

CPV and storage battery

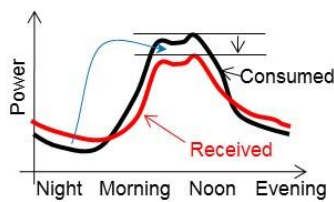
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Sumitomo Electric Industries, Ltd. has recently developed two types of smart-grid demonstration systems. One is the micro smart-grid demonstration system operating at Osaka Works from June 2011. This system consists of four types of renewable power generators and a storage battery with DC-connection to balance fluctuations in natural power generation and power consumption, thereby ensuring stable and efficient power supply to the facilities and equipment of the Works without any commercial power network. The other is the megawatt-class power generation/storage system established at Yokohama Works in July 2012. This system consists of the world's largest redox flow battery (capacity: 1 MW x 5hours) and Japan's largest concentrated photovoltaic (CPV) units (maximum total power generation: 100 kW).

Connected to external commercial power networks, the system can store electricity provided by a power company during the night. Both systems employ an energy management system (EMS) that monitors generated electric power, battery storage and power consumption, and stores measured data on a central server.

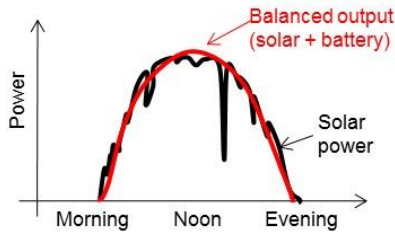
We have demonstrated the CPV power generation/storage system as follows, 1. Peak shift, 2. Stabilize Fluctuation, 3. Scheduled PV Output, successfully.

1, Peak shift



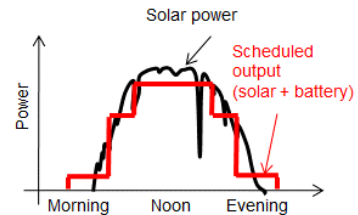
Charging electric power during off-peak hours and supplying electric power from RF battery during on-peak hours

2. Stabilize Fluctuation



Stabilizing fluctuations of solar power by charging/discharging RF battery

3. Scheduled PV Output



Combination use of solar power and RF battery enables scheduled power generation regardless of the weather

