

**Sumitomo Electric Receives Order for Redox Flow Battery System
from Nippon P.S. for Its Head Office and Factory**
—Project Supported by the Ministry of the Environment's Subsidy Program
"Subsidies for Business Expenses for Reducing Carbon Dioxide Emissions"—

Sumitomo Electric Industries, Ltd. has received an order from Nippon P.S. Co., Ltd. for a redox flow battery system (system capacity: 250 kW x 3 hours) to be installed at its head office and factory.

In recent years, as the introduction of renewable energy accelerates toward the realization of a decarbonized society, the need for storage batteries is growing for the purpose of stabilizing power systems and effectively utilizing renewable energies. There is a particularly strong need for safe and long-life storage batteries, and Sumitomo Electric has been developing and selling redox flow battery systems to meet the need.

Nippon P.S. was considering introducing a solar power generation system to its new factory as a measure to shift the electricity used in its head office and factory to renewable electricity, and Sumitomo Electric proposed the introduction of a redox flow battery system to the company.

The redox flow battery system can be charged and discharged according to the output of the combined solar power generation system and the power demand on the premises. By charging power when solar power is surplus and discharging power when power demand is high, the redox flow battery system is expected to increase the percentage of renewable electricity in the total electricity consumption on the premises of Nippon P.S. to 50%. In addition, one storage battery system can be used for multiple purposes, such as the reduction of electricity costs by shaving the peak and use as an independent power supply to important equipment during power outages.

In addition to these advantages, Nippon P.S. highly evaluated the cost benefits and safety of the redox flow battery system throughout its service life, which became the decisive factor for the company to adopt the system.

This project is supported by the Ministry of the Environment's subsidy program



Redox flow battery

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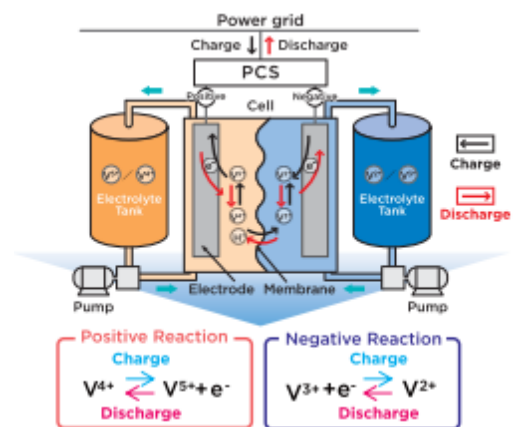
"FY2021 Promotion of price reduction of solar power generation systems or the like to achieve storage parity (Subsidies for business expenses for reducing carbon dioxide emissions)," which supports private companies in introducing self-consumption solar power generation systems and storage batteries.

Overview of the order

Installation location	Nippon P.S. Head office/factory (Tsuruga, Fukui, Japan)
Scheduled delivery time	January 2023
Product	Redox flow battery system (250 kW x 3 hours)

Principle of redox flow battery

A redox flow battery is a storage battery that charges and discharges electricity using oxidation-reduction reactions of ions of vanadium or the like promoted by circulating electrolytes with pumps. The battery basically consists of a cell stack (a stack of liquid-reflux-type cells), electrolytes, tanks for storing the electrolytes, and pumps and piping for circulating the electrolytes.



Features of Sumitomo Electric redox flow battery

(1) High safety

The redox flow battery features a very low possibility of fire and is safe, operating at room temperature and being made of non-combustible and flame-retardant materials.

(2) Long service life

The number of charge and discharge cycles is not a factor in the battery's deterioration, according to its operating principle. The redox flow battery ensures system durability for 20 years (design life intended by Sumitomo Electric). Also, the electrolytes, which do not deteriorate, can be used semi-permanently and can also be reused.

(3) Flexible design and operation

The output (kW) can be determined by the number of cells, and the discharge time (capacity) (kWh) can be determined by the volume of electrolytes. This enables flexible design and operation independently for the output and discharge time (capacity). It is possible to design a discharge time of up to 10 hours, which meets the increasing need for long-time operation both in Japan and overseas.

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(4) Accurate charge and discharge

The battery allows for accurate monitoring of the state of charge, enabling stable operation continuously for an extended period of time without being affected by charge/discharge patterns.

Currently, storage batteries are beginning to be used for a variety of purposes, such as increasing the percentage of renewable energy, reducing electricity bills, and enhancing business continuity planning in preparation for power outages, in addition to system stabilization. In particular, expectations for redox flow batteries are rising because their long service life and high fire resistance can ensure safe and secure operation at factories, hospitals, and large commercial facilities. Sumitomo Electric will contribute to the realization of a decarbonized society by proposing total solutions using a wide range of energy-related products, including storage batteries, energy management systems, and electric wires and cables.