

# Standalone BESS Solution



## Challenges

Renewable integration challenges due to insufficient energy storage and grid flexibility.



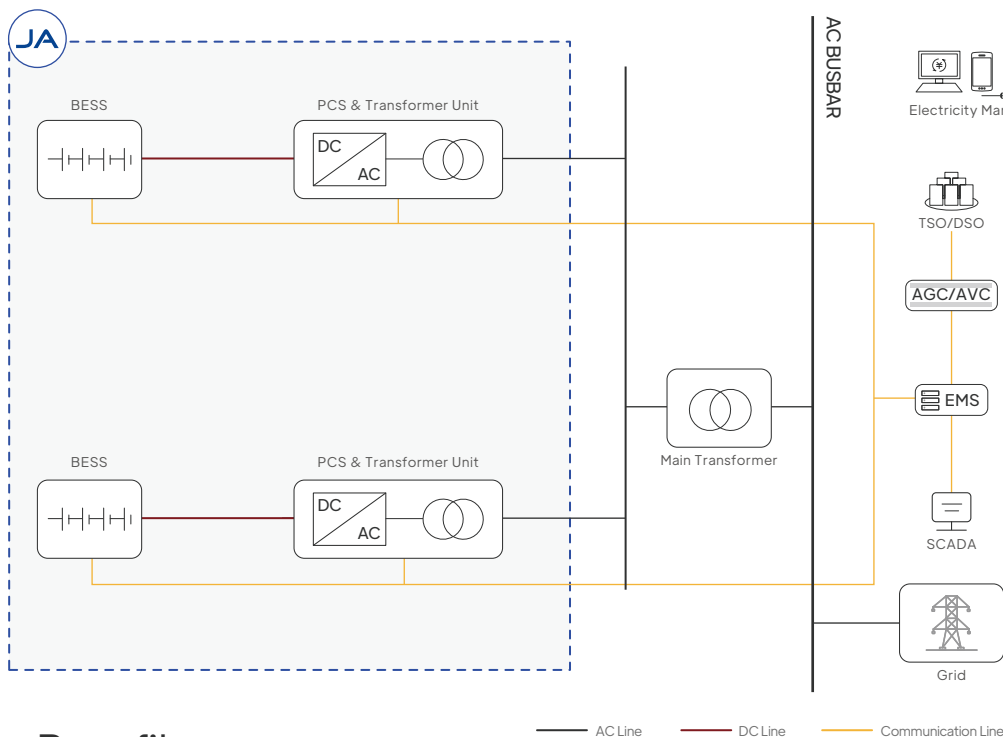
Grid strain from supply-demand imbalance, caused by inadequate peak-shaving and frequency regulation capabilities.



High grid infrastructure upgrade costs due to constrained transmission and distribution (T&D) capacity.



## Solutions



## Functions



Features primary frequency response and AGC/AVC capabilities for rapid response to grid dispatch commands for peak-shaving and frequency regulation.



Performs energy arbitrage to mitigate price volatility and optimize supply-demand balance.



Supports black-start capability for critical grid restoration.

## Benefits

Maximized revenue streams through participating in medium-to-long-term trading, spot markets, and ancillary services.

Enhances renewable energy integration and expands the grid flexible resources.

Optimized grid capability through strengthened transmission and distribution (T&D) capacity, and deferred infrastructure investment.

# Advantages



## Safety

- Multi-stage fuse protection with millisecond-level coordinated response and real-time insulation monitoring.
- Intelligent three-level fire alarm mechanism with pack-level detection and water suppression system.
- Real-time thermal runaway monitoring with multi-layers pressure release and explosion proof protection.



## Cost Efficiency

- Long-life LFP batteries with high-precision SOX algorithms that maximize return on investment.
- Up to 88% system RTE with  $\geq 93\%$  DC-side efficiency.
- Intelligent liquid-cooling system that maintains cell operation temp  $\leq 35^\circ\text{C}$  with  $\leq 3^\circ\text{C}$  temp control, reducing auxiliary power consumption by 10%



## Reliability

- AI-driven predictive maintenance enables fault forecasting, reducing unplanned outages by 90%.
- Remote fault diagnostics and OTA upgrades, resolving over 90% of issues online.
- Modular design reduces key components replacement time and improves maintenance efficiency.

| ITEM                    | SPECIFICATIONS                                                             |
|-------------------------|----------------------------------------------------------------------------|
| Cell capacity           | LFP 314Ah                                                                  |
| System configuration    | 12P*416S                                                                   |
| Voltage range           | 1164.8~1497.6Vdc                                                           |
| Charge/discharge rate   | 0.5P                                                                       |
| Nominal energy          | 5.015MWh                                                                   |
| Nominal power           | 2.508MW                                                                    |
| Dimensions (W×D×H)      | 6058×2438×2896mm                                                           |
| Weight                  | <42.5t                                                                     |
| Round-trip efficiency   | $\geq 93\%$                                                                |
| Protection level        | IP55 (Battery compartment)                                                 |
| Cooling method          | Intelligent liquid cooling                                                 |
| Fire protection system  | Aerosol+Water fire suppression                                             |
| Communication           | CAN/RS485/Ethernet                                                         |
| Operating temp. range   | $-30^\circ\text{C}\sim 50^\circ\text{C}$ (Derated at $-45^\circ\text{C}$ ) |
| Storage humidity        | 0~95% (Non-condensing)                                                     |
| Noise                   | $\leq 75\text{dBA}$                                                        |
| Max. Operating altitude | 4000m (Derated at 2000m)                                                   |



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