



GS Yuasa Delivers 6,750kWh Lithium-ion Battery System to Kushiro Town Toritoushi Wildland Solar Power Plant

GS Yuasa Corporation (Tokyo Stock Exchange: 6674; “GS Yuasa”) announced that its container lithium-ion battery system with storage battery capacity of 6,750kWh was delivered to Kushiro Town Toritoushi Wildland Solar Power Plant, which started using the battery system on April 3, 2017. With the GS Yuasa product, the plant became Hokkaido Electric Power’s first mega-solar system installed with lithium-ion storage batteries made in Japan.

In photovoltaic power generation, the changes in natural conditions such as availability of sunshine sometimes lead to rapid fluctuations in output, and if the load to the power system increases, this could affect the power system voltage and frequency. For this reason, in Hokkaido, it is necessary to take measures to reduce the output fluctuation by installing storage battery systems when connecting photovoltaic power generation to power systems.

GS Yuasa’s lithium-ion battery system was installed for reducing the output fluctuation and will support the operation of the power plant.

GS Yuasa received the order for the lithium-ion battery system from Obayashi Corporation (Tokyo Stock Exchange: 1802) and the company, jointly with Mitsubishi Electric Corporation (Tokyo Stock Exchange: 6503) carried out repeated tests using the actual output fluctuation data of the photovoltaic power plant to build an optimal system.

Moreover, GS Yuasa is implementing a round-the-clock voltage management and fault surveillance of all the cells to guarantee the reliability of the entire system and in case a fault occurs the company will utilize its national network to respond to the customer request.

GS Yuasa will continue to promote utilization of high-performance lithium-ion battery system and take initiatives to contribute to the realization of a sustainable society leveraging regenerative energy.

[Features of the lithium-ion battery system]

1. Features resulting from adoption of low internal resistance, high energy lithium-ion battery LIM50EN
 - 1) Made the system compact and gave it longer life
 - 2) Enables optimum SOC^{*1} management, which is important for fluctuation absorbing operation.

2. Features of the system as a whole
 - 1) Achieves energy savings in air-conditioning by controlling the heat generated at charging and discharging.
 - 2) Significant reduction in failure rate and number of replacement parts by having a module structure without cooling fans.
 - 3) Compatible with cubicle that is in compliance with fire prevention ordinances.
 - 4) Clean transportation by using containers designed for rail freight transportation

*1 SOC: State of Charge (charging rate). Rate of residual capacity when fully charged state is 100%.

[Outline of lithium-ion battery system]

Module format	LIM50EN-12 (12 cell module)
Number of batteries (cells)	38,400 (16 module in series × 10 in parallel × 2 units × 10 containers)
Capacity (kWh)	6,750* ² (675×10 containers)
Nominal voltage (V)	710.4
Dimensions (mm)	Container: W2,438×D8,550×H2,800 (stores 2 units)
Mass (kg)	Container: About 22,000 (after installation of storage batteries)
Cooling system	Container: Cooling type (air-conditioning installed) Lithium-ion battery: Auto-cooling type

*2 Multiplication of rated capacity (Ah) and nominal voltage (V)

[Reference: Overview of Kushiro Town Toritoushi Wildland Solar Power Plant]

Location	Aza Toritoushi Gen-ya, Kushiro Town, Kushiro-gun, Hokkaido
Power generation operator	Obayashi Clean Energy Corp.
Power generation facility scale (MW)	Photovoltaic panel: 17.9 Power output: 14.5
Storage battery PCS output (MW)	10
Storage battery capacity (kWh)	6,750
Start of operations	April 3, 2017

[Images]

1. Industrial-use lithium-ion battery module LIM50EN series



2. Exterior of lithium-ion battery container



3. Overall view of Kushiro Toritoushi Wildland Solar Power Plant

