believe that this presents a major opportunity for the Company.

### Power Supply Composition in Japan



Source: Agency for Natural Resources and Energy, "Considerations for Achieving Carbon Neutrality in 2050"

### Main subsidies promoting the introduction of renewable energy

- Grid storage battery and other system introduction support program for accelerating the introduction of renewable energy (Ministry of Economy, Trade and Industry)
  - Regional renewable energy mainstay development and resilience enhancement promotion program through renewable energy price reduction such as use of PPA (Ministry of the Environment)
- Numerous others

### About regular field and emergency field

- [Emergency field]** Used for emergency backup in data centers and communications base stations and other facilities
- [Regular field]** Used for continuous charging and discharging in renewable energy, energy management, and the like

### Strategy

### Challenge the "three new areas" based on extensive track record and respond to needs



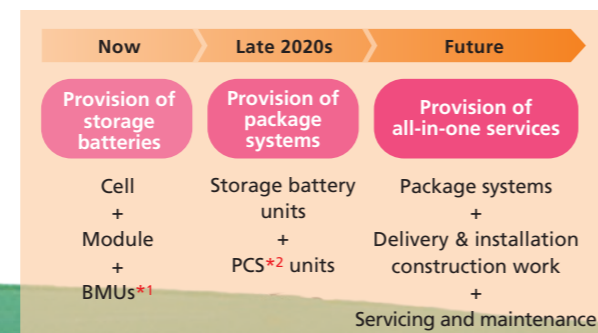
The Group is responding to increased demand while tackling the challenges of the "three new areas."

The first is new markets. The renewable energy market is expanding at a remarkable rate. New companies are entering the market one after another including domestic lithium-ion battery manufacturers, system integrators, and overseas manufacturers. In a diversifying market environment, it is necessary that we emphasize our strengths.

The second is new sales channels. In conventional business, products such as emergency backup battery power supplies are sold through system manufacturers. On the other hand, in the field of renewable energy and other regular fields, in addition to sales to system manufacturers, buyers are highly diverse and direct sales to customers are possible, including facility owners such as electric power companies as well as energy companies and trading companies. For this reason, the Group's technical capabilities, extensive experience, and know-how can provide customers with a sense of trust and security, leading to the development of new sales channels.

Third is new products. In order to be able to respond in competitive markets, we are developing batteries with higher energy density and improved cost competitiveness. Also, the safety of lithium-ion batteries is an issue, and to address this we are developing new products with an awareness of safety measures. Emphasizing "domestic production" and "safety" will lead to increased sales.

### New product development roadmap (conceptual)



\*1 Abbreviation for Battery Management Unit. A device that monitors and controls (protects) lithium-ion batteries by measuring the voltage and module temperature of each battery cell.  
\*2 Abbreviation for Power Conditioning System

### Leveraging our strengths —networks and footwork

We plan to succeed in highly competitive markets by using the Group's two strengths—networks and footwork.

Network means DX-based servicing and maintenance. Preventive maintenance services using AI and DX are essential for maintaining stable operation and optimal control, which are crucial for power generation facilities used for extended periods. Footwork refers to our network of more than 100 service locations throughout Japan. With one of the best support systems in the industry, we can provide safe and secure services 24 hours a day, 365 days a year, leading to BCP support.

By combining these two strengths, we will provide high-quality products, make proposals that incorporate both hardware and software, and help customers solve problems.

### Two strengths support long-term stable operation



### Developing business in the regular field as our second pillar

Currently, the Business Unit of Industrial Batteries and Power Supplies, the Business Unit of Lithium-ion Batteries, and Lithium Energy Japan Ltd. are making concerted efforts to conduct a cross-organizational regular field business development project in order to centrally plan and execute business strategies from product planning to manufacturing, sales, and after-sales service. From the development of lithium-ion battery cells specialized for industrial applications, we are working on system development for future total package proposals.

In addition to these efforts, we will accelerate collaboration with other companies while developing business in the regular field as a second pillar after business in the emergency field.

### TOPIC

### Installation of storage battery system for a large-scale wind power generation project in Hokkaido completed in November 2021

From July 2020 to November 2021, we conducted construction of the world's largest-scale lithium-ion battery facility at the Kita Toyotomi Substation in Hokkaido. The facility has 720 MWh capacity (equivalent to 45,000 BEVs) and 3,840 storage battery panels (the installation area is equal to two soccer pitches). We received the order for this project in recognition of the highly reliable technology and long-term support capabilities that we developed. This wind power generation facility is scheduled to start operating in fiscal 2023, and following the start of operation, we will maintain the storage batteries for 20 years.



### Message from the Project Manager



Takashi Abe  
Director and Deputy Business Unit Manager of Industrial Batteries and Power Supplies  
GS Yuasa International Ltd.

### Enhancing value provided to customers with all-in-one solutions

The power grid is fundamental national infrastructure, and extremely high quality is needed. As renewable energy is fully integrated into electric power infrastructure, storage batteries will be the most important devices for the regular field for supporting stability. As geopolitical risks manifest, our customers can be secure, since we produce our products in Japan.

We have high expectations for the expansion of the storage battery and energy management markets as demand for renewable energy increases. Going forward, we intend to increase the value we provide to customers and to enhance our presence in new markets by proposing all-in-one systems that offer complete packages of power conditioners and storage batteries from products to installation and maintenance as integrated systems.

In addition, we anticipate synergistic effects with the technical resources of GS Yuasa Infrastructure Systems Co., Ltd., which joined the Group in May 2021. We will leverage the company's resources, which have strengths in the mass production technology and communication fields, for new business and create a new Business Unit of Industrial Batteries and Power Supplies.