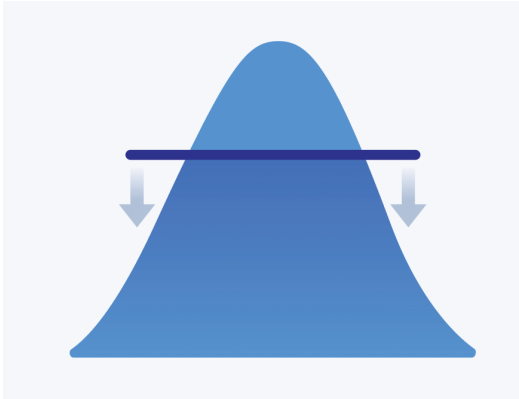


# Commercial & Industrial Energy Storage Systems



# Energy Storage Systems for Every Application

The right solution for any challenge

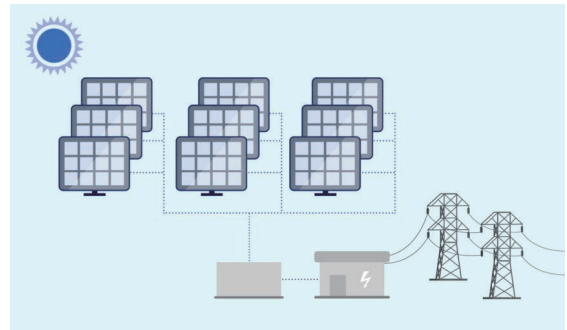


## Peak Shaving

Cut down electricity bills and improve the profitability by utilizing power from energy storage and minimizing peak electricity demand.

## Photovoltaics

Store surplus energy and use it when needed to reduce the reliance on the grid or diesel electricity, improve self-consumption, and lower the carbon footprint.

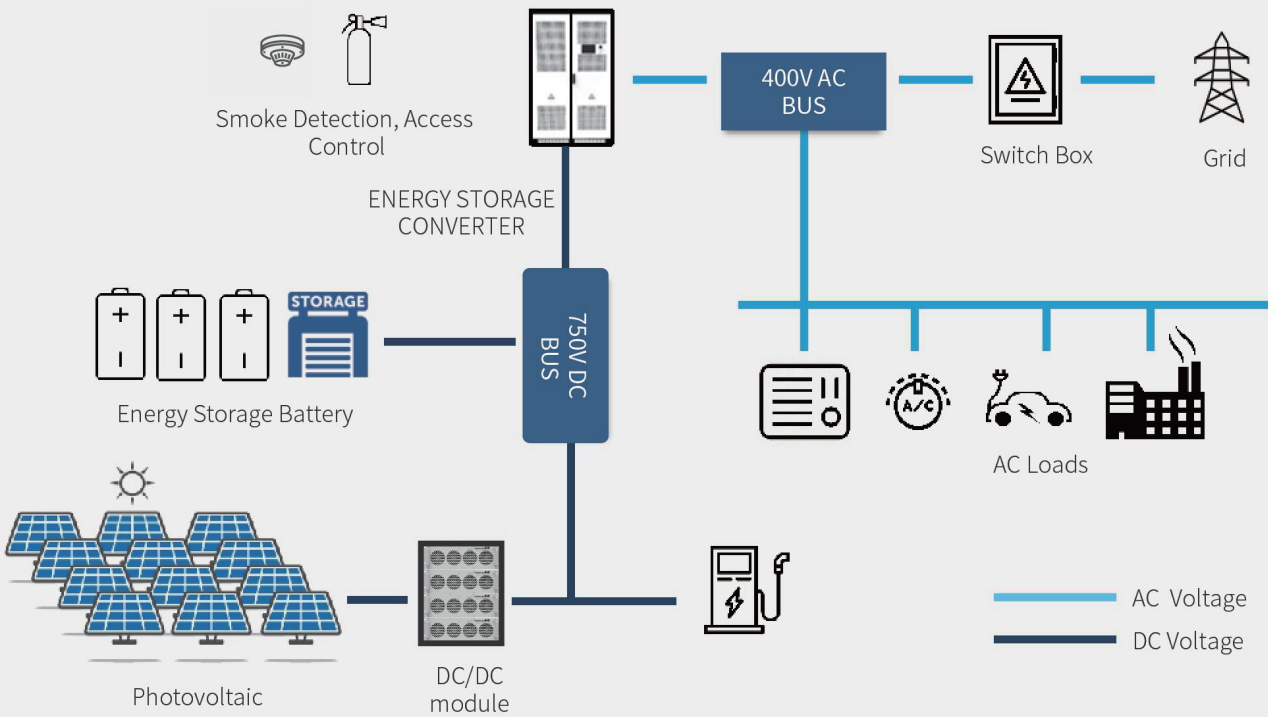


## Backup Power

Ensure uninterrupted power supply for critical loads in cases of power outages or emergencies, guaranteeing the continuity of operations.

# Scenario

## Peak shaving solution for C&I



### C&I Solutions:



- Industrial and commercial energy storage helps lower electricity costs, enhance power supply reliability, and improve power quality. It efficiently reduces the cost of electricity for high-load users with fluctuations, while ensuring normal operation during power outages.

### Achieve peak shaving:



- Cars can be charged using battery storage during peak hours, while the battery is recharged during off-peak hours, reducing costs for the station. Static Transfer Switch ensures reliable power supply for critical loads with seamless grid switching.

### Recommended Products



- DC/AC Energy storage inverter
- DC/DC converters for PV
- STS Static Transfer Switch

# Outdoor Cabinet Energy Storage System

## 100kWh/215kWh



Integration Product : power module, battery, refrigeration, fire protection, dynamic environment monitoring and energy management in one. It is suitable for microgrid scenarios such as small-scale commercial and industrial energy storage, photovoltaic diesel storage, and photovoltaic storage and charging. The local control screen can perform a variety of functions, such as monitoring system operation, formulating energy management strategies, and upgrading remote equipment.

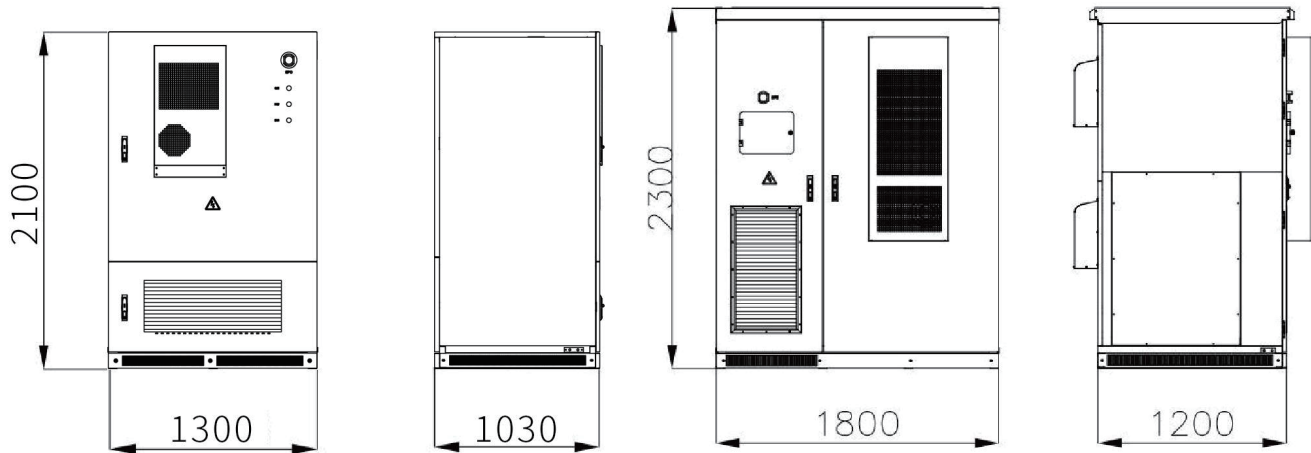
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### Product Features:



- Standardized structure design, menu-type function configuration, photovoltaic charging module, a parallel off-grid switching module, power frequency transformer, and other components can be selected for microgrid and other scenarios, and integrated photovoltaic storage integration system cabinet;
- With the patented technology of virtual synchronous machine features, it can realize the function of multiple remote free parallels without communication lines and off-grid switching;
- Patented outdoor cabinet protection design, optimized heat dissipation air duct, and protection against sand, dust, and rain; The front and rear sides are open for maintenance, which is convenient for the layout of multiple systems side by side on site and reduces the space;
- Space-saving: using door-mounted embedded integrated air conditioners can save space in the cabinet by not occupying any space, improving the available space, enhancing the top structural integrity, and achieving a good waterproof effect.

# ROYPOW Outdoor Cabinet ESS



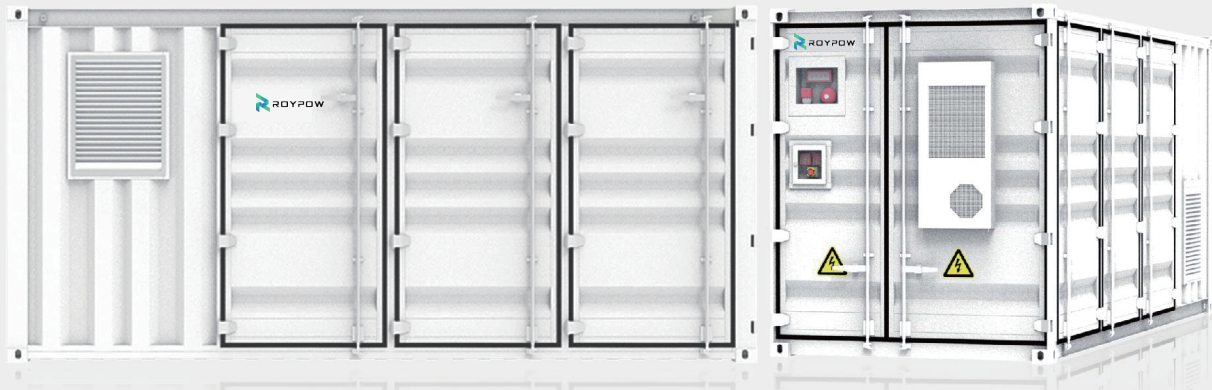
## PERFORMANCE SPECIFICATIONS

	50kW/100kWh	100kW/215kWh	50kW/100kWh	100kW/215kWh
Model	50(100kWh)	100(215kWh)	50TS(DC50)(100kWh)	100TS(DC100)(215kWh)
Max. PV input power	/	/	50kW	100kW
Max. PV input voltage	/	/	680V	620V
STS	/	/	STS optional	STS optional
Transformer	/	/	Transformer inside	Transformer inside
<b>Battery(DC)</b>				
Rated battery capacity	100kWh	215kWh	100kWh	215kWh
Rated system voltage	844.8V	768V	844.8V	768V
Battery type	LFP battery			
Battery Cell capacity	120Ah	280Ah	120Ah	280Ah
Series of battery	1P*24S*11S	1P*20S*12S	1P*24S*11S	1P*20S*12S
<b>AC</b>				
Rated AC power	50kW	100kW	50kW	100kW
Rated AC current	72A	144A	72A	144A
Rated AC voltage	400V,3P+PE,50/60Hz	400V,3P+PE,50/60Hz	400V,3P+N+PE,50/60Hz	
THDi	<3%(rated power)			
PF	-1(leading)~ +1(lagging)			
<b>General Parameters</b>				
Protection level	IP55			
Isolation mode	Non-Isolation (Adding isolation transformer is optional)			
Operating temperature	-25~60°C(Derating above 45°C)			
Altitude	3000m(>3000m derating)			
Communication interface	RS485/CAN 2.0/ Ethernet/dry contact			
Dimension(W*D*H)	1300*1030*2100mm	1800*1200*2300mm	1300*1030*2100mm	1800*1200*2300mm
Weight (approx)	1600kg	2400kg	1950kg	3000kg

**Note:** Above models are typical configurations. PV charging (DC/DC) module, on/off-grid switching module, industrial isolation transformer and other components can also be selected for micro-grid scenarios, to form Solar ESS integrated system cabinet.

# Container Energy Storage System

500kWh/1000kWh/2000kWh



The system integrates energy storage inverter, battery, fire protection, refrigeration, isolation transformer, dynamic environment monitoring and energy management, friendly grid adaptability, accepts grid dispatching, carries out active and reactive power compensation, supports peak shaving and valley filling, demand-side response, assists new energy grid integration and other applications. The IP55 protection level fits in harsh outdoor environments, ideal for commercial and industrial energy storage needs.

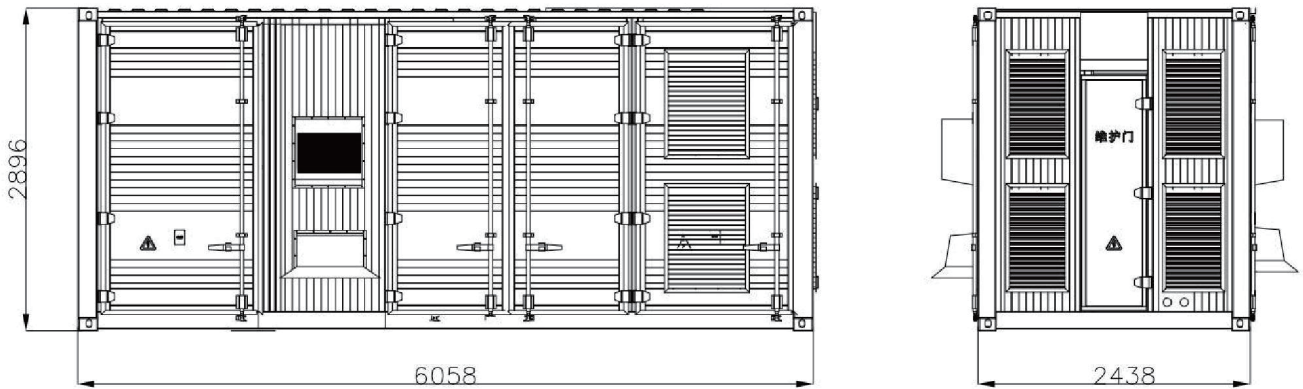
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## Product Features:



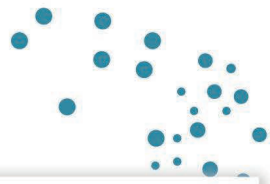
- High integration: system productization, integration of Battery, fire protection, PCS, temperature control, and monitoring communication, fully control the system operation status and risks; One-stop delivery, shorten the installation and commissioning cycle.
- Safety intelligence: fault classification processing mechanism to respond to preset fault scenarios; Customized BMS to provide perfect measurement and protection functions; Support cloud scheduling and operation report analysis.
- Versatile: support peak shaving and valley filling, demand-side response, backup power supply and other main functions; Support remote update of operating strategy and firmware upgrade, lower operating and maintenance costs.
- Flexible and convenient: modular PCS, linear expansion battery unit and energy storage bidirectional inverter unit; It has the ability to independently charge and discharge control of multiple groups of batteries to improve battery utilization and safety.

# ROYPOW Container ESS



## PERFORMANCE SPECIFICATIONS

Container		
Model	A-20C	A-40C
Rated AC power	250kW/500kW	500kW/1000kW
Rated AC voltage	400V	
Rated AC current	360A/720A	720A/720A*2
THDi	<3%( linear load)	
PF adjustable range	-1(leading) ~ +1(lagging)	
Battery cell specification	3.2V/120Ah; 3.2V/280Ah	
Battery cell cycle life	>6000 cycles@0.5C,25°C	
Available rated capacity	500kWh/1000kWh	1000kWh/2000kWh
Type	Modular, high efficiency three level	
Protection	Over temperature, low temperature charging, over current, short circuit, over voltage, under voltage, DC bus protection, etc.	
Connection mode	Three phase three wire/three phase four wire	
isolation transformer	Equipped (optional)	
Working mode	Grid-tied peak shaving/off-grid power supply guarantee	
General Parameters		
Dimensions(W*D*H)	6058*2438*2896 mm	12196*2438*2896 mm
Weight (approx)	18 tons	35 tons
Protection level	IP55	
Operating temperature	-25~60°C(derating>45°C)	
Relative humidity	0~95%(non-condensing)	
Altitude	3000m(>3000m Derating)	
Fire extinguishing system	FM200 pipe fire extinguishing system	
Battery cabin cooling code	air conditioning cooling	
Electric cabin cooling code	fan cooling	
Communication interface/protocol	RS485,Ethernet/Modbus RTU, Modbus TCP	
Certifications	IEC62619,UN38.3,UL1973,CE	



## ▼ Industrial and commercial energy storage



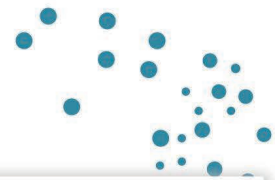
- Location: **Huzhou, Zhejiang, China**
- Energy Storage Capacity: **500 kW/1000 kWh (including 5 sets of 100 kW/200 kWh cabinet energy storage systems).**
- Application Scene: An industrial manufacturing enterprise - peak shaving and filling, uninterrupted power supply.
- Revenue Review: After completion of the project, the enterprise's annual power consumption is over 600,000 kWh. Peak and valley arbitrage produces annual income of about 82,000 USD, and basic demand electricity charges have decreased by more than 28,000 USD.

## ▼ PV, diesel energy storage system



- Location: **Chengdu, Sichuan**
- Energy Storage Capacity: **100 kW/215 kWh.**
- Application Scene: : Joint power supply from photovoltaic energy storage, diesel backup power supply.





## ▼ PV, diesel energy storage system



- Location: **Location:Sichuan Bazhong,China**
- Energy Storage Capacity: **100 kW/200 kWh (including 2 sets of 50 kW/100 kWh outdoor cabinet-style photovoltaic energy storage systems).**
- Application Scene: Scene: Self-sufficiency, photovoltaic consumption, supplying power to public areas such as charging stations and hotels.
- Revenue Review: Revenue Forecast: After the project is put into operation, the total installed capacity of roof photovoltaics on public buildings in the small town is 56 kW, with an expected annual power generation of 49,000 kWh. The annual electricity bill is expected to save **4,900 USD** and reduce carbon emissions by about 31.4 tons/year, significantly reducing the electricity costs of hotels and public areas.’
- Application Scene: Diesel engine combined operation, diesel engine power supply during the day, off-grid operation at night.

## ▼ Industrial and commercial energy storage



- Location: **Suzhou, Jiangsu**
- Energy Storage Capacity: **100 kW/200 kWh.**
- Application Scene: A certain commercial building - Peak shaving and filling, emergency backup power supply.

# ROYPOW, Your Trusted Partner

## For One-stop Energy Solutions

ROYPOW TECHNOLOGY is dedicated to the R&D, manufacturing and sales of motive power systems and energy storage systems as one-stop solutions.

With more than 20 years of combined experience in manufacturing renewable energy and battery systems, ROYPOW provides Lithium-ion Batteries covering most daily living and working fields: for Low-Speed Vehicles such as golf carts, personnel carriers; Industrial Batteries for use in Material Handling Equipment such as forklifts, aerial work platforms and floor cleaning machines as well as renewable Energy Storage Systems for residential, commercial, industrial, vehicle-mounted and marine applications.

ROYPOW has established a worldwide network to serve customers with a manufacturing center in China and subsidiaries in the USA, the UK, Germany, the Netherlands, South Africa, Australia, Japan and Korea to date. ROYPOW owns and operates fully automatic production lines, a full range of test equipment and an advanced MES that collectively address all aspects of its manufacturing process, from electronics, software design to module assembly, battery assembly as well as initial and final testing. ROYPOW focuses on the self-development of power electronics technologies, including PCS, BMS, and EMS as the core competence.

As a renewable energy innovator, ROYPOW is committed to the mission of achieving energy sustainability while creating a better life for human beings.

## R&D and Manufacturing Highlights

As a result of these investments, ROYPOW is capable of “end-to-end” integrated delivery making our products out-perform the industry norms.

- All-round testing.
- QC system.
- Integrated design.
- Persistent technology innovation.
- Advanced MES system.
- Fully automatic production line.
- IATF 16949 automotive quality management system certification
- ISO12405-2 vibration performance and safety testing of automotive lithium batteries

# Global Sales and Service Network System

- Timely Delivery.
- Hassle-free After-sales Service.
- Fast Response Technical Support.

ROYPOW has comprehensively unfolded its overseas market layout to ensure the localization of R&D, manufacturing, marketing and service, becoming one of your most reliable and valuable partners.



## Upgrading to New Technology, with Our Turnkey Solutions.

With years of dedication to new energy solutions, we are proud to offer customers professional solutions for:

- ✓ **Low-speed Vehicle Batteries** including golf carts and sightseeing cars;
- ✓ **Industrial Batteries** including forklifts, aerial work platforms, floor cleaning machines and electric excavators;
- ✓ **Vehicle-Mounted Energy Storage Systems & Batteries** Including RV and truck energy storage and air conditioning systems, off-grid solar systems for RV, as well as power batteries for electric motorcycles and airport ground support equipment;
- ✓ **Marine Energy Storage Systems & Batteries** including trolling motors, fish finders, other off-grid energy storage systems for marine, and marine power systems;
- ✓ **Residential Energy Storage Systems & Portable Power Units** including home storage and portable energy storage products, as well as off-grid energy storage (for forest cabin, island homes without electricity, etc.);
- ✓ **Commercial & Industrial Energy Storage Systems** including diesel generator power micro-grid energy storage systems (for tower cranes, air compressors, mixers, crushers, etc);
- ✓ **Chargers** for forklifts, aerial work platforms, floor cleaning machines, golf carts and various marine batteries.



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