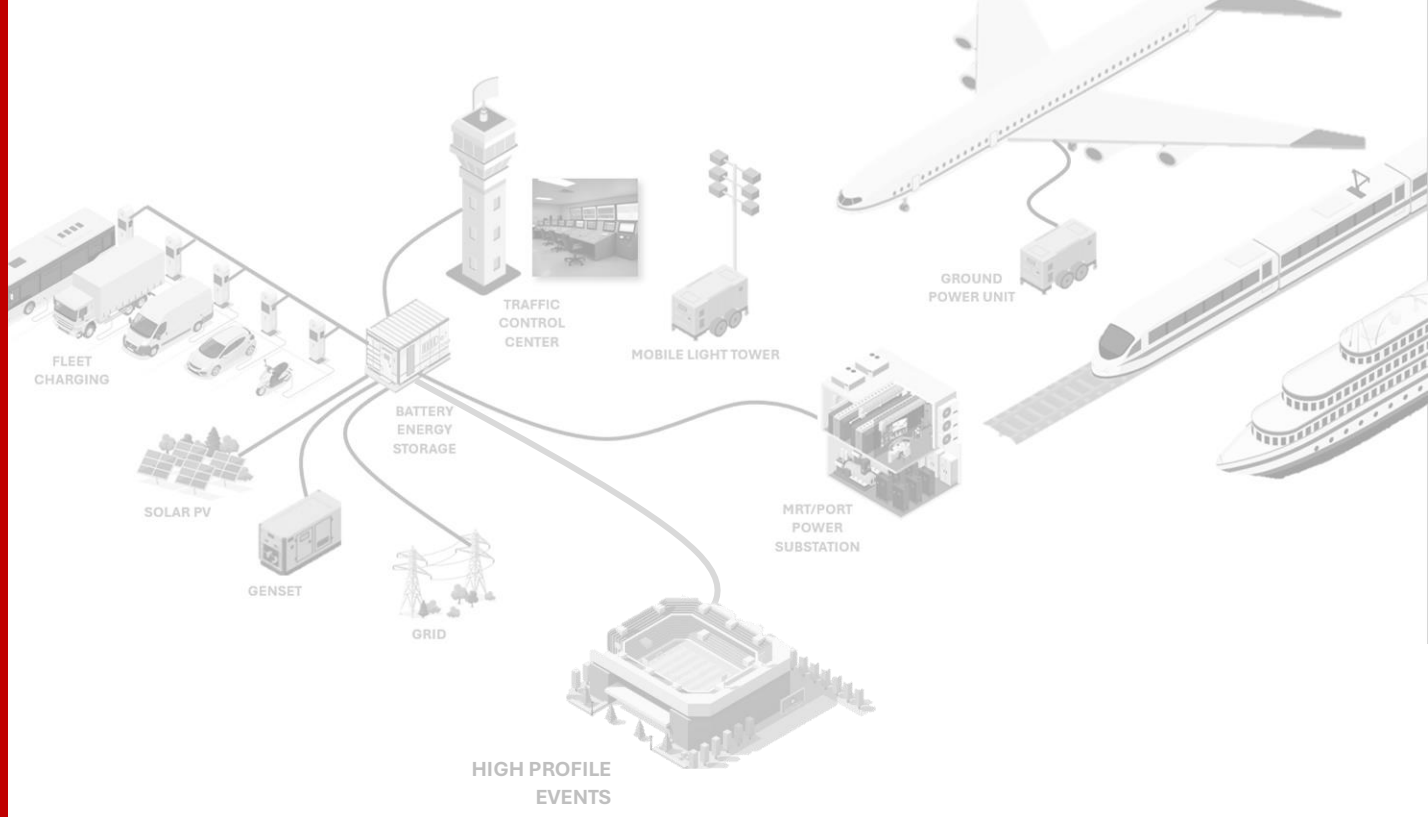


MODULAR ENERGY

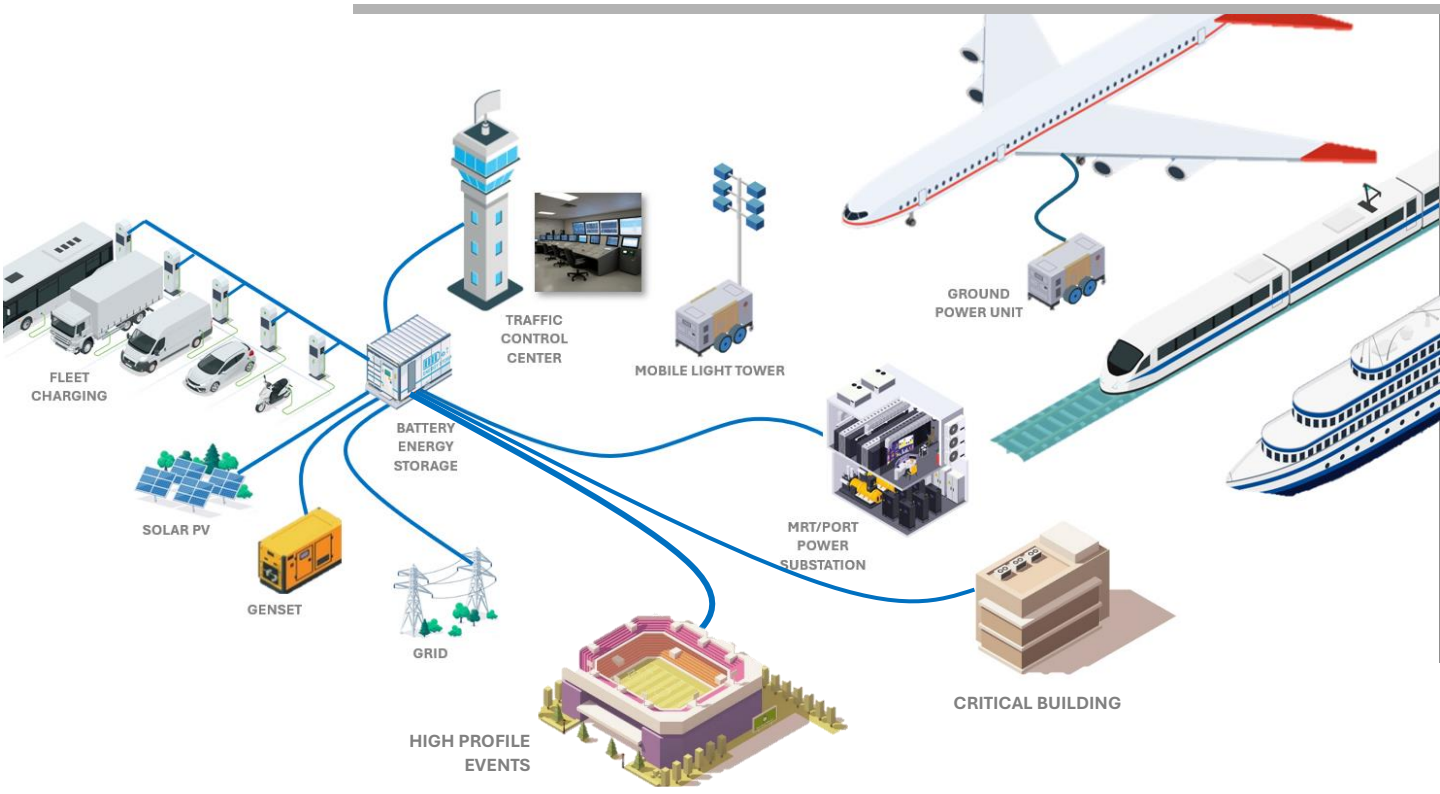
BESS Power System For Critical Infrastructure

WWW.MODULARENERGY.ID

PT Modular Energy Indonesia is a leading system integrator specializing in Battery Energy Storage Systems (BESS) currently located in Indonesia. With a focus on renewable energy solutions, the company provides comprehensive services to delivering high-quality, reliable, and efficient BESS systems that support the country's transition to a sustainable energy future.

PT Modular Energy Indonesia is a **subsidiary of Renoz Energy Pty Ltd.** Australian-based company, renowned in the global renewable energy market, specializing in battery energy storage technology. Renoz Energy's expertise and resources contribute to PT Modular Energy Indonesia's ability to deliver cutting-edge BESS systems and support the growth.

Solution for Critical Infrastructure



MODULAR ENERGY

Uninterruptible Power & Backup Quality

Power Conditioning System (PCS) in a data center safeguards sensitive equipment from issues with the incoming electrical supply. Integration with Battery Energy Storage (BESS), allows greater enhancement, more resistance to even deep power disturbance, brownout, or blackout. Integration of PCS+BESS forms Advanced UPS functionality

Cost Saving

- Load Shifting. PCS can control BESS to store energy in cheaper low demand and use it during peak demand higher cost period. Saving Opex
- Peak shaving. PCS + BESS can act as buffering for onsite genset and DRUPS. Allowing engineering to size them down for average demand calculation instead of peak demand. SavingCapex

Integration with Onsite Renewable

BESS & PCS can intelligently manage intermittency of onsite renewable generation e.g Solar PV or Wind, allowing low cost & green energy and improving carbon footprint.

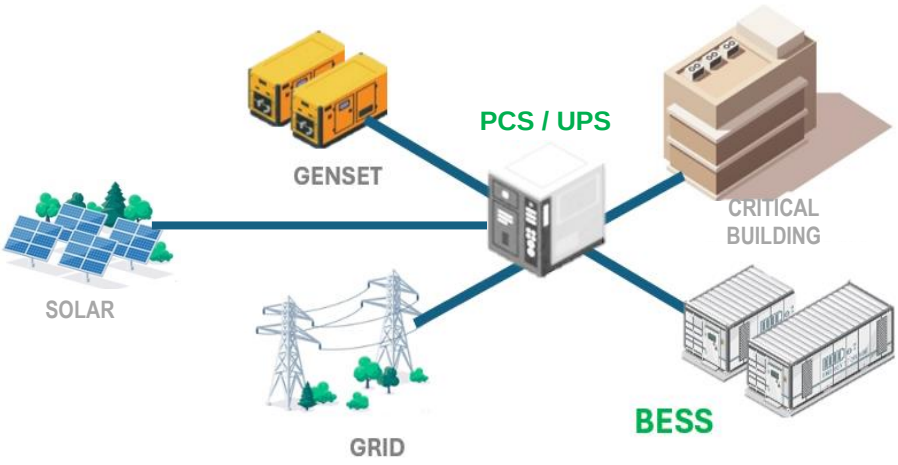
Grid Stabilization Support

Data Center power consumption, with its high demand and sometimes uneven may strain the grid. PCS & BESS can help to mage such condition in-bound and even out-bound if permittable by regulation.

Hybrid Power System

PCS + BESS

MODULAR ENERGY



Powered by

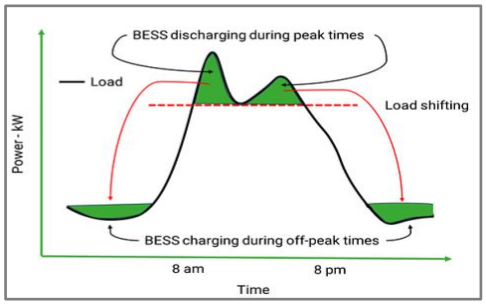
RENOZ ENERGY

SINEXCEL

XTREME Power Conversion

Load Shifting Cost Saving

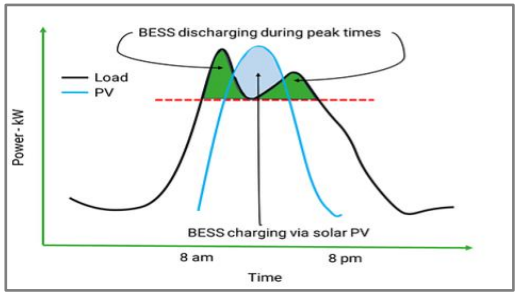
This strategy leverages the ability of BESS to store electrical energy. Absorbing the energy from Grid during low-rate hours, and then discharge them during peak hours, when demand and electricity prices are at their highest. **reduce overall electricity costs**



Peak Shaving Cost Reduction

Business & utilities can avoid **unnecessary expensive investments** by sizing down generator capacity to meet **realistic average demand,** instead of following peak demand.

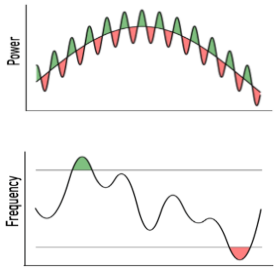
BESS also reduces the need for traditional power plants to **frequent ramp up and down** to meet fluctuating demand. This minimizes wear and tear, and improves their overall efficiency, leading to **cost savings and reduce emissions.**



Persistent Power Quality

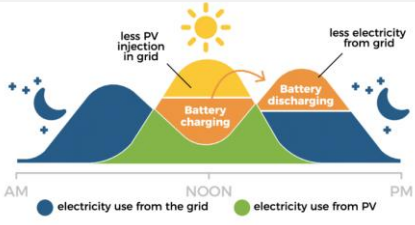
Rapid Response to Fluctuations: PCS can react rapidly to fluctuations from the grid. This real-time response capability helps to maintain a stable power, voltage sags/swells and dips.

Frequency Regulation: PCS can act as a fast-acting frequency regulator by absorbing or injecting energy as needed. This helps to maintain the system frequency within precision range.

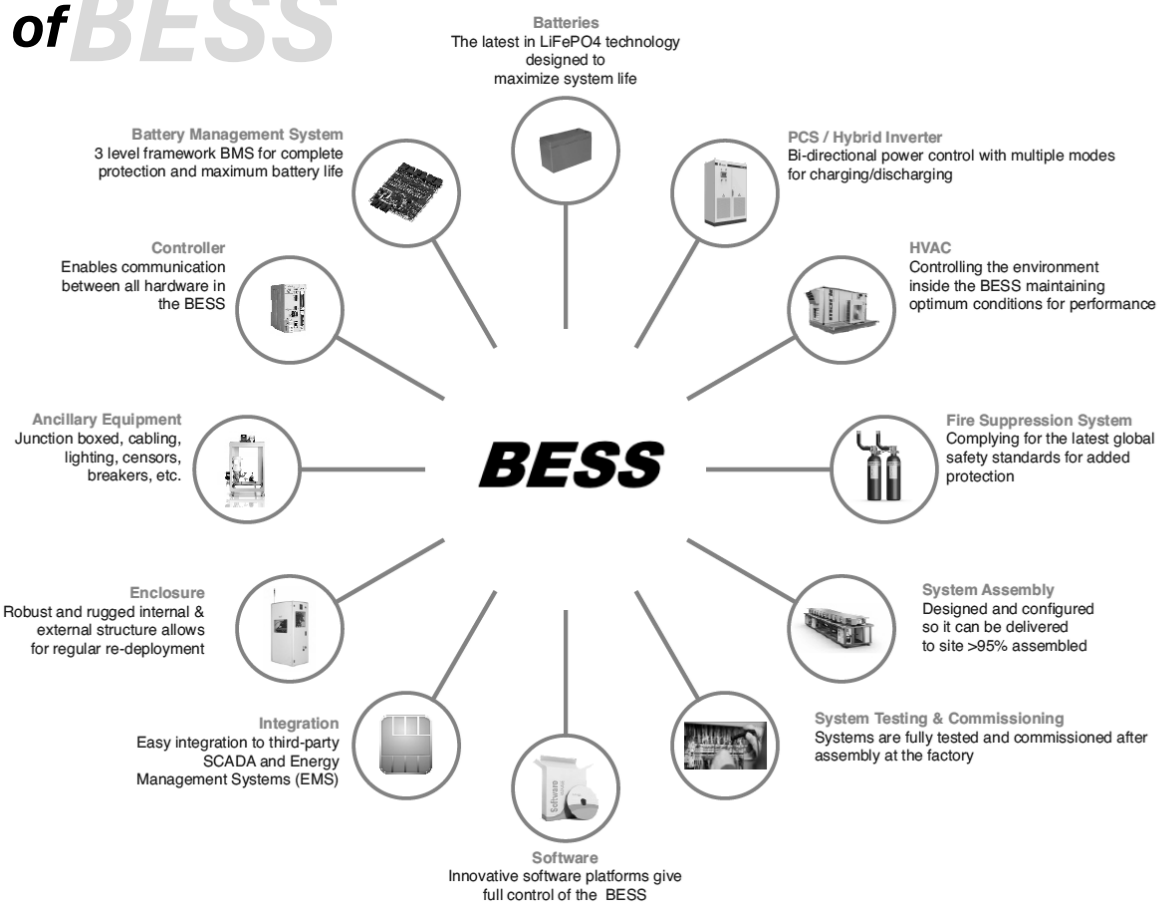


Onsite Power Generation

While renewable energy sources such as solar and wind power offer compelling possibility of **virtually free energy,** their inherent variability and intermittency can pose challenges for critical system. BESS can function as large-scale storage of surplus electricity generated during periods of sunny days or high-wind hours and allows for the later utilization of this clean energy.



Building Block of BESS



POWER RACK SYSTEM

Bi-directional storage inverter
Offgrid & Interactive mode
30kW - 1.7MW Scalable blocks
150-1500VDC
380/400VAC 3Ph+N
SCADA/DER controlled & EMS
Load Shifting & Peka Shaving Function

Hybrid inverter
45kW - 1.7MW Scalable blocks
250-830VDC Solar PV MPPT Input
380/400VAC 3Ph+N Output
SCADA/DER controlled & EMS
Load Shifting & Peka Shaving Function

Advanced UPS
40kW - 1.2MW Modular System
220 / 380 / 400VAC 1Ph / 3Ph+N Input/Output
Static Transfer Switch
SCADA/DER controlled & EMS
Load Shifting Function

POWER CONVERSION (PCS) MODULAR SYSTEM

Bi-directional inverter
30kW/45 (summable)
150-750V Charging
700-830V DC bus
400±15V AC

Intelligent Transfer Switch 100kVA
- 1ph 220/230VAC
- 3ph 380/400/480VAC

TN-C-S, TN-S, TT, TN-C Grid
SCADA/DER controlled & EMS

PV charger module
45kW (summable)
250-830V PV side
700-830V DC Bus
MPPT *3

Static VAR Generator
30 – 120 kVAr
400 – 690 V
50 / 60Hz (auto sensing)

Active Harmonic Filter
Capacity 5 - 300A
228 – 456 V
IEEE519

Small Power Rectifier/Inverter
2000-6000W / block
12 - 72 V DC input-output (DC mode)
220(1ph) - 380(3ph) V AC input
40 - 500 V DC MPPT*2 PV mode
SNMP/CAN/RS485 communication

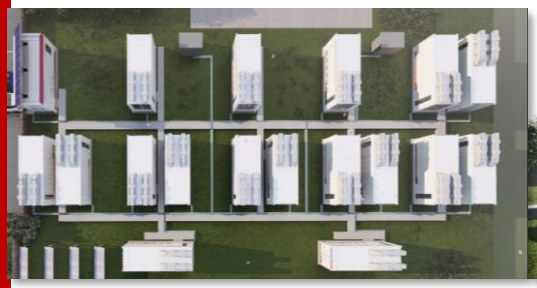
BATTERY RACK SYSTEM

Indoor LV Rack System
5 - 30 kWh / block
12 - 72 V DC mode
Natural / forced air

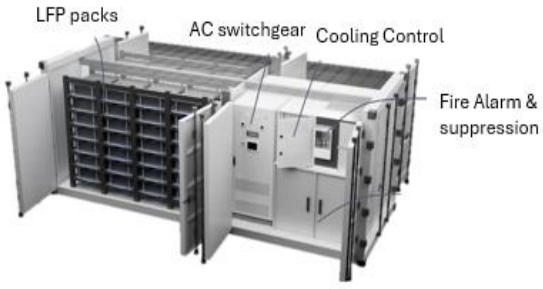
HV Rack System
30 - 50 kWh / block
240 - 584 VDC
Forced air / natural cooling

Specialty System
Outdoor IP55/IP56/IP65
Air Conditioning / Liquid cooling
Fire suppression

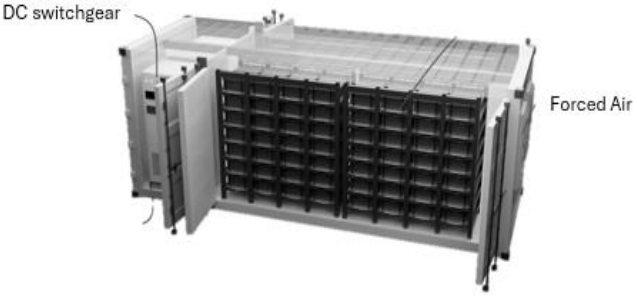
Containerized BESS



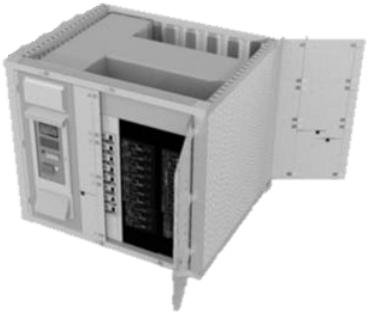
0.5MW / 0.8MWh
Built-in PCS



1MW / 1MWh
External PCS



300-500kW / 0.4-0.6MWh
Built-in PCS



MODULAR
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