ESS

Energy Storage System

The ESS (Energy Storage System) was designed to improve energy efficiency by using power only when it is necessary after it has been stored. The ESS is an energy solution system for improving the quality of renewable energy and stabilizing power supply.

Business Components of Dae-Gyoung Industrial Electronics ESS

•ESS for Gencos

Materialize smart grids for storing electricity that is generated from renewable energies, such as solar power, hydraulic power, wind power and terrestrial energy, or through cheap midnight power and selling it when electricity supply and demand are high

Battery ⟩⟩⟩ BMS ⟩⟩⟩ PMS ⟩⟩⟩ PCS

Construction diagram of ESS for Gencos

•ESS for Energy Control Companies

Materialize economic and effective grids through storing cheap midnight power and managing energy consumption properly in order to control peak power use of companies
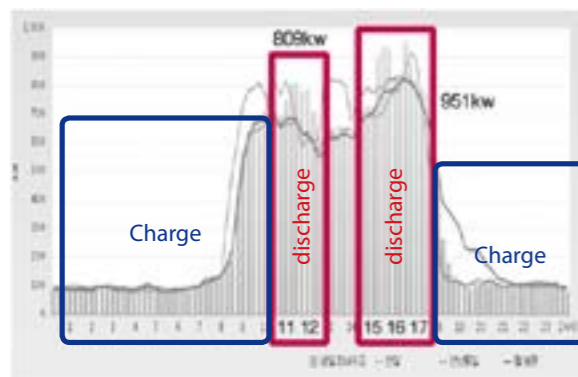
Battery ⟩⟩⟩ BMS ⟩⟩⟩

PMS ⟩⟩⟩ PCS

EMS ⟩⟩⟩ peak control ⟩⟩⟩ SEDM ⟩⟩⟩ PCS
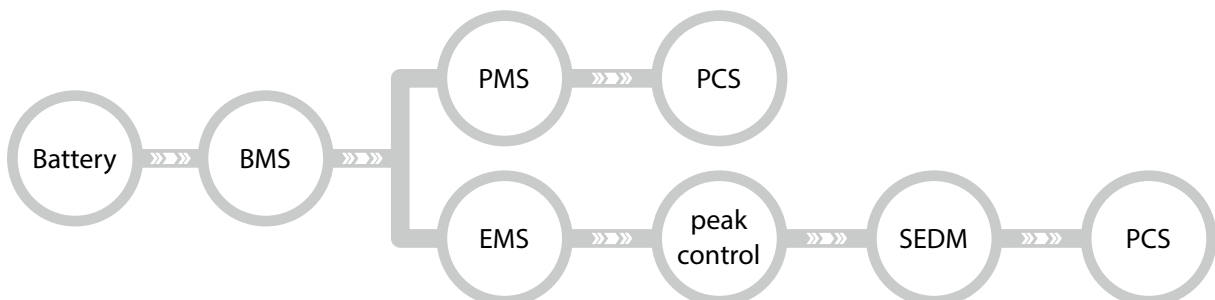
Construction diagram of ESS for energy control companies

ESS Energy Storage system
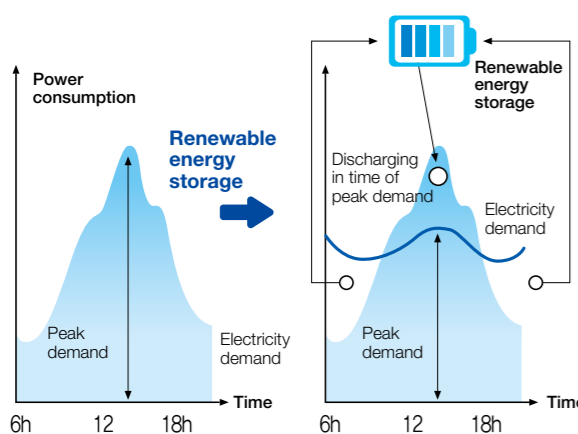
Stable and Economic Global Smart Energy Solution

ESS Effect

Smart power generation business through efficient energy management

Charge | discharge | discharge | Charge

809kw
951kw

- Create revenues through efficient energy management by charging batteries through renewable energies, such as solar power, hydraulic power, wind power and terrestrial energy, using cheap midnight electricity

- Can do effective generation business because power scheduling is possible due to the power management system (PMS)

- Can effectively expand the power market for all power companies and business people by discharging batteries in the afternoon when power consumption is high
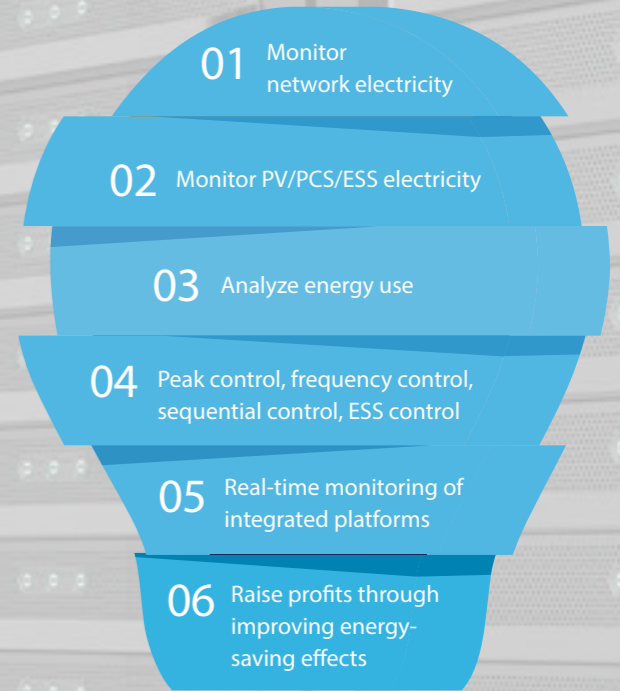
Renewable energy linkage, smart energy consumption

Power consumption

Renewable energy storage

Renewable energy storage

Discharging in time of peak demand

Electricity demand

Peak demand

Electricity demand

Peak demand

6h 12 18h   Time   6h 12 18h   Time

- Use renewable energy systems and eco-friendly energy all day long

- The ESS minimizes the power purchasing of grids by storing energy produced by PV during the day for people to use it whenever necessary.

- Raise energy self-consumption and can reduce entire power rates

- Secure stable and cheap power self-supply networks with renewable energy systems, including solar power, terrestrial heat, hydraulic power and wind power, in islands where it is difficult to establish transmission networks

- Can be used as alternative energy sources, during unexpected power failures

Energy-Saving Process

Dae-Gyoung Industrial Electronics suggests the best energy solution to customers through improving ways to manage energy and raising efficiency after effectively managing energy storage devices. For the purpose, the company will thoroughly analyze irregular energy consumption patterns, inefficient facility operation conditions and patterns of using renewable energy owned by the company by month, season and holiday.

01 Monitor network electricity

02 Monitor PV/PCS/ESS electricity

03 Analyze energy use

04 Peak control, frequency control, sequential control, ESS control

05 Real-time monitoring of integrated platforms

06 Raise profits through improving energy-saving effects

Smart ESS Discharge Management

Analyze peak consumption and control discharging

	Energy	Medium	SemiPower	Power
Power output	~0.25C	~0.5C	~0.75C	~1.0C
Duration	Energy Shift Peak Cut Curtailment	Peak Shift Peak Cut	Peak Shift Peak Cut	Ancillaary Services Frequency Regulation Voltage Support

Battery and BMS

📶 Battery

•Stability
·LFP is good in terms of safety and durability and has equal voltage.
·Develop and produce LFP batteries with excellent stability based on our strong ability to design batteries

•Generating power, durability, low temperature properties
·Secure high power generation and long durability through optimizing composition of electrodes and electrolytic solutions
·Excellent properties at a very low temperature

•Equality
·As high-capacity batteries are used after connecting many end cells in series and rows, it is important to minimize variations between batteries.
·Produce batteries with equal efficiency in terms of capacity, resistance and durability, through production automation and strict process management

Components	Feature	Value	
		Rack-4S4P	Rack-4S6P
TWO Racks	Type	Lithium ion battery (LeFePO4)	Lithium ion battery (LeFePO4)
	Voltage	512V	512V
	Charge, CV	537V	537V
	Discharge end, V	487V	487V
	Installed Capacity	40.9 kWh (80Ah)	61.4 kWh (120Ah)
	SOC 95%, DOD 95%	36.8kWh (72Ah)	50 kWh (100Ah)
Enclosure	Rate : IP21	Metal plate SPCC (powder coat)	Metal plate SPCC (powder coat)
Dimension	W*D*H mm	600*700*2000	600*700*2000

(Specification appears in the "Feature" grouping column for the TWO Racks rows.)

📶 BMS

•Stability
·Divide operation and unusual conditions with independent communication-controlling algorithms
·Secure system stability by cell balance, tray balance and module balancing
·Secure system stability by circuits for preventing inrush currents

•Optimality
·Manage deep DOS and SOC with control algorithms optimized for LiFePo4
·The best operation through connection solar energy control systems