

STANDALONE BESS & MULTI-ENERGY HYBRID SMART MICROGRID SOLUTIONS



ROCAS ENERGY

Energy Integrator. System Integrator.

ROCAS Energy SRL, based in Bucharest, Romania, is an energy integrator and system integrator delivering next-generation energy solutions for a resilient and sustainable future. We provide standalone battery energy storage systems (BESS), PV+BESS integration, multi-energy hybrid smart microgrids, immersion cooling solutions, and intelligent energy management platforms.

Working with a network of trusted long-term partners, ROCAS Energy manages the full project lifecycle—from engineering and integration to delivery, operation, and maintenance—ensuring reliable performance and long-term value for our clients.



INTEGRATED ENERGY SOLUTIONS

End-to-end integration of BESS, solar PV, microgrids, and control systems tailored to your needs.



STANDALONE BESS

High-performance battery energy storage systems designed for reliability, efficiency, and scalability.



HYBRID SMART MICROGRIDS

Resilient, flexible, and intelligent microgrids that optimize energy use and ensure continuity.



IMMERSION COOLING & DIGITAL ENERGY

Advanced immersion cooling and digital platforms for safe, efficient, and data-driven energy operations.



RELIABILITY

Engineered systems and proven technologies for maximum uptime and operational safety.



SEAMLESS INTEGRATION

Fully integrated hardware and software solutions that work together—seamlessly and efficiently.



FLEXIBILITY

Scalable and adaptable solutions designed to evolve with your energy needs.



LONG-TERM VALUE

Lower total cost of ownership through efficiency, durability, and intelligent operations.

OUR ADVANTAGES

ROCAS is an energy integrator based in Bucharest, Romania.

We design, integrate and support bankable energy solutions that deliver performance, flexibility and long-term value.



Integration

We integrate energy storage, power conversion, controls and software into cohesive, high-performance systems tailored to your objectives. One point of accountability. Complete system alignment.



Lifecycle Support

From commissioning to operations and optimization, we provide ongoing technical support, remote monitoring and performance services that protect your investment and maximize uptime.



Customer-First

Your goals drive our solutions. We listen, collaborate and deliver practical, bankable systems that align with your technical, financial and sustainability priorities.



Versatile Applications

Our solutions adapt to a wide range of use cases—grid support, renewable integration, peak shaving, backup power and more across commercial, industrial and utility environments.



Partner Ecosystem

We work with a trusted ecosystem of technology partners and engineering firms to deliver resilient, future-ready systems—on time and to the highest quality standards.

GRID-FORMING CONTROL & COORDINATED ENERGY MANAGEMENT

Stability by design. Intelligence in every decision.

ROCAS Energy microgrid solutions deliver grid-forming control and unified energy management to ensure reliability, efficiency, and resilience—on-grid, off-grid, and everywhere in between.

Grid-Forming Performance



Voltage Source Behavior

ROCAS inverters establish and regulate voltage magnitude, frequency, and phase—forming a stable AC reference for the entire microgrid.



Millisecond Response

Ultra-fast control loop response (<100 ms) ensures ride-through of disturbances and maintains power quality.



Active & Reactive Power Support

Delivers real and reactive power on demand with dynamic headroom and precise regulation.



Seamless Transitions

Smooth grid-to-island and island-to-grid transfer with no interruption to critical loads.

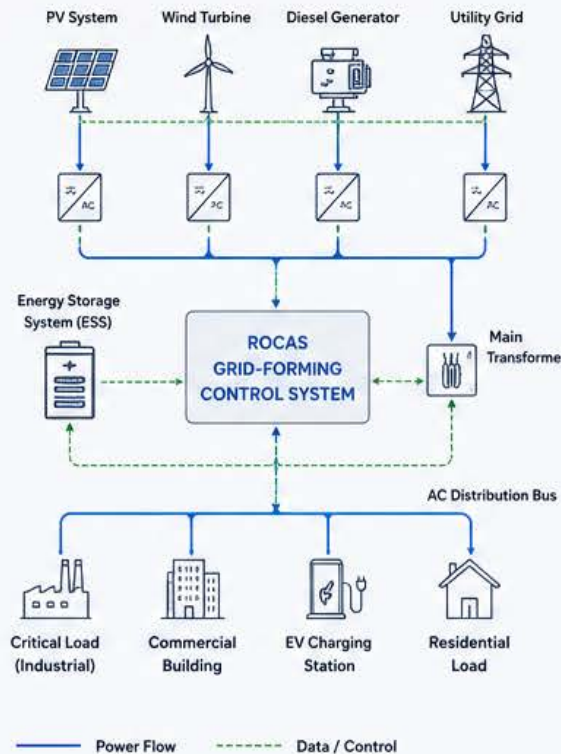


Black Start Capability

Restores an energized microgrid from zero-voltage conditions using ROCAS energy systems.



Microgrid Architecture



Coordinated Energy Management

ROCAS coordinates all distributed resources, loads, and the grid through an intelligent control and energy management system.



Technical Advantages



True Grid-Forming Control

Establishes voltage and frequency reference without relying on the grid.



High Stability & Power Quality

Advanced control algorithms maintain voltage, frequency, and low THD.



Resilient & Redundant Design

Modular, scalable architecture with built-in redundancy.



Cybersecure & Reliable

Designed with robust cybersecurity and industrial-grade components.



Flexible & Scalable

Supports a wide range of applications from remote sites to large campuses.



Future-Ready Platform

Open architecture for easy integration and technology evolution.

IMMERSION COOLING TECHNOLOGY

ROCAS Energy immersion cooling technology submerges battery modules and power electronics in a high-performance dielectric coolant, delivering uniform heat removal, increased safety, and higher system efficiency. Purpose-built for BESS and digital energy systems, it ensures reliable performance in any ambient condition while lowering total cost of ownership.



Improved Thermal Uniformity

Eliminates hot spots for consistent cell performance.

Enhanced Safety

Non-flammable, non-conductive coolant for inherent safety.

Reduced Auxiliary Load

No fans or AC conditioning—lower parasitic consumption.

Longer Battery Life

Lower temperature stress extends cycle life and reduces degradation.

Lower O&M Costs

Less moving parts, easy maintenance, reduced service interventions.

High System Reliability

Robust operation in extreme environments for maximum uptime.

COOLING APPROACH COMPARISON

FEATURE	AIR COOLING	CONVENTIONAL LIQUID COOLING	IMMERSION COOLING
Thermal Uniformity	Low	Medium	Excellent
Peak Cell Temperature	High	Medium	Low
Auxiliary Energy Use	High (fans + HVAC)	Medium (pumps + chiller)	Very Low (no fans/chiller)
System Footprint	Large	Medium	Compact
Fire Safety	Medium	Medium	High
Maintenance	High	Medium	Low
Battery Life Impact	Lower	Better	Best
Enclosure IP Rating	IP54–IP55	IP55–IP65	IP65–IP66
Best Fit Applications	Low density, low duty cycles	General purpose BESS, moderate density	High density BESS, critical & extreme applications

PROJECT VALUE

ROCAS Energy delivers end-to-end value through proven engineering, integration, and long-term operational excellence.

ENGINEERED SOLUTIONS

Tailored system architectures and thermal designs optimized for performance, safety, and total cost of ownership.

SEAMLESS INTEGRATION

Fully integrated BESS platforms with immersion cooling, power conversion, controls, and safety systems—factory tested for plug-and-play deployment.

PARTNER-SUPPORTED PROJECT DELIVERY

Collaborative approach with EPCs and investors, ensuring schedule certainty, quality execution, and regulatory compliance.

LIFECYCLE O&M EXCELLENCE

Remote monitoring, predictive analytics, and responsive service to maximize uptime and minimize lifetime cost.

OPERATIONAL PERFORMANCE

High availability, efficiency, and safety that drive reliable energy delivery and strong investment returns.

APPLICATIONS

STANDALONE BESS

MINING

ISLANDS

OIL & GAS

C&I

RESILIENT MICROGRIDS

Built for extreme conditions. Designed for performance. Delivered for the long term.

STANDALONE BESS

Scalable, safe, and intelligent battery energy storage solutions for a more resilient grid.

Product Selection

Battery System:

- Immersion-Cooled Battery System (KBS-H-DI Series)
- Liquid-Cooled Battery System (KBS-H-DL Series)

Power Conversion System:

- String PCS Solution (KPS Series)
- Centralized PCS Solution (KPC Series)

System Configuration:

- Modular, Scalable from MW to Multi-hundred MW
- DC-coupled or AC-coupled options

Value



Grid Support

Voltage support, peak shaving, congestion relief, and reliability enhancement.



Energy Arbitrage

Buy low, store, and dispatch high—maximize arbitrage and reduce energy costs.



Ancillary Services

Fast frequency response, spinning reserve, regulation, and non-spinning reserve.



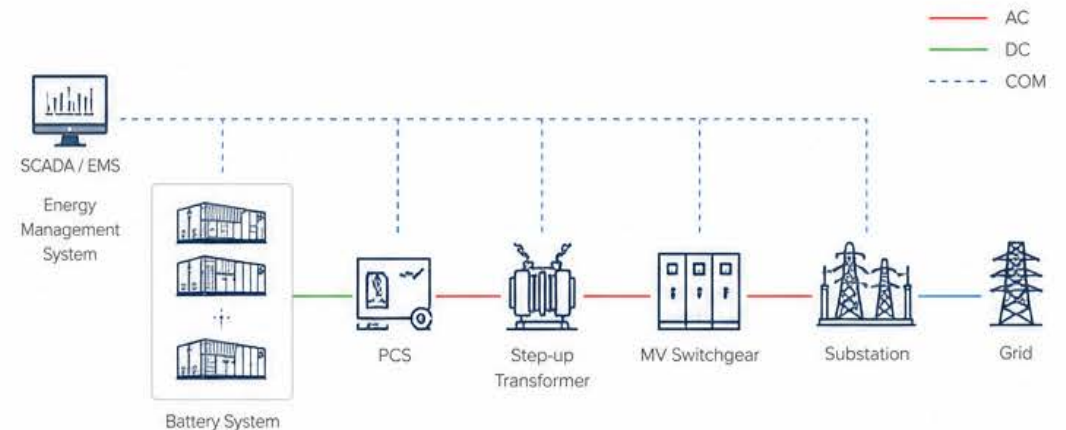
Renewable Integration

Smooth output, reduce curtailment, and improve renewable utilization.



Shared Storage

Multi-party value stacking and flexible capacity sharing to improve asset returns.



Solution Highlights



Grid-Forming Capability

Provides inertia, voltage, and frequency support for stable operation in weak or islanded grids.



Fast & Precise Response

Millisecond-level frequency response and ramping for ancillary and reliability services.



Black Start & Islanded Operation

Supports black start and sustained operation during outages.



High Safety & Reliability

Advanced thermal management, BMS protection, and multi-layer safety design.



Lower Lifecycle O&M

Long life design, intelligent operations, and remote O&M reduce total cost of ownership.

MINING AREA SMART MICROGRID

Resilient, efficient, and intelligent energy for mining operations and remote industrial sites.

Product Selection

Battery System:

- Immersion-Cooled Battery System
KBS-H-DI4700
- Liquid-Cooled Battery Container
KBS-H-DL5000

Power Conversion System:

- String MV Skid KBCS-35/10-HM5000
- Centralized MV Skid KBCS-35/10-HCS000

Boost Converter System:

- Boost Converter Cabin

Value

Delivers reliable green power, reduces fuel consumption, and lowers operating cost at remote mining and industrial sites.

Mode

PV + BESS integrated with grid or diesel genset support. Provides 6-24h green supply, peak shaving, and black start capability.

Benefits



SEAMLESS & RESILIENT

Seamless microgrid-to-grid/diesel transition ensures uninterrupted power for critical mining operations.



INERTIA & STABILITY SUPPORT

Provides inertia support, voltage regulation, and frequency control for a stable and reliable power system.



LOWER FUEL CONSUMPTION

Optimized dispatch reduces diesel runtime and fuel consumption, lowering emissions and operating costs.



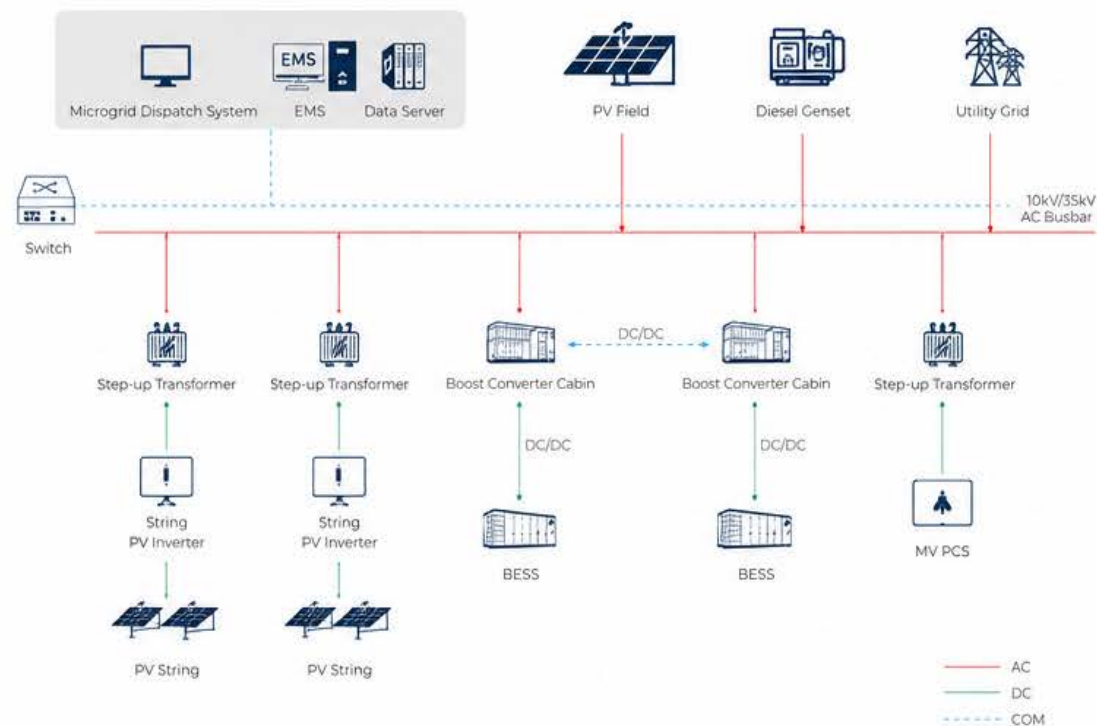
6-24H GREEN POWER SUPPLY

Engineered for 6 to 24 hours of green power supply, scalable to site requirements.



INTELLIGENT ENERGY MANAGEMENT

EMS-driven optimization for real-time scheduling, load management, and equipment protection.



AI DATA CENTER & DIGITAL ENERGY MICROGRID

High-Reliability, High-Efficiency Power Architecture for AI-Driven Infrastructure



100% Power Continuity



Intelligent Energy Management



Efficient Conversion & Low Losses



Lower Emissions
Reduced Diesel Use



Immersion Cooling Ready

Product Selection

Battery System:

- Immersion-Cooled BESS Container
- High-Voltage BESS Cabinet

Power Conversion & Routing:

- Bi-directional Energy Router (SST)
- PCS / Bi-directional Inverter

Energy Source & Backup:

- PV String Inverter
- MV Transformer & Switchgear
- Backup Generation (Optional)

Cooling System:

- Immersion Cooling Unit (CDU)
- Heat Rejection & Free Cooling

Control & Management:

- DCIM / EMS / Microgrid Controller
- Edge Monitoring & Analytics

Value

Delivers a resilient, efficient, and intelligent energy architecture that ensures uninterrupted operations for AI data centers while reducing TCO and carbon footprint.

Architecture Highlights



Uninterrupted Power for Critical Loads

SST-based architecture enables instant seamless switching and direct power routing for zero downtime.



High Efficiency, Low Loss

Direct current coupling and high-frequency SST conversion minimize conversion stages and maximize round-trip efficiency.



Resilient Microgrid Operation

Operate grid-connected or islanded with stable frequency, voltage, and black start capability.



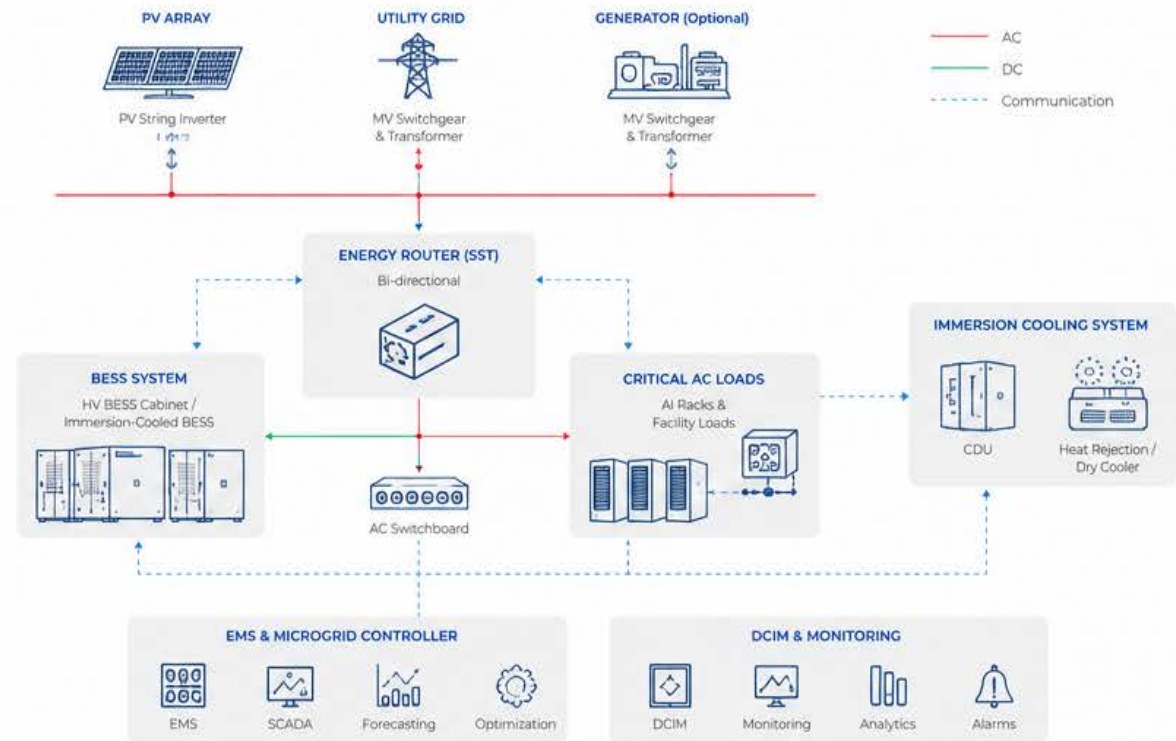
Immersion Cooling Optimized

Supports high-density racks with immersion cooling systems for superior performance and energy efficiency.



Intelligent Energy Management

AI-driven EMS optimizes energy flows, forecasts demand, extends asset life, and reduces operating costs.



OIL FIELD

Multi-Energy Microgrid Application Scenarios

ROCAS integrates PV-storage-diesel hybrid solutions for off-grid and weak-grid oil-field applications, delivering reliable, efficient, and sustainable power.



Integrated Configuration

ROCAS integrates PV, storage, diesel generation, power conversion, and intelligent control into a single, scalable microgrid solution.



Value

- Provides 24/7 reliable power, reducing fuel consumption and OPEX.
- Supports rapid load response and enhances operational stability.
- Extends equipment lifespan and lowers maintenance costs.



Mode

PV-storage-diesel hybrid system. PV and storage supply primary loads, with diesel as backup or for peak shaving. Supports both off-grid and weak-grid operation.



Scenarios

Suitable for oil field production machines, farms, hotels/resorts, islands, and similar remote or weak-grid settings.



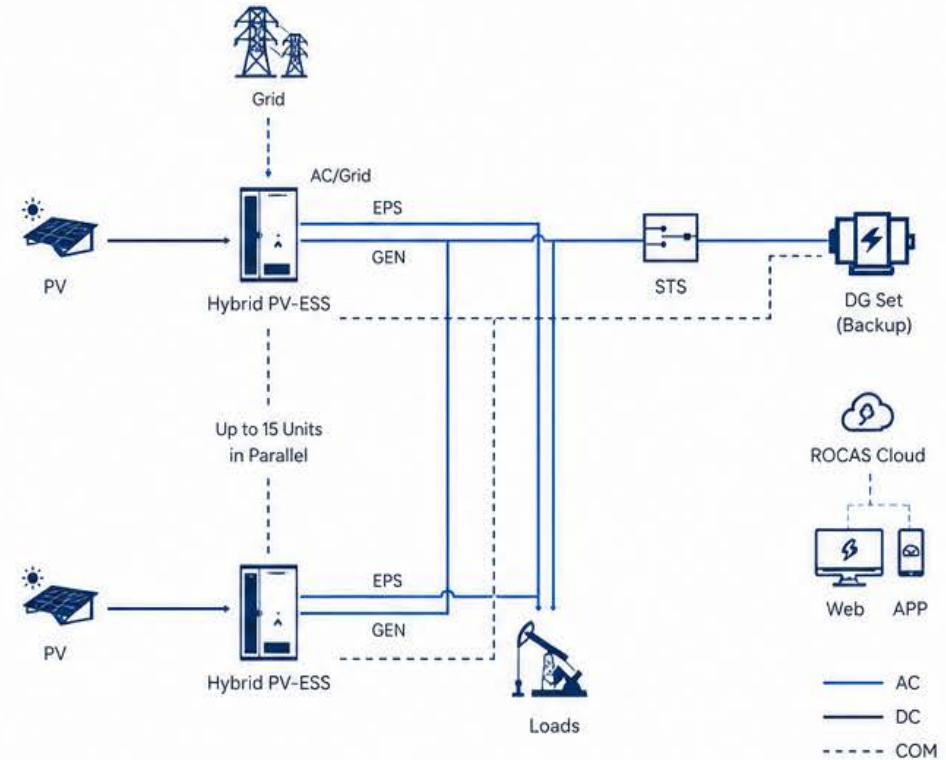
All-in-one solution from ROCAS ENERGY

- ✓ DC-coupled photovoltaic storage for high energy efficiency.
- ✓ Integrated converter supports grid-connected/off-grid operation, grid-building, 1.5x overload capacity, and enhanced load adaptability.
- ✓ Enables simultaneous access to photovoltaic, city power, and diesel generation with intelligent multi-source coordination.
- ✓ Supports multi-unit parallel connection for flexible expansion.



ROCAS: Your Integrated Energy Partner

From system integration to lifecycle services, ROCAS delivers end-to-end solutions tailored to your oil field energy needs.



SMALL-SCALE C&I MICROGRID

Smart. Resilient. Cost-Effective.
Energy You Can Rely On.

Rocas Energy microgrid solutions integrate PV, battery storage, and optional diesel/grid power to deliver reliable, efficient, and sustainable energy for small and medium enterprises, commercial & industrial users, hospitality, premium residences, remote sites, and facilities that require uninterrupted power.

Product Selection

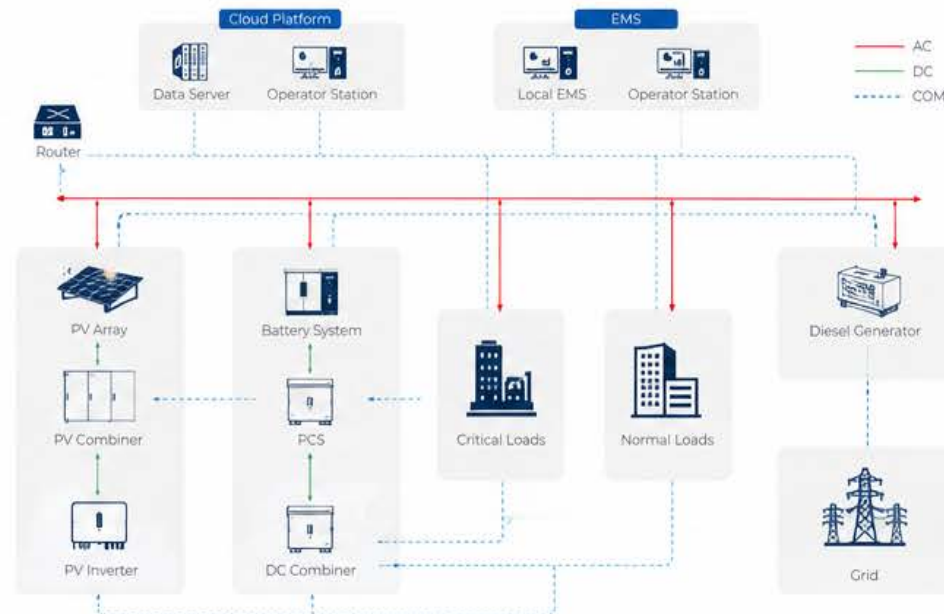
- Liquid-Cooled All-in-One Hybrid ESS
KPSA-60/20B-A
- Immersion-Cooled All-in-One ESS
KES-125/261-AL/-AB-D
- Liquid-Cooled All-in-One ESS
KES-125/261-AM-AB-A

Ideal For

- Small & medium enterprises
- Hospitality & premium residences
- Commercial & industrial facilities
- Remote sites & off-grid locations
- Facilities needing resilient energy supply

Application Benefits

- ✓ **Lower Energy Costs:** PV power and battery optimization reduce grid purchases and peak demand charges.
- ✓ **Minimized Generator Runtime:** Intelligent scheduling uses batteries and PV first, cutting fuel usage, noise, and maintenance.
- ✓ **Reliable Backup Power:** Instant switchover and sustained backup keep critical loads running during outages.
- ✓ **Operational Resilience:** Multi-source coordination ensures stable power under grid disturbances and extreme weather.
- ✓ **Flexible Integration:** Seamless coordination of PV, BESS, diesel, and grid for optimal performance.
- ✓ **Advanced Energy Management:** EMS optimizes energy flows for cost savings, load balancing, and asset protection.
- ✓ **Scalable & Future-Ready:** Modular design supports growth and evolving energy needs.



ISLAND HYBRID MICROGRID

Reliable. Resilient. Sustainable.
Power for every island community.

ROCAS Energy island hybrid microgrid solutions combine solar PV, wind, battery storage, and diesel backup into an intelligent energy system designed for energy independence, resilience, and long-term sustainability in island environments.

Product Selection

- Liquid-Cooled All-in-One Hybrid ESS
KBSA-60/208-A
- Immersion-Cooled All-in-One ESS
KBS-125/261-AL/-AB-D
- Liquid-Cooled All-in-One ESS
KBS-125/261-AM-AB-A

Value

Delivers 24/7 green power for island communities, with diesel generator as backup only, significantly reducing energy costs and fuel dependence.

Use Case

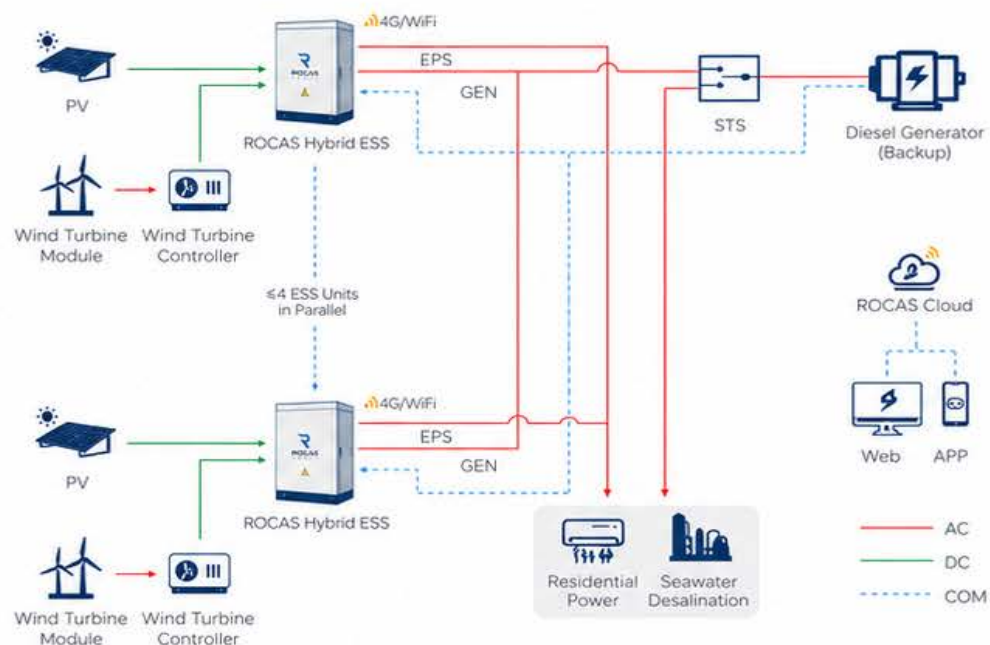
Under normal conditions, the multi-energy complementary independent power supply system delivers 24/7 uninterrupted power via PV and wind storage. Diesel generator activates only during extreme weather when PV and wind generation are insufficient and battery SOC drops to zero. Daily island living and seawater desalination are almost entirely powered by PV, wind, and storage, with diesel generator as backup. Effectively utilizes solar and wind energy to displace diesel generation, lowering comprehensive energy costs.

Scenario

Island residential load power supply.
Island seawater desalination.

ROCAS Hybrid Solution

- 1 High Energy Utilization Efficiency:** DC-coupled PV and wind with storage minimizes energy conversion steps and losses.
- 2 Strong Load Adaptability:** Supports weak grid conditions and 1.5× overload capability for superior load compatibility.
- 3 Multi-Energy Integration:** Compatible with simultaneous PV, wind, storage, and diesel generator integration with intelligent dispatch.
- 4 Scalability & Flexibility:** Supports multi-unit parallel operation for flexible expansion to meet diverse needs.



HVDC SUPERCHARGE-ESS STATION



Product Selection

Battery System:

- Immersion-Cooled Battery System (RBS-H-DI4700)
- Liquid-Cooled Battery Container (RBS-H-DL5000)

Boost Converter System:

- String MV Skid (RCS-35/10-HM5000)
- Centralized MV Skid (RCS-35/10-HC5000)

Value

A multi-energy hybrid microgrid with MV-level fast charging delivers ultra-high-power charging without straining the grid, cuts costs with green energy, and fully replaces battery swap.

Scenarios

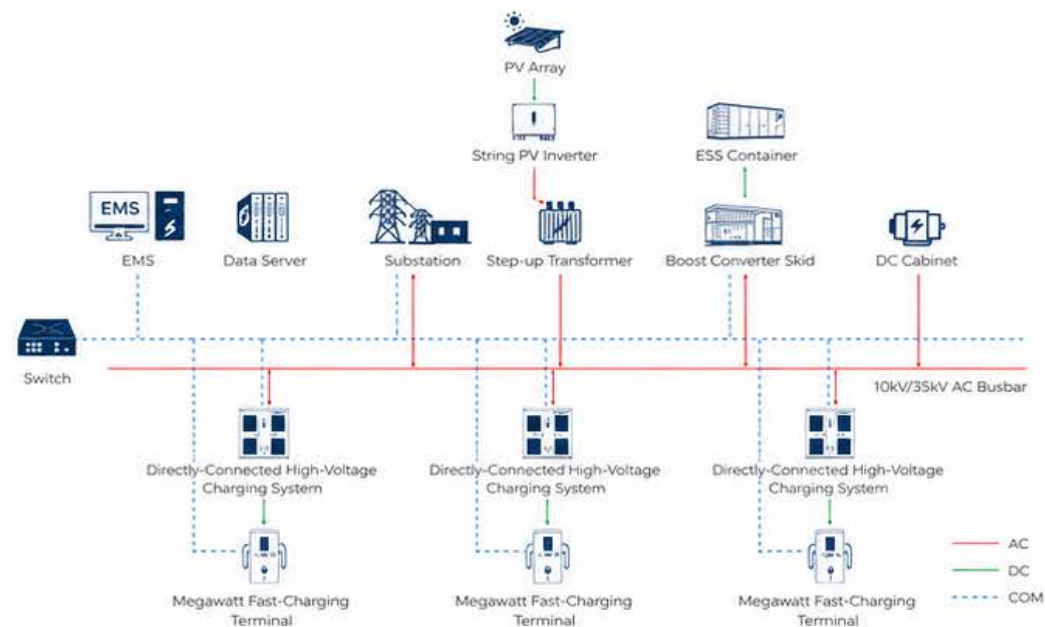
Ultra-fast charging stations for MW-grade heavy-duty trucks & passenger vehicles

Mode

The high-voltage direct-connected DC ultra-fast charging system replaces traditional line-frequency transformer + 0.4kV rectification, significantly improving efficiency. Integrated with a medium-voltage hybrid PV-storage microgrid, it leverages dynamic capacity expansion to avoid grid impact from high-power charging.

All-in-one solution from ROCAS Energy

- 1 Uses 10kV high-voltage direct-mounted electronic transformer with >98.5% efficiency.
- 2 Megawatt-level charging, 1000V DC output, charges heavy trucks in 10 minutes.
- 3 Integrates with photovoltaic storage microgrid for dynamic capacity expansion and renewable energy use.



DISTRIBUTION TRANSFORMER BACKUP POWER



PRODUCT SELECTION

Liquid-Cooled All-in-One ESS
RBS-125/261-AM-AB-A



VALUE

- Improves end-of-grid power quality and reliability
- Defers grid investment by reducing transformer and line upgrades
- Enhances distributed PV consumption
- Ensures uninterrupted power for critical loads during outages



MODE

Installed on the low-voltage side of distribution transformers, this intelligent flexible power supply solution resolves transformer overloading, three-phase imbalance, and voltage fluctuations. It supports local PV consumption, prevents reverse power flow, and provides emergency backup power. In cluster mode, it can participate in virtual power plant (VPP) and demand-side response services.



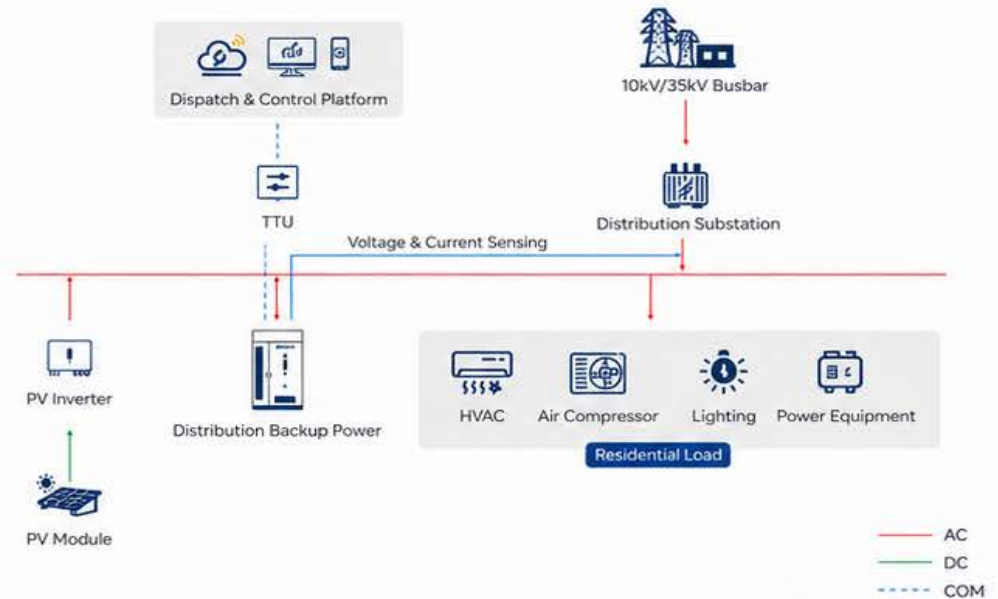
SCENARIOS

- Distribution transformer dynamic capacity enhancement
- PV reverse power flow prevention
- End-of-grid power quality improvement
- Emergency backup power supply



KEY APPLICATION BENEFITS

- 1 Intelligent Coordinated Control:** Real-time PCC optimization via TTU terminals, enabling dynamic capacity expansion and higher PV consumption.
- 2 Active Power Quality Management:** Automatic three-phase balancing, harmonic mitigation, and voltage stabilization.
- 3 Seamless Backup Switching:** 10-millisecond transfer to energy storage mode, acting as a large-capacity online UPS for critical loads.



LIQUID-COOLED BATTERY CONTAINER

360°
Safety
Protection

Cell AT
 $\leq 4^{\circ}\text{C}$



Certifications and Compliance

IEC 62619 IEC 61000 UN38.3



Model

KBS-H-DL5000

System Parameters

Rated Capacity	5MWh
Battery Voltage Range	1000V - 1500V
Battery Type	LFP 3.2V / 314Ah
Max. Charge/Discharge Power	0.5P
Battery Module	332.8V / 104.5kWh
Grouping Method	12 × IP4165
Cluster Grouping Method	4 × IP104S
Cycle Lifespan	7.000
BMS Balancing	Active Balancing
IP Rating	IP54
Cooling Method	Liquid Cooling
Round Trip Efficiency	>90% (25°C±2°C)

General Data

Operating Temperature Range	-20°C~50°C
Relative Humidity	0%~95%
Altitude	4000m (derating >2000m)
Corrosion-proof Grade	C5
Communication Protocols	IEC 61850, Modbus, TCP
Dimension (W×D×H)	6058mm × 2438mm × 2896mm
Weight	43t



High safety with multi-layer protection + PACK-level fire suppression



High Efficiency & Deep Integration, Fully Self-Developed Core Components.



Superior system compatibility through collaborative optimization.

IMMERSION-COOLED BATTERY CONTAINER



Certifications and Compliance

IEC 62619 IEC 61000 UN38.3



Model	KBS-H-D14700
System Parameters	
Rated Capacity	4.5 MWh
Battery Voltage Range	1000V ~ 1500V
Battery Type	LFP 3.2V / 587Ah
Cycle Lifespan	10,000
Module Grouping Method	1P104S
Battery Module	332.8V/195.35kWh
Cluster Grouping Method	4 × 1P104S
System Composition	6 × 1P416S
Voltage Sampling Ratio	1 : 1
Temperature Sampling Ratio	1 : 2 (optional)
BMS Balancing	Active balancing (optional)
Fire Suppression	Active early warning + PACK coolant + PACK-level special gas + container-level gas + water-based (optional)
Thermal Management	Flow immersion liquid cooling
General Data	
IP Rating	IP54
Noise	<80dB
Operating Temperature Range	-35°C ~ +50°C
Relative Humidity	0 ~ 95% (non-condensing)
Weight	≤44t
Communication Protocols	Modbus TCP / TCP/IP / CAN / RS485
Dimension (L×D×H)	6058mm × 2438mm × 2896mm



Ultimate safety for the most critical battery challenges.



High efficiency and deep integration with in-house core components.



Superior compatibility through system-level collaborative optimization.

IMMERSION-COOLED ALL-IN-ONE ESS

Full
Immersion
Safety
Protection

Cell ΔT
 $\leq 2^{\circ}\text{C}$

Cycle
Lifespan
10.000



Certifications and Compliance

IEC 62619 IEC 62477 IEC 61000 EN 50549 UL 1973 UL 9540A UN38.3 G99



Model

RCE-125/261-A/1/-AB-D

AC Side

Rated Power	125 kW
Max. Current	209 A
Rated Voltage	400V / 3P+N+PE
Off-Grid Support	Yes

DC Side

Rated Capacity	261 kWh
Max. Current	200 A
Battery Cell	LFP 3.2V / 314 Ah
DC Voltage Range	700 V – 950 V
Rated DC Voltage	832 V
Cycle Lifespan	10.000
BMS Balancing	Active balancing
Thermal Management	Flow immersion liquid cooling

Fire Suppression

Gas fire suppression + immersion-based
+ cabinet-level detection & monitoring

General

Enclosure Rating	IP55
Ambient Temperature	-30°C to +50°C (derating -45°C)
Weight	3.5 t
Dimensions (W×D×H)	1450 mm × 1400 mm × 2350 mm



Ultimate Safety

Addressing the industry's
most critical battery
challenges.



High Efficiency & Deep Integration

Fully Self-Developed
Core Components.



Engineered for Extreme Environments

High/Low Temperature,
Altitude, and Humidity.

LIQUID-COOLED ALL-IN-ONE ESS



Certifications and Compliance

IEC 62619 IEC 62477 IEC 61000 EN 50549 UL 1973 UL 9540A UN38.3 C99



Model	RES-125/261-AM-AB-A
AC Side	
Rated Power	125 kW
Max. Current	209 A
Rated Voltage	400 V / 3P+N+PE
Off-Grid Support	Yes
DC Side	
Rated Capacity	261 kWh
Max. Current	200 A
Battery Cell	LFP 3.2V / 314 Ah
DC Voltage Range	700 V ~ 950 V
Rated DC Voltage	832 V
Cycle Lifespan	7,000
BMS Balancing	Active balancing
Fire Suppression	Multi-layer gas fire suppression + PACK immersion-based + cabinet-level detection & monitoring
Thermal Management	Plate heat exchanger liquid cooling
General	
Enclosure Rating	IP55
Ambient Temperature	-30°C to +50°C (derating >45°C)
Weight	2.8 t
Dimensions (W×D×H)	1450 mm × 1400 mm × 2350 mm



Multi-layer Protection +
PACK-Level Fire Suppression



High Efficiency & Deep
Integration, Fully Self-
Developed Core
Components.



Engineered for Extreme
Environments — High/Low
Temperature, Altitude, and
Humidity.

LIQUID-COOLED ALL-IN-ONE HYBRID ESS



Certifications and Compliance

IEC 62469 IEC 62477 IEC 61000 EN 50549-1 UL 1973 UL 9540A UN38.3



Model	RE-HESS-60/208-A
PV Side	
Max. DC Input Power	90kW
MPPT Voltage Range	220V~900V
Max. Input Current	43A
Number of MPPT Trackers	4
Battery Side	
Voltage Range	220V~810V
Battery Cell	LFP3.2V/314Ah
Battery Module	52.25kWh/166.4V
Battery Capacity	208kWh
Cycle Lifespan	≥7000
AC Side (Grid-Tied)	
Rated Power	60kW
Rated Voltage	3PN+PE, 220V/380V / 3PN+PE, 230/400V
Rated Current	91.1A
THDi	<3%
AC Side (Off-Grid)	
Rated Power	60kW
Rated Voltage	3P+N+PE/380V
Rated Current	91.1A
THDi	<3%
Transfer Time	<10 ms (with STS)
AC Side (Generator)	
Rated Input Power	60kW
Rated Output Voltage	3P+N+PE/380V
General	
Max. PV Efficiency	99%
Thermal Management	Plate heat exchanger, liquid cooling
Enclosure Rating	IP54
Ambient Temperature	-20°C to +60°C (derating >45°C)
Relative Humidity	0~95%
Altitude	<3000 m (derating >2000 m)
Dimensions (W×D×H)	1450 mm × 1400 mm × 2200 mm
Weight	2.5 t



Hybrid Inverter Delivering
Seamless Backup Power
during Grid Outages.



Fully Integrated Platform
Supporting PV, Storage, Diesel
Generator, and Grid Connections.



Flexible Standalone and Parallel
Operation for Maximum
Deployment Versatility.

STRING MV SKID



Model	KBCS-35-HM2500	KBCS-35/10-HM5000
DC Side		
Max. Input Voltage	1500V	
Max. DC Current	241A×12	241A×24
Battery Voltage Range	1000V~1500V	
System		
System Rated Power	2500kVA	5000 kVA
Max AC Power	3000kVA	5500 kVA
LV/MV Voltage	0.69kV/35kV (10kV~35kV optional)	
Harmonic (THDi)	<3%(100% Load)	
Power Factor Range	-1 (leading) to +1 (lagging)	
Transformer vector	Dy11	
General		
Isolation Type	Oil-immersed transformer	
Enclosure Rating	IP54	
Noise	<75dB	
Operation Mode	Grid-following / Grid-forming	
Ambient Temperature	-30℃~+50℃ (derating >45 °℃)	
Relative Humidity	0~95% (non-condensing)	
Max. Altitude	4000m (derating >3000m)	
Communication Protocols	IEC61850 / Modbus TCP	
Weight	≤15t	≤26t
Dimensions (L×D×H)	6058×2438×2896mm	7300×2438×2896mm



String inverter architecture with independent cluster control, eliminating circulating currents and boosting DOD by 3%.



Grid-forming and grid-following PCS delivering strong voltage and frequency support with enhanced inertia.



Comprehensive control modes: primary frequency regulation, VSG, and black-start.



Superior fault ride-through for continuous operation and accelerated grid recovery.

CENTRALIZED MV SKID

Reliable. Scalable. Built for Performance.



Model	RCS-MV-SKID-5000
DC Side	
Max. Input Voltage	1500V
Max. DC Current	1403A×4
Battery Voltage Range	1000V~1500V
System	
Rated Power	5000 kVA
Max. AC Power	5500 kVA
Rated Grid Voltage	10 / 35 kV
Primary / Secondary Winding	(10/35) kV / 0.69 kV
THDi	<3% (rated power)
Power Factor Range	-1 (leading) to +1 (lagging)
General	
Isolation Type	Oil-immersed / Dry-type
Enclosure Rating	IP54
Noise	<80 dB
Operation Mode	Grid-following / Grid-forming
Ambient Temperature	-35°C to +50°C (derating >45°C)
Relative Humidity	0~95% (non-condensing)
Max. Altitude	4000 m (derating >3000 m)
Communication Protocols	IEC61850 / Modbus TCP
Weight	Dry-type <25 t / Oil-immersed <33 t
Dimensions (L×D×H)	Dry-type: 7300×3400×3300 mm Oil-immersed: 12192×2438×2896 mm



Supports PQ, VF, SVG, and VSG modes with full high/low voltage ride-through, islanding, and black-start.



Grid-forming PCS providing robust grid support and improved system inertia.



Advanced fault ride-through ensuring continuous connection and rapid recovery.

TYPICAL CASES

Reference deployment examples from the underlying technology/manufacturing ecosystem, anonymized by geography.



● GRID-SIDE STANDALONE BESS

Project Scale: 1 GW / 2 GWh

Project Value: Full-spectrum grid support including fast frequency regulation, reactive power support, FRT and black-start capability.

5MWh Liquid Cooling Energy Storage System



● GRID-SIDE STANDALONE ESS

Project Scale: 300 MW / 600 MWh

Project Value: Grid-side peak shaving, renewable-energy integration and high-power response for system flexibility.



● GREEN MINING MICROGRID

Project Scale: 25 MW / 50 MWh BESS + 32 MWp PV

Project Value: PV, storage and diesel coordination to reduce fuel use, extend genset life and improve resilience in remote industry.



● C&I ANCILLARY SERVICE

Project Scale: 720 kW / 1.398 MWh

Project Value: Automated operation with fast-response dispatch, frequency services and behind-the-meter optimization.



● STANDALONE BESS

Project Scale: 200 MW / 400 MWh

Project Value: Peak shaving, frequency regulation, renewable integration and enhanced grid reliability during peak demand.



● GRID-FORMING BESS

Project Scale: 300 MW / 600 MWh

Project Value: Grid-forming operation with inertia support, voltage/frequency control and black-start capability.



● C&I ANCILLARY SERVICE

Project Scale: 1 MW / 2 MWh

Project Value: Fast response, energy arbitrage and ancillary-service participation with intelligent scheduling.



● GRID-SIDE IMMERSION BESS

Project Scale: 70 MW / 140 MWh

Project Value: Immersion-cooled BESS supporting renewable integration, frequency response and grid-scale reliability.

TYPICAL CASES - CONTINUED

Additional reference deployment examples and application scales, with manufacturer/geographic identifiers removed.



● C&I NET-ZERO INDUSTRIAL PARK

Project Scale: 1.5 MW / 3.579 MWh BESS + 917 kWp PV

Project Value: Behind-the-meter self-consumption, peak shaving and renewable-energy optimization for an industrial park.



● CENTRALIZED BESS

Project Scale: 100 MW / 200 MWh

Project Value: Regional peak shaving, renewable-energy integration, frequency regulation and black-start support.



● GRID-SIDE STANDALONE BESS

Project Scale: 200 MW / 400 MWh

Project Value: Peak shaving, valley filling, renewable smoothing and grid-support services for regional power systems.



● GRID-SIDE STANDALONE BESS

Project Scale: 100 MW / 200 MWh

Project Value: Fast frequency regulation and high-power response for improved system stability and renewable integration.



1.2 MW / 4.52 MWh
C&I ESS



8.8 MW / 35 MWh
C&I ESS



240 kW / 466 kWh
Transformer Support



1.8 MW / 3.495 MWh
SGLS



1.44 MW / 2.796 MWh
C&I ESS



4.8 MW / 18.08 MWh
C&I ESS



1.08 MW / 2.097 MWh
C&I ESS



120 kW / 233 kWh
C&I ESS



0.96 MW / 4.58 MWh
C&I ESS



120 kW / 233 kWh
PV-ESS-C-T-S Hub



480 kW / 1.72 MWh
C&I ESS



240 kW / 466 kWh
Island Microgrid

DELIVERY LEAD TIME

For all products, the minimum delivery lead time is 90 business days. All battery systems are newly manufactured and customized to order.

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