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GS Yuasa Corporation



**Tobu Railway Installs GS Yuasa's 1800kW Regenerative Power Storage System  
~Lithium-ion storage battery system helps reduce railcar power consumption~**

GS Yuasa Corporation (Tokyo Stock Exchange: 6674) announced today that Tobu Railway Co., Ltd. (Tokyo Stock Exchange: 9001) has installed an 1800kW (360kW x five units) E<sup>3</sup> Solution System, a regenerative power storage system that combines a converter and lithium-ion battery in single units. The system adopted by Tobu Railway comprises five of these units connected in parallel, and enables the absorption and discharge of up to 1800kW (360kW per unit) of power.

The E<sup>3</sup> Solution System (regenerative power storage system) is installed in the sectioning post at Kami-Fukuoka Station on the Tobu Tojo Line, and has been operating since July 2012. The system utilizes power more efficiently by absorbing energy generated during the braking of railcars, storing it in the lithium-ion batteries via the converter and then supplying it to railcars during acceleration. The stored energy is also used to stabilize the overhead contact line voltage. Using regenerative power in this way ensures the safer operation of railcars and acts as an energy-saving measure by reducing railcar electricity consumption. Tobu Railway chose the system to help cope with an increase in the peak-hour operational burden following the introduction of new railcar models and timetable changes.

The GS Yuasa Group started shipping large-scale lithium-ion batteries for specialty applications, including space applications, in the 1990s. In 2006, the Group began selling power storage systems for railways utilizing lithium-ion batteries. The Group then embarked upon mass-production shipments of automotive lithium-ion batteries for EV, HEV, and other types of vehicles in 2009, and it continues to supply safe, high-quality products for various large-capacity industrial applications such as diesel hybrid locomotives used by railways. The GS Yuasa Group will continue to help society further embrace energy conservation through the promotion of systems utilizing storage batteries.

**E<sup>3</sup> Solution System Specifications**

Item	Specification	Reference
Rated capacity (kW)	1800	360kW x 5 units
Maximum charging current (A)	1200	Overhead contact line DC 1500V
Dimensions (mm)	3400x1680x2600 (WxDxH)	1 unit
Battery module type	LIM30H-8A	8-cell module
Number of batteries	24 modules connected in series x 5 units in parallel	960 cells

**Images**

1. Regenerative power storage system, E<sup>3</sup> Solution System, installed in the sectioning post at Kami-Fukuoka Station



2. LIM30H-8A lithium-ion battery module

