



**Combining Photovoltaic Power Generation, Storage Batteries to Lower Environmental Burden
GS Yuasa Launches “PV-EV System” Quick EV Charger for Disaster Response**

GS Yuasa Corporation (Tokyo Stock Exchange: 6674, “GS Yuasa”) has begun sales of its PV-EV System, a quick electric vehicle (EV) charging system which uses natural energy and combines photovoltaic power generation with storage batteries. In addition to charging EVs, the system can be used for disaster response as an alternative electric power system during power outages. The 2012 sales target is 100 systems and revenue of around ¥1.2 billion.

PV-EV System supplies clean energy by combining photovoltaic cells with lithium-ion batteries and a quick EV charger. The power generated by the photovoltaic cells is stored in the lithium-ion batteries, and the stored energy is supplied to EVs through the charging system. At night and during days with hardly any sunshine, the lithium-ion batteries can also be charged through power supplied by an electric power company. Additionally, using a power conditioner, surplus power generated by the system can be sold to electric power companies through a grid interconnection. Through using natural energy generated by the photovoltaic cells to power EVs, the system paves the way for the possibility of zero carbon dioxide (CO₂) emissions from power generation to consumption.

The PV-EV System is the same system demonstrated by GS Yuasa, Mitsubishi Corporation, Mitsubishi Motors Corporation, and Lithium Energy Japan on January 26, 2011 in Kyoto as part of field demonstrations for the secondary use of automotive lithium-ion batteries. The storage batteries used in the current PV-EV System, however, are not secondary use batteries, but LIM50E-8 industrial-use lithium-ion battery modules for which development has been completed. Moreover, the system has been designed to accommodate reused batteries in the near future, which will lower the environmental burden further by using resources even more effectively.

Features:

○**Low environmental burden by using natural energy to power EVs**

Energy produced by photovoltaic power generation is efficiently stored in the lithium-ion batteries and used to rapidly charge EVs, making it possible to further reduce carbon dioxide (CO₂) emissions associated with powering EVs.

○**No burden on power grid**

The system rapidly charges EVs using energy stored in the lithium-ion batteries, and consequently, there is no burden on the power grid.

○**High voltage unnecessary**

Quick charge systems typically require high voltage when the contracted power exceeds 50kW, but the PV-EV System’s quick charger can operate on low voltage (single-phase, three-wire system).

○**Effectively uses surplus power**

The photovoltaic power generation system is connected to the power grid, making it possible to use photovoltaic power for facility lighting and other needs after the storage batteries are fully charged.

○**Nighttime EV charging possible**

At night and other times when photovoltaic power generation is not possible, the lithium-ion batteries can be charged through the power grid, making it possible to use the quick charger under various usage scenarios.

○**Emergency charging (during power outages) possible**

During power outages, AC-type quick chargers cannot be used. The PV-EV System’s quick charger can provide a quick charge even during power outages. Additionally, during even prolonged power outages, the photovoltaic power generation system can supply power to the lithium-ion batteries and continuously charge EVs.

○Critical power supply during emergencies

The power conditioner includes an autonomous power output which can be used to maintain power to lighting facilities, disaster-response information systems and other critical infrastructure during power outages and serves as a lifeline in times of emergency.

Availability: November 21, 2011

Suggested retail price: from ¥12 million (excluding tax and installation costs)
 Note: Photovoltaic power generation panels, mount, junction box and installation costs are separate.

Sales target: 100 units/year

System components:

Lithium-ion batteries

Model: LIM50E-8G2-C1, 11 modules

Rating: 50Ah; can be used for LEV50 EV batteries

Power conditioner

Model: LSSA-4. 5-S3CE, 1 unit

Rating: Single-phase, two-wire AC202V, 4.5KW

Quick EV charger

Model: EVC-20KD, 1 unit

Rating: DC input, 19KW

Storage battery panel

1 unit

Photovoltaic cells,
 mount, junction box

System is used with 2kW~4kW solar panels. System designed separately in accordance with installation site.

*Options include a data measurement system to gather charge, discharge, and power generation data.

Usage Scenario

