亿兆能源
ECE ENERGY

Hui Zhou ECE Energy Technology Co.,Ltd

Committed to be world top leader of energy storage system integration solution

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CONTENTS

01 Company profile

- Company Introduction
- Founder Introduction
- Development History
- Honor

Company Introduction

- Founded in May 2018, it is a national-level high-tech enterprise, a"specialized unique refined innovative Enterprise" in Guangdong Province, and a "Huizhou Energy Storage System Integrated Engineering Technology Research Center".
- Focusing on the research and manufacturing of residential micro-grid system,commerical &industrial energy storage system products, telecome back power batteries ,special low-speed vehiclebatteries.
- Team members hold 3 doctors, 3 masters, 59% bachelors , R&D team accounted for more than 25% of the total staff;
- More than 50 national patents, include 5 invention patents ;
- Certification of ISO9001 / ISO14001 / ISO45001 ,CE,UN38.3, IEC

Founder Introduction

Founder & Chairman Wang Zhenyu

- **Peking University Phd**
- **Distinguished Professor of Chemical Engineering School, Huizhou University, master tutor and student entrepreneurship tutor**
- **MIIT (Lithium Battery) Senior Engineer 73 national patents**
- **"Top Ten Innovators in China's Economy 2020", advanced science and technology management workers**
- **Working in the new energy industry for more than 20 years, with senior experience in product technology, operation and project management ;**
- **Operating experience as CEO of a ten-billion listed company, successively served as an executive/group general manager of two listed companies (EVE & OptomunNano)**

Team introduction

Chairman & General Manager/Dr. Wang Zhenyu

- With 23 years of experience in the new energy industry, 73 national patents.
- Distinguished Professor of Chemical Engineering College of Huizhou University, master tutor and entrepreneurship tutor of college students.
- Working in new energy industry for more than 20 years, senior product technology, operation and project management experience

Director of R&D Center/Dr. Zeng kehan

- He received PhD from the University of Macau
- Mainly engaged in artificial intelligence, big data, advanced equipment research and development;
- He has published more than 10 SCI high-level papers and applied for a number of domestic patents.

Expert Consultant/Post-Doc Yang Zhen

- He received Ph.D. from the Swiss Federal Institute of Technology in Zurich
- He won the second prize of the third Chunhui Cup Chinese Overseas Students Innovation and Entrepreneurship Competition (2008) organized by the Ministry of Science and Technology, the Ministry of Education and other six national ministries and commissions.
- 《Applied Physics Letters》、《Journal of Electroceramics》 and other authoritative international journal peer reviewers.

Expert Consultant/Dr Zeng Yang

- She received his Ph.D. from Waseda University in Japan
- Presided over and participated in research projects led by Nissan and Toyota, and obtained the international Environmental LEADER qualification certificate issued by the Japanese Ministry of Education, Sports, Science and Technology;
- She has published more than 10 papers in domestic and foreign journals and applied for more than 10 invention patents.

Development history

2018

On June 18, ECE was established in Huizhou, Guangdong

2019

On september 8, moved to HuinanHigh-tech industrial Park,started 3 production lines

2020

In December, the company was recognized as a national high-tech enterprise

2021

In December, identified as "specialized unique refined innovative " enterprise in Guangdong

2022

In October, passed Huizhou Energy Storage System Integration Engineering Technology Research Center

未来

Committed to be world top leaderin integrated energy storage system

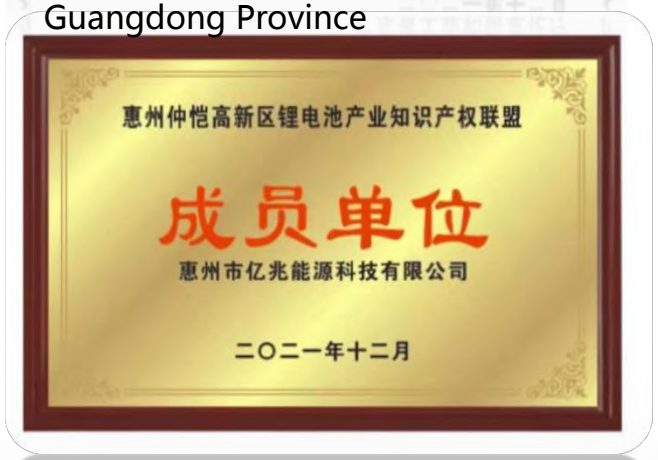
Honor

- National high-tech Enterprise certificate

- Awarded as the "specialized unique refined innovative" enterprise of Guangdong Province

- Vice Chairman of Energy Storage Application Branch of CESA

- The second prize of the 9th China Innovation and Entrepreneurship Competition



- Member of the lithium battery Industry Intellectual Property Alliance of Huizhou Zhongkai High-tech Zone

- Huizhou Energy Storage System Integration Engineering Technology Research Centre

Honor

- 2020 China Energy Storage Industry Best System Integration Solution Enterprise Award

- ISO9001:2015, ISO14001:2015, OHSAS18001/ ISO45001:2018

- 2021 China Energy Storage Industry Best Energy Storage Intelligent Equipment Supplier Award

- Over 50 national patents

- 2021 China Energy Storage Industry Best Mobile Energy Storage Technology

- CE,UL,UN38.3,IEC,TUV,ROHS

02 Product Introduction

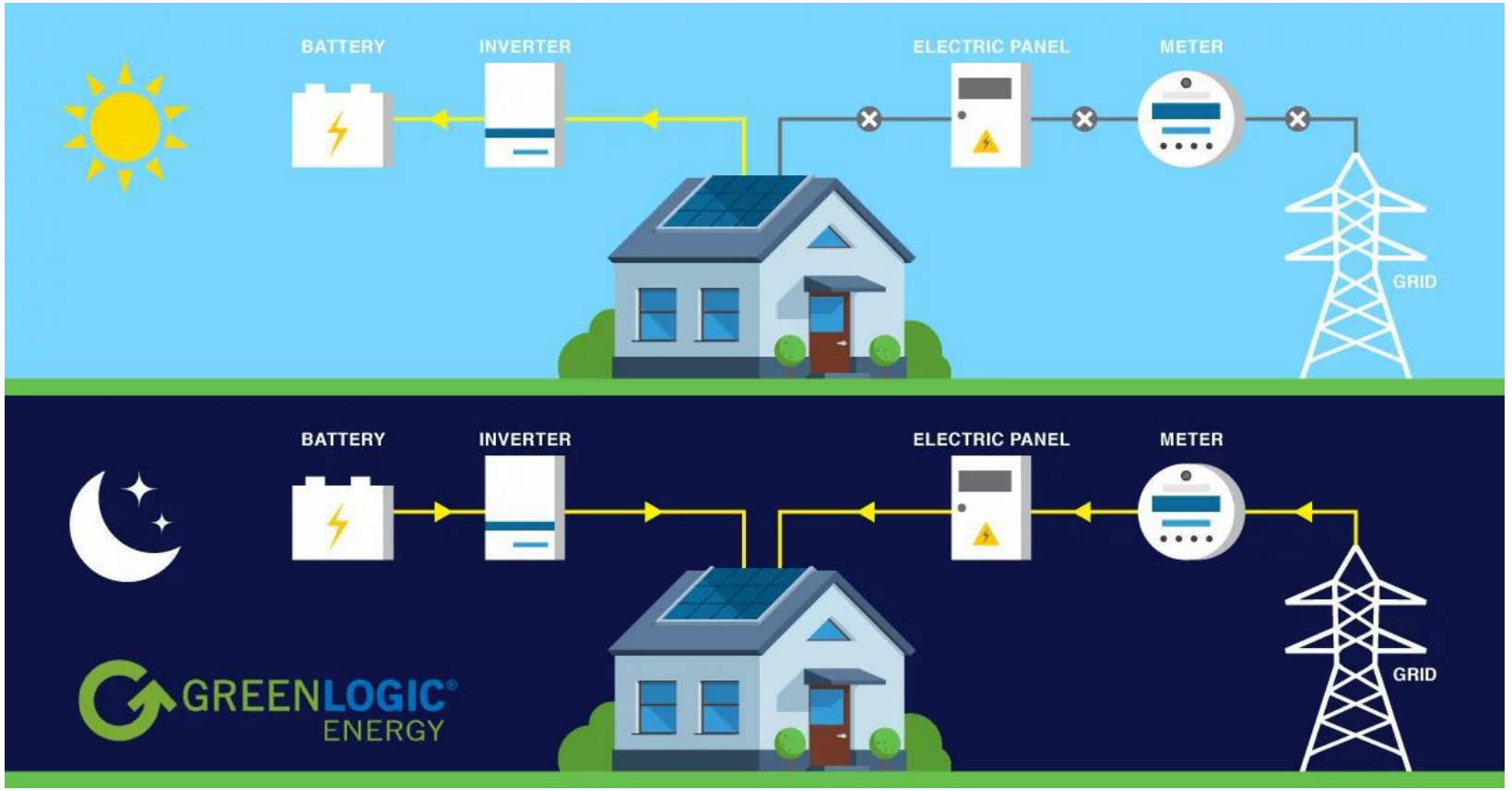
- Residential photovoltaic smart microgrid system
- Large energy storage system solutions (above 1MWH)
- Telecom base station backup power supply
- Special vehicle power battery solutions
- Customized products

Residential photovoltaic smart microgrid system

It is composed of PV brackests and panels(solar energy elecyticity generation), Lithium batteries(energy storage) , Hybrid inverters(energy conversion), BMS and EMS system(controlling ,monitoring and protection device), etc. It can quickly respond to EMS dispatching instructions and form an intelligent and friendly power supply system with photovoltaic, which makes electricity consumption safer and more stable.

Product feature

- Combine energy storage technology with distributed photovoltaic power generation to improve the effective operation time and efficiency of di s tributed power supply;
- Match high and low voltage battery & high and low voltage inverter system scheme, diversified application s cenarios ;
- Solar power generation & lithium battery storage:forming self-generating sys tem to get rid of the dependence on the grid and reduce the huge expenditure of electri city;
- Compatible with res idential intelligent energy management system to ensure power supply reliability and accelerate fault recover y of large power grid



- System working principle diagram

Connected and off-grid systems

Residential photovoltaic smart microgrid systems (1-100kwh) are grid-connected and off-grid.

Off-grid & On-grid hybrid energy storage system	Off-grid energy storage system
Operation logic： When there is sunshine: The solar energy preferentially supply the load >charge the battery > connect the grid and sell electricity When there is no sunshine: The battery preferentially supply the load > grid supplement	Operation logic： When there is sunshine: Solar energy preferentially supply the load> Charge the battery When there is no sunshine: The battery preferentially supply the load
System composition： Solar energy panel On-grid energy storage inverter BMS（Battery management system） Battery pack AC load	System composition： Solar energy panel Off-grid energy storage inverter BMS（Battery management system） Battery pack AC load

System configuration list

Model	5KWH- on grid and off grid	10KWH-on grid and off grid	15KWH-on grid and off grid	20KWH-on grid and off grid
PV pannel	RM-580W-182M/ 144TB*4	RM-580W-182M/ 144TB*10	RM-580W-182M/ 144TB*12	RM-580W- 182M/144TB*14
inverter	SUN-5K-SG04LP3- EU	SUN-10K-SG01LP3	SUN- 10K-SG04LP3- EU	SUN- 10K-SG04LP3- EU
Energy storage battery	LFP51.2V100AH	LFP51.2V100AH*2	LFP51.2V100A3H*3	LFP51.2V100AH*4
PV Box	ECEPV-5000	ECEPV-10000	ECEPV-15000	ECEPV-20000
PV cable	Red + black /200 M			
Battery cable	Including			
Connector	Including			
PV bracket	Roof or floor customization is optional			
System efficiency	85%-95%			
Life	25 years+			

Solar panel

Model	RM-410W-182M/108	RM-530W-182M/144	RM-530W-182M/144TB
RatedPowerinWatts-Pmax (Wp)	410	530	580
OpenCircuitVoltage-Voc(V)	37.67	49.32	51.47
ShortCircuitCurrent-Isc(A)	13.88	13.70	14.37
Max. PowerVoltage-Vmpp(V)	31.18	41.41	42.59
Max. PowerCurrent-Impp(A)	13.15	12.81	13.62
ModuleEfficiency(%)	21.00	20.94	22.44
SolarCells	Monocrystalline	Monocrystalline	Monocrystalline
ModuleDimensions	1722× 1134×35mm	2279× 1134×35mm	2279× 1134× 35mm
Weight	21.5kg	28.6kg	34kg
OperationalTemperature	-40℃ ~ +85℃	-40℃ ~ +85℃	-40℃ ~ +85℃
Max.SystemVoltage	1500V DC	1500V DC	1500V DC
Max.SeriesFuseRating	25A	25A	
NumberofModulesPer Container	806	620	620
NumberofModulesPer Pallet	31	31	31
NumberofPalletsPer Container	26	20	20
PackagingBox Dimensions(l×w×h) (mm)	1750× 1120× 1260	2310× 1135× 1260	2300× 1120× 1260

Energy Storage Battery

型号	ECE-B5KWh	ECE-B10kWh	ECE-B15KWh	ECE-B20KWh
Voltage标称电压	51.2V	51.2V	51.2v	51.2v
RatedCapacity 标称容量	100Ah	200Ah	300Ah	400Ah
Rated energy 电量	5120 Wh	10240Wh	15360Wh	20480Wh
System operatingvoltage range	40-58.4V	40-58.4V	40-58.4V	40-58.4V
Maximumcontinuouschargingcurrent	100A	100A	150A	200A
Maximumcontinuousdischargingcurrent	100A	100A	150A	200A
current	50A	50A	100A	100A
Standard chargecurrent	50A	50A	100A	100A
Operating temperature	-20℃ ~ +55℃	-20℃ ~ +55℃	-20℃ ~ +55℃	-20℃ ~ +55℃
Communicating function	CAN/RS485	CAN/RS485	CAN/RS485	CAN/RS485
Battery size	500*420*345mm	500*420*490mm	500*420*660mm	500*420*830mm
Battery box	Iron	Iron	Iron	Iron
Weight	65Kg	115Kg	165Kg	215Kg
Cooling	Naturalcooling	Naturalcooling	Naturalcooling	Naturalcooling

10KWh-30KWh Battery cabinet

Inverter

Model	SUN-5K-SG04LP3-EU	SUN-8K-SG04LP3-EU	SUN-10K-SG04LP3-EU	SUN-12K-SG04LP3-EU
Battery voltage(V)	48-60			
Dc input parameter				
Maximum DC input power(W)	6500	10400	13000	15600
Rated DC input voltage(V)	550 (160~800)			
Starting Voltage(V)	160			
MPPTvoltage range(V)	200-650			
Full load MPPT voltage(V)	350-650			
Maximum DC output current of each string(A)	13+13		26+13	
Maximum DC short-circuit current(A)	17+17		34+17	
MPPT Quantity/per routeMPPTNumber of group strings	2/1 +1		2/2 +1	
Ac input parameter				
Rated AC output power(W)	5000	8000	10000	12000
Maximum AC output power(W)	5500	8800	11000	13200

Application Case

Color steel tile roof energy storage project

Cement roof energy storage project

Application Case

Glazed tile roof energy storage project

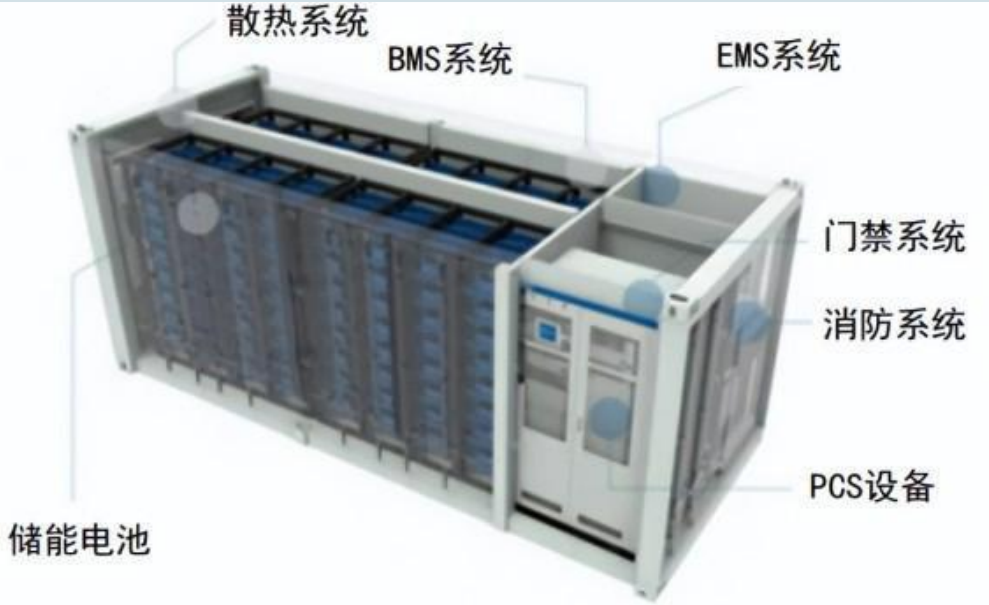
Asphalt shingle roof energy storage project

Large-scale intelligent energy storage system

Large-scale intelligent energy storage system

ECE Energy large-scale intelligent energy storage system adopts lithium iron phosphate battery as the energy carrier. Through PCS charging and discharging, it can realize a variety of energy exchange with the power system, and can be connected to a variety of power supply modes, such as photovoltaic arrays, wind energy, diesel generators and power grid energy storage systems. The output of the energy storage system can be connected to the grid and supplied to various load equipment and electric vehicle chargers.

The system includes lithium battery pack, battery management system, energy conversion system, control system and other devices. The technical core is battery pack, battery cluster structure design, battery system thermal design, battery system protection technology, battery management system and so on.



Core Competence

01

Low Cost

Battery echelon utilization
Most cost-effective

02

Intelligent Self Operation

Built-in energy management system
Automatically operates for 24 hours

03

Maintenance Free

Finger tip monitoring
Cloud Maintenance

04

Easy to Install

Modular design
Easy assembling

Functional Features

- Energy storage peak cutting and valley filling
- Power quality compensation
- Virtual capacity enhancement
- Demand side response
- Demand management
- Participate in grid support services

System Specifications

	Model Specification	1MW / 1MWh	1.5MW / 1.5MWh	2MW / 2MWh	2.5MW / 2.5MWh	3MW / 3MWh	3.5MW / 3.5MWh	4MW / 4MWh	4.5MW / 4.5MWh	5MW / 5MWh	5.5MW / 5.5MWh
Integrated centralized framework	Energy storage container	20ft cabinet	20ft cabinet	25ft cabinet	25ft cabinet	30ft cabinet	30ft cabinet	35ft cabinet	35ft cabinet	40ft cabinet	40ft cabinet
	Battery Type	LFP	LFP	LFP	LFP	LFP	LFP	LFP	LFP	LFP	LFP
	Maximum output power (MW)	1MW	1.5MW	2MW	2.5MW	3MW	3.5MW	4MW	4.5MW	5MW	5.5MW
	Electricity (MWh)	1MWh	1.5MWh	2MWh	2.5MWh	3MWh	3.5MWh	4MWh	4.5MWh	5MWh	5.5MWh
	Maximum output current on the DC side (A)	280A	280A	280A	280A	280A	280A	280A	280A	280A	280A
	DC side voltage range(V)	DC500V-850V	DC500V-850V	DC500V-850V	DC500V-850V	DC500V-850V	DC500V-850V	DC500V-850V	DC500V-850V	DC500V-850V	DC500V-850V
	AC access voltage(V)	Three Phase AC380V	Three Phase AC380V	Three Phase AC380V	Three Phase AC380V	Three Phase AC380V	Three Phase AC380V	Three Phase AC380V	Three Phase AC380V	Three Phase AC380V	Three Phase AC380V
	AC output frequency range	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
	Application Scenarios	1.Solar and wind power generation systems; 2.Power system peak trimming and valley filling 3.Frequency modulation and load tracking; 4.Postponing the upgrading of users' distribution systems; 5.Voltage and reactive power support; 6.Multi-energy complementary microgrid									

System Specifications

	Model Specification	100kW / 100kWh	150kW / 150kWh	200kW / 200kWh	250kW / 250kWh	300kW / 300kWh
Intelligent string framework	Battery Type	LFP	LFP	LFP	LFP	LFP
	Maximum Output power Power (kW)	100kW	150kW	200kW	250kW	300kW
	Electricity (kWh)	100kWh	150kWh	200kWh	250kWh	300kWh
	Maximum output current on the DC side (A)	100A	150A	200A	250A	280A
	DC side voltage range(V)	DC500V-850V	DC500V-850V	DC500V-850V	DC500V-850V	DC500V-850V
	AC access voltage(V)	Three Phase AC380V Single Phase AC220V	Three Phase AC380V Single Phase AC220V	Three Phase AC380V Single Phase AC220V	Three Phase AC380V Single Phase AC220V	Three Phase AC380V Single Phase AC220V
	AC output frequency range	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
	Application Scenarios	1.Solar and wind power generation systems; 2.Power system peak trimming and valley filling 3.Frequency modulation and load tracking; 4.Postponing the upgrading of users' distribution systems; 5.Voltage and reactive power support; 6.Multi-energy complementary microgrid				

- Description:

  Split modules can be strung to 70MWH according to customer requirements.

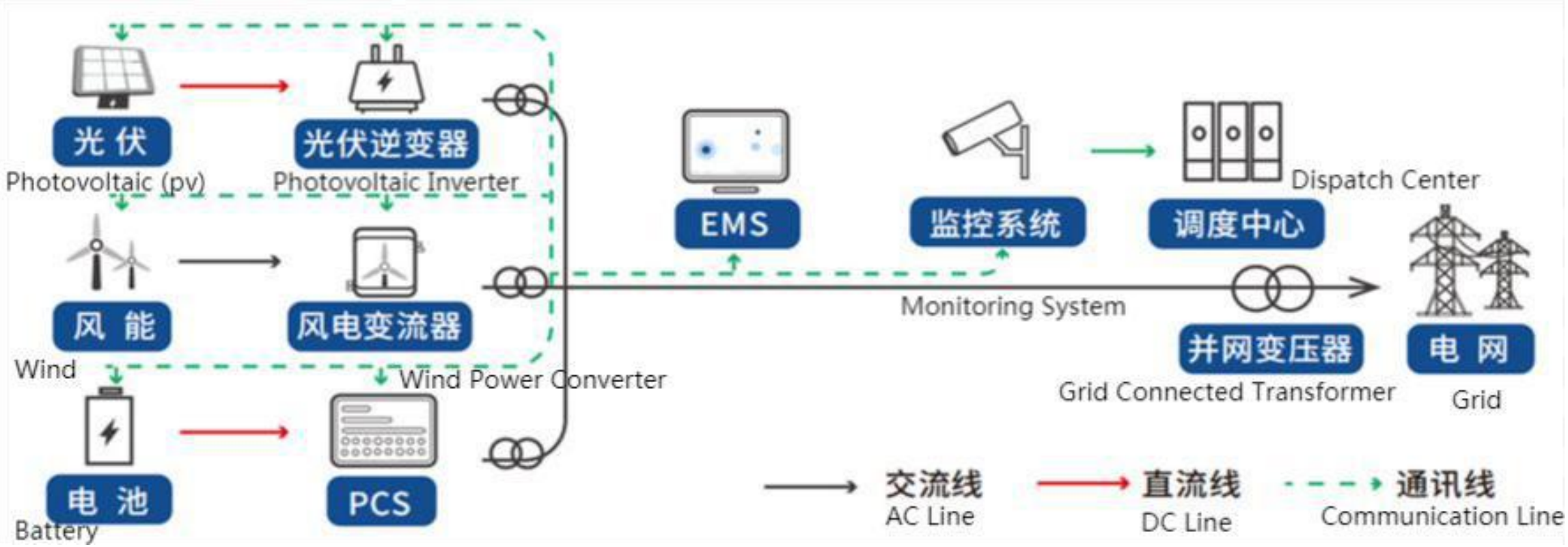
Wind Energy Storage Solution (Power Generation Side)

- As the new energy power generation is characterized by intermittence, volatility and randomness, large scale on-grid will impact the power system, increase the grid adjustment difficulty, and produce a large number of light and wind abandonment phenomena. Equipped with energy storage in photovoltaic/wind power stations can effectively make up for the natural defects of new energy power generation, smooth output fluctuations and improve power quality. Enhance the controllability of new energy to solve the consumption problem; Participate in supporting services to promote new energy economy.

Typical Functions

- Reduce wind and electricity abandonment
- Smooth the fluctuation of new energy output
- Coordinate with power grid dispatching to stabilize voltage and frequency

Topological Graph & Features



Flexible Configuration
Standardized system integration,
plug and play,
easy expansion

Extreme safety
Combining prevention and control with elimination,
Multi-point monitoring,
automatic fire extinguishing

Quick Deployment
Standard container design,
easy installation,
short construction cycle

Precise control
Responding to power dispatch instructions,
realizing fast and accurate control tracking

Project Case

200MW photovoltaic power station to add 6MW/14.4MWH project

➢ In this project, the excess electric energy is stored in the energy storage battery pack near the PV power limit line through the energy distribution algorithm, and the stored energy is sent out when the grid is slightly leisure.

➢ Thoroughly solve the limited generation problem, improve the investment income of photovoltaic power station.

Grid Side Independent Energy Storage Power Station Solution (Power Grid Side)

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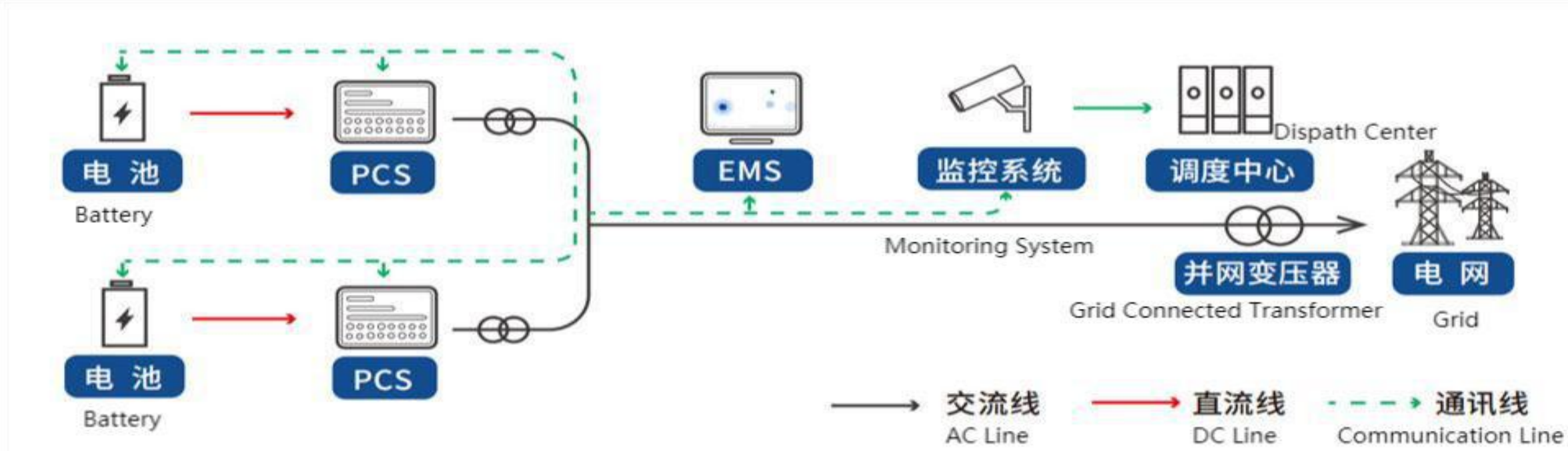
- The rapid development of various types of new energy brings great pressure to the safe operation of the power grid. As an excellent flexible power supply, the independent energy storage power station at the grid side can well solve this problem.
- Setting up an independent energy storage station at the power grid side can not only be used as a means of new energy peak regulation and frequency modulation in the region, but also participate in auxiliary services such as peak regulation and frequency modulation of the power grid. This type of energy storage has the characteristics of independence, centralization and scale, which makes the energy storage power station more convenient to manage and maximize the economy.

Functional Features

- Adjust frequency and pressure
- Black start of energy storage system
- On- grid and off - grid seamless switch
- Grid demand response

Topological Graph & Features



Fast Response
Excellent system configuration and design,
Fast response to multiple network commands

High efficiency fusion
EMS & PCS & liquid-cooled battery container, etc
Independent development and integration of key equipment

Concentrated Distribution
Standard container design, easy installation, short construction cycle

Scale Effect
Standardized system integration, easy expansion, good economic benefits

Project Case

180MW/720MWH energy storage project

➢ This project is the first battery energy storage test demonstration project approved by the National Energy Administration. The large-scale energy storage system in the network domain will soon become the largest commercial energy storage virtual power plant in China.

➢ The energy storage system has the two-way adjusting ability. Multiple energy storage devices integrated with box-transformer operate simultaneously, participating in frequency and pressure regulation of the power system, realizing stable grid-connection, seamless on-grid and off-grid switching, black start, and providing backup emergency power supply function.

Industrial and Commercial Energy Storage Solutions (User Side)

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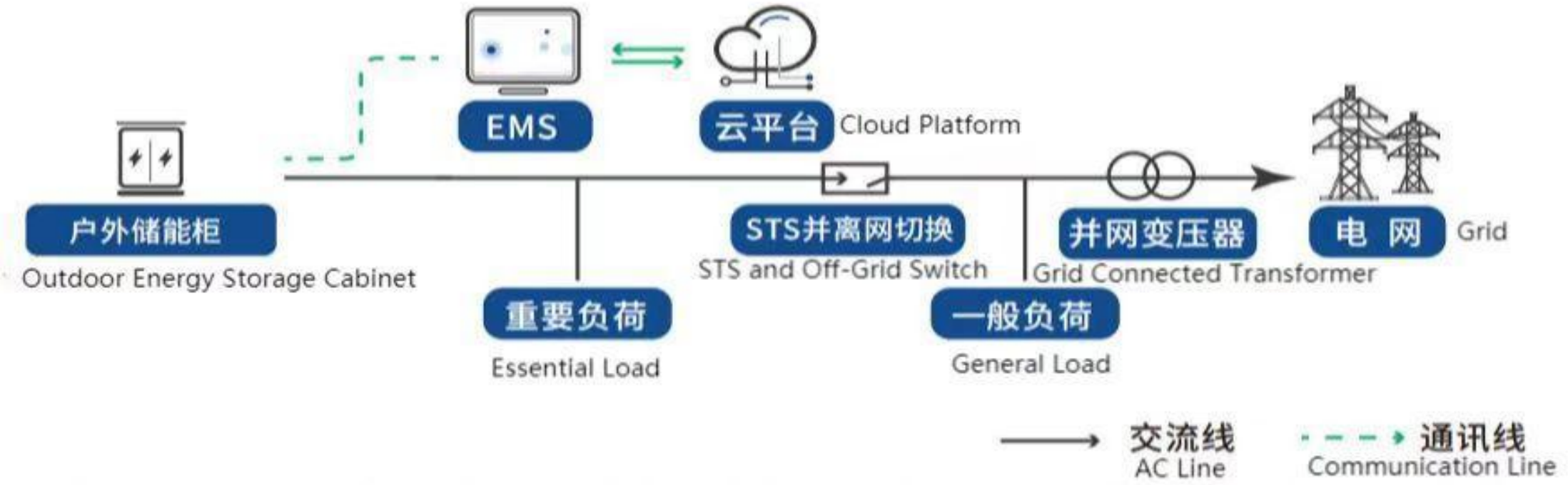
- The industrial and commercial distributed energy storage solution can be deployed in production-oriented enterprises/industrial site, commercial office buildings, charging stations and other places. It can effectively solve the problems of regional distribution network defects, peak power supply shortage and high power cost caused by increasing load capacity and increasing requirements on power supply quality, and other pain points such as difficult expansion, high expansion investment and long cycle. The peak-valley price mechanism can also be used to achieve peak cutting and peak valley filling and peak valley arbitrage.

Typical Functions

- Transformer virtual capacity
- Grid demand response
- Peak load shaving
- Demand management

Topological Graph & Features



Flexible Deployment

The system covers a small area and can be distributed.
Centralized scheduling facilitates flexible placement

Extreme Safety

Equipped with intelligent fire fighting system, automatic fire extinguishing, safe and reliable, quick response

Cost Effective

High efficiency PCS and battery string topology, The system small loss and good economy

Remote Control

It can monitor the system running status remotely and realize unattended operation with high degree of automatic control of the system

Project Case

A logistics center 500kW/1MWh energy storage system integration project

➢ This project will increase storage on the existing photovoltaic power generation system and strive to build an integrated optical storage system;

➢ Through intelligent scheduling of EMS energy management system, the energy storage system can store electricity when the power supply is greater than the demand, solve the problem of light abandonment and improve the consumption rate of new energy.

➢ Smooth the power fluctuations of the photovoltaic system and improve the power output quality.

Integrated Solution of Optical Storage and Charging (User Side)

- New energy vehicles are faced with insufficient deployment of charging facilities and poor availability; The charging demand does not match the power grid facilities, and the capacity increase is difficult and the cost is high. Long charging wait time and high charging cost. The integrated architecture of optical storage and charge realizes the ecological docking of photovoltaic, charging station and energy storage products, and is equipped with a smart energy operation and maintenance management platform to provide an integrated solution of optical storage and charge for charging stations. It not only meets the requirements of efficient, stable and safe charging, but also achieves double benefits of photovoltaic power generation and charging operation.

Functional Features

- Virtual capacity enhancement

  Reduce capacity expansion requirements

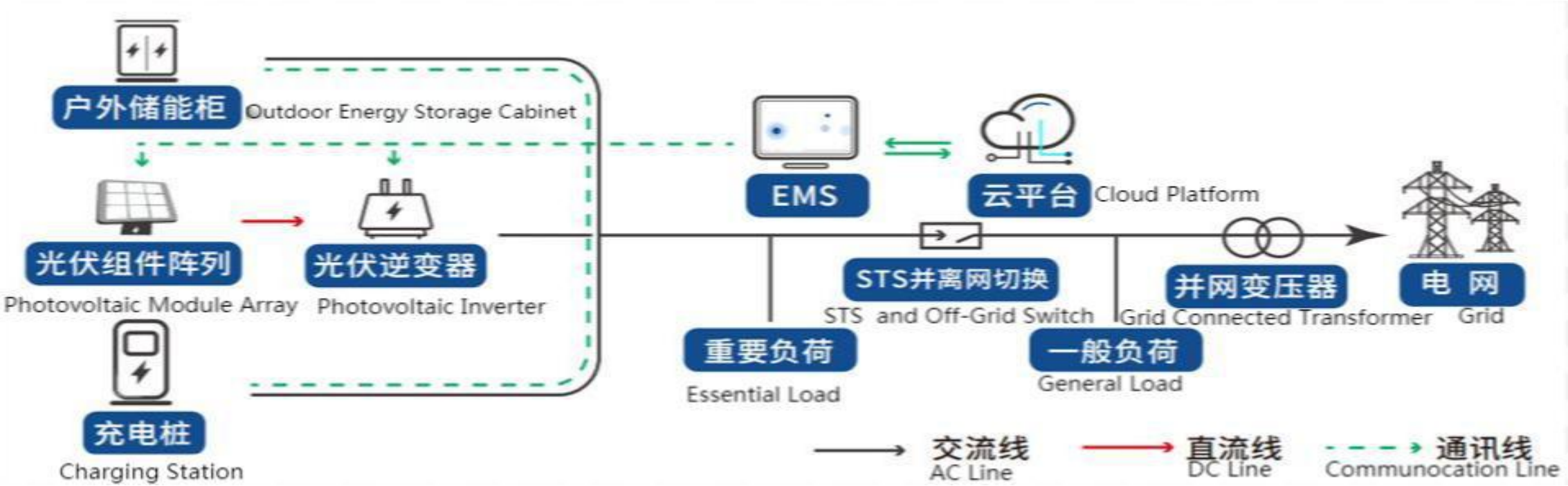
- Peak cutting and grain filling

  Increase Revenue

- Smooth grid

  Reduce impact

Topological Graph & Features



High Concentration

It integrates new energy generation, energy storage battery, power conversion, AC/DC distribution, local monitoring, orderly charging and so on

Rapid Deployment

Modular, easy expansion, plug and play, flexible location, fast installation and save time

Energy Saving and High Efficiency

Spontaneous self-use, local consumption, avoid transmission and voltage loss of rising and falling

Intelligent Operation

Real-time monitoring, unattended, fault diagnosis, intelligent early warning

Project Case

Optical storage and charging system of a charging station

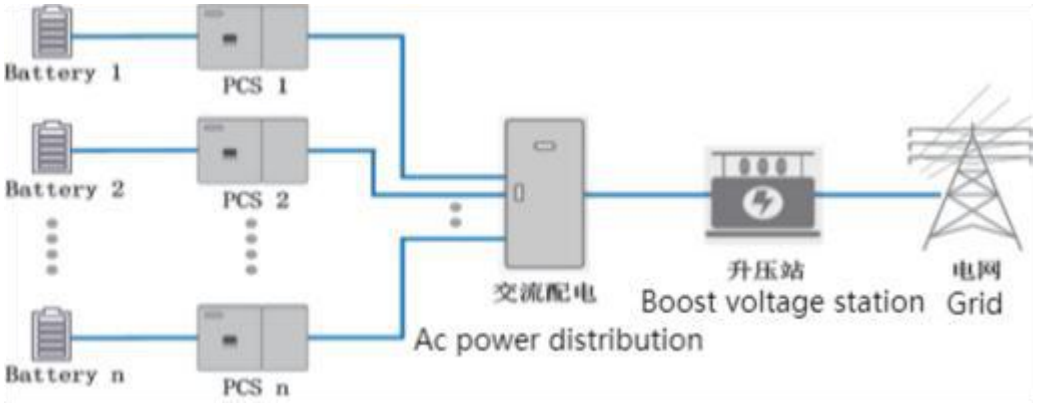
Photovoltaic 65KWp 40KWp
Rooftop photovoltaic+25KWp
Carport thin film photovoltaic

Energy storage 100KW/200KWh
Energy storage integrated cabin

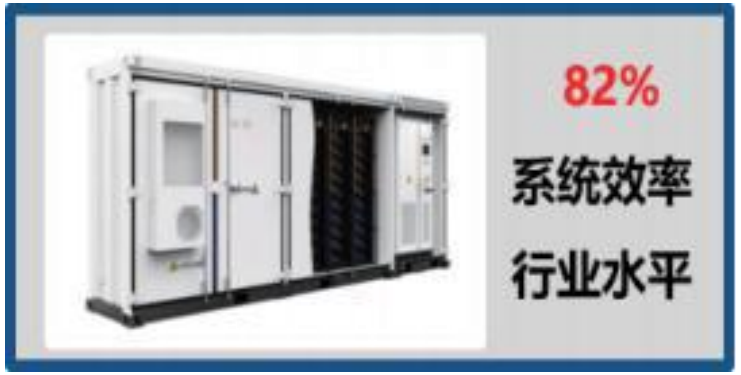
Charging station 7KW AC
charging station*4+60KW AC
charging station*2

Core Technology of Energy Storage System

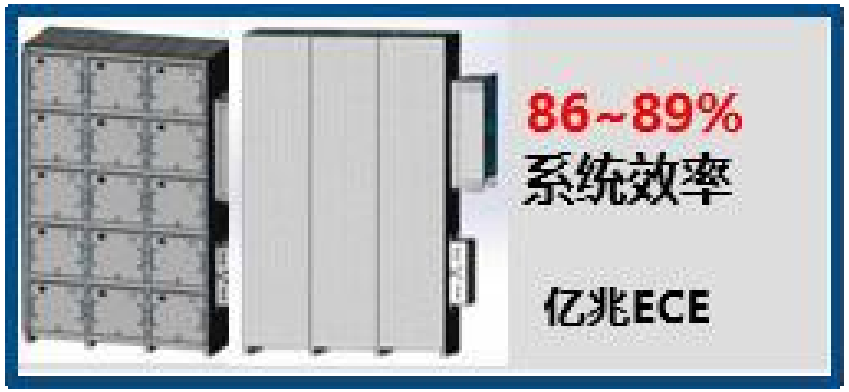
Systematic innovation structure



- There are three significant innovations in the design concept of intelligent cluster energy storage solution: cluster, modular and intelligent. Maximize the impact of the mismatching of each battery module, support the mixed use of old and new batteries, truly achieve All-Cell Control, and improve the available capacity of the entire energy storage system.



Adopting the centralized bidirectional converter, equipment maintenance affects the operation efficiency of the entire energy storage system, and the annual operation days are difficult to reach the investment expectation.



The series structure can realize rapid maintenance and replacement, maximize annual operating days, and ensure the return on investment; Efficiency increases by 3-7% and investment return cycle increases by 10%

Advantages of Group - String Architecture Systems

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High Performance & High Reliability

The self-developed group series energy storage inverter can better realize flexible configuration and efficient control.

Simple Operation & Easy Maintenance

Independent operation of each branch, centralized control, improve the system uninterrupted maintenance, low fault impact.

Cost Saving

The use of power battery steps improves the overall economy of the energy storage system, and the cost is more than half of the new battery.

Flexible Design

The energy storage system consists of multiple distributed energy storage units, which can be customized according to user requirements.

Energy Management System

Under different conditions, through the effective management and continuous monitoring of the battery module to achieve the effectiveness of the whole system

Save Energy

Maximize the cycle life of lithium batteries to maximize the energy utilization.

Energy Management System(EMS)

Technical Features

- The self-developed intelligent monitoring and energy management system of micro grid has completely independent intellectual property rights
- Based on hierarchical distributed technology and time series database technology, it can easily accommodate massive data of large-scale microgrid
- The product architecture of local control and cloud management is adopted to carry out real-time control, centralized monitoring, intelligent maintenance and data analysis for the microgrid system, which can be applied to different application scenarios such as wind storage, optical storage and charging, and optical firewood storage
- Distributed control and centralized management apply to the scenario where different types of batteries are used together

Cloud Monitoring Platform

Panoramic

- Data screen
- Revenue ranking
- Accumulated electricity

Operation Management

- Revenue data
- Power purchase management
- Carbon integral management

Energy Utilization Diagnosis

- Power quality
- Hidden danger analysis
- Diagnostic report

System Management

- Rate management
- Plan management
- Role management

Operation and Maintenance Management

- Operation and maintenance plan
- Operation and maintenance tasks
- Scheduling operation and maintenance

Power Station Management

- Power station overall information
- Power station event status

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Data Sharing

- Enterprise energy consumption data
- Enterprises demand data
- Equipment life data
- Data permission

Asset Management

- Carbon asset management
- Equipment asset management

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Backup Power Supply for Communication Base Station

- ECE Energy specializes in producing various 19-inch communication base station batteries and 5G base station backup power. Sufficient battery capacity, stable performance and less running faults. Over the years, ECE has been rated as China Tower, China Unicom and China Mobile high-quality lithium battery supplier.

Product Features

Good temperature performance

When charge and discharge at 60℃, 105% rated capacity can be discharged. When charge and discharge at -20℃ and above, the discharge capacity is more than 80%.

Stable product performance

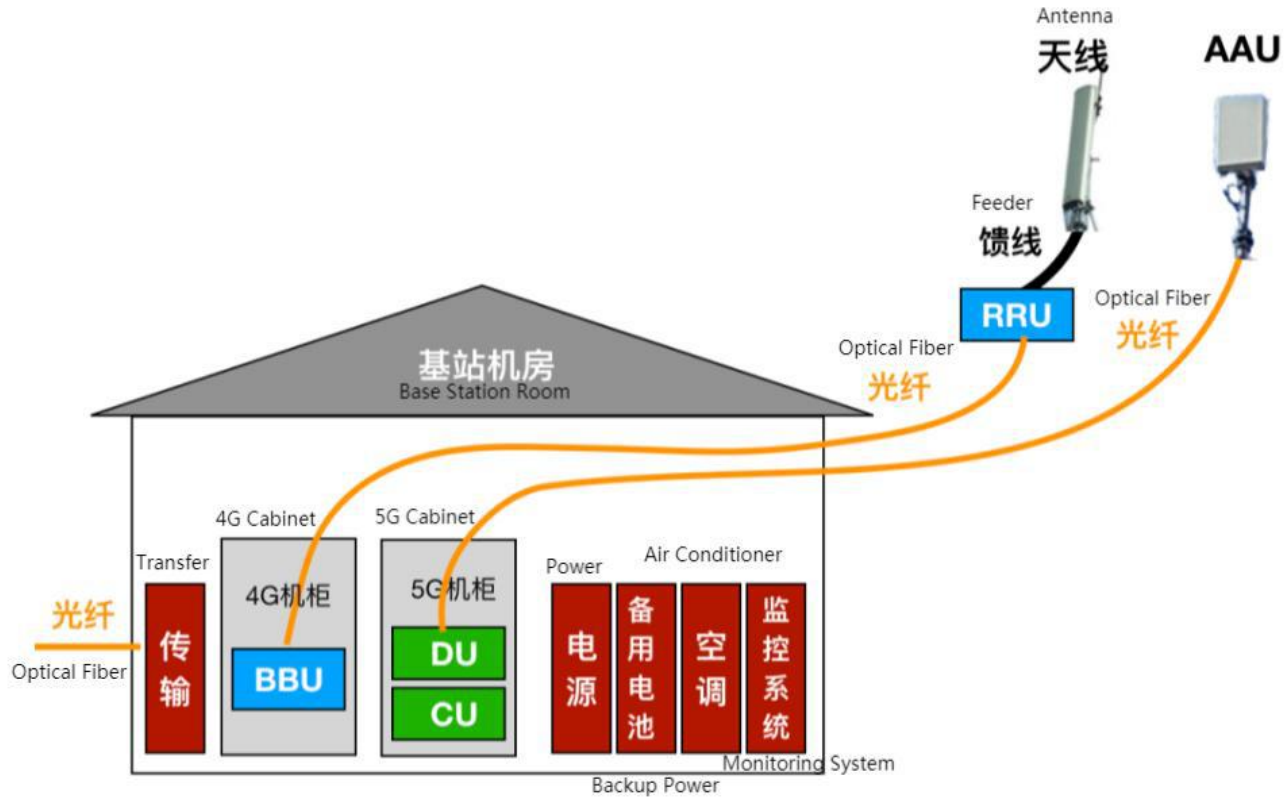
Our lithium battery are not fire and not burning after charge, charge and discharge, short circuit, drop, vibration, heating, and other tests.

High charging efficiency

Capacity efficiency reaches 100%, charge 80AH, also released 80AH when discharge.

Long cycle life and service life

80%DOD, more than 3,500 cycles; Service life is more than 8 years at the communication base station.



System working principle diagram

Cabinet Type Backup Series

Model	ECE-TB48100	ECE-TB48100 3U	ECE-TB48200
Rated voltage	51.2V	51.2V	51.2v
Rated capacity	100Ah	200Ah	200Ah
Rated energy	5120 Wh	5120 Wh	10240Wh
System operating voltage range	40-58.4V	40-58.4V	40-58.4V
Maximum continuous charging current	100A	100A	200A
Maximum continuous discharge current	100A	100A	200A
Standard charging current	50A	50A	100A
Standard discharge current	50A	50A	100A
Operating temperature	-20℃~+60℃	-20℃~+60℃	-20℃~+60℃
Communication function	RS485 RS232	CAN,RS485 RS232	RS485 RS232
Battery size	442*177*480 ±2 mm	442x435x133mm	483*234*463 ±2 mm
Case material	Iron	Iron	Iron
Weight	45Kg	40Kg	75.6Kg
Characteristics		Compatible with lead-acid batteries	

48100-Backup power supply for communication base station

48100-Intelligent lithium battery

Holding Bar/ Wall Mounted Type Backup Series

Model	ECE-TB5120	ECE-TB5150	ECE-TB51100 3U
Rated voltage	51.2V	51.2V	51.2
Rated capacity	100Ah	50Ah	100Ah
Rated energy	5120 Wh	5160 Wh	5120Wh
System operating voltage range	40-58.4V	40-58.4V	40-58.4V
Maximum continuous charging current	100A	100A	100A
Maximum continuous discharge current	100A	100A	100A
Standard charging current	50A	50A	50A
Standard discharge current	50A	50A	50A
Operating temperature	-20℃~+60℃	-20℃~+60℃	-20℃~+60℃
Communication function	RS485	CAN,RS485 RS232	RS485
Battery size	375*380*115mm	448*348*200mm	396*442*132.5mm
Case material	Iron	Iron	Iron
Weight	9kg	29Kg	40Kg
Characteristics	Compatible with lead-acid batteries		

Application Case

Special Vehicle Power Battery Solutions

- Special low-speed vehicles are motivated by vehicle power supply and rechargeable batteries. Low-speed vehicles are popular in the market, with a maximum speed of 70km/h. The design mainly meets the requirements of small body size, light weight and low max-speed. Special low speed vehicles can be divided into golf carts, forklifts, AGV, landscape vehicles, patrol vehicles and engineering machinery vehicles, etc

Advantage of Lithium Iron Phosphate Battery

亿兆能源 ECE ENERGY

LFP battery- ECE (51.2V 105Ah)	VS	Lead acid battery
>4000 times	Cycle life	< 500 times
10 years	Lifetime	1-2 years
No	Maintenance	Regular water refilling, maintenance and inspection
Quick charge up to 2.5 hours/ standard charge 5 hours	Charging time	12hours
No memory, charge anytime	Charging frequency	Charge daily after use
45kg/ Golf cart	Weight	182kg/Golf cart
Multiple built-in protection	Safety	Gas inside may cause explosion
No pulltion	Eco friendly	Lead is harmful
More benefits, save time cost	Life cycle	Less advantage, increase labor cost

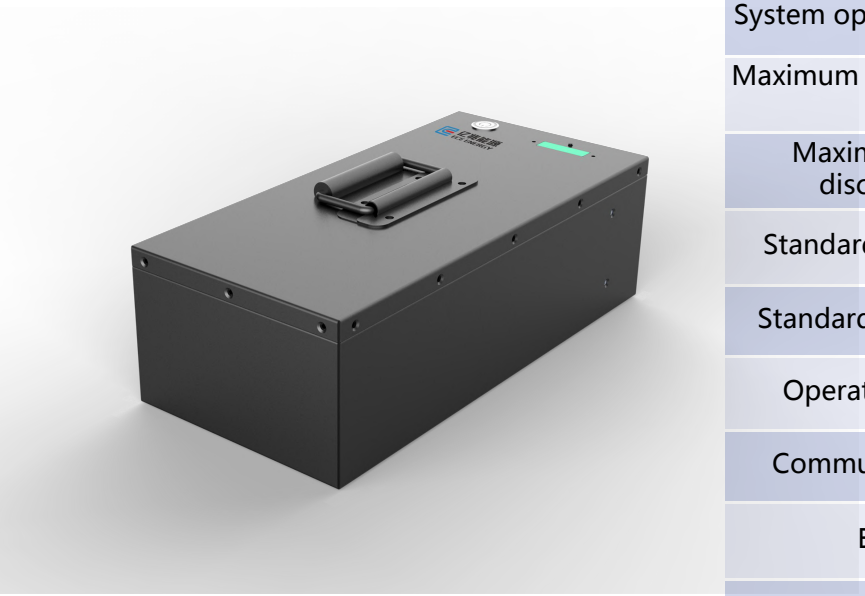
Golf Cart Batteries

Model	ECE-GB001	ECE-GB002	ECE-GB003	ECE-GB004	ECE-GB005
Rated voltage	38.4V	38.4 V	51.2V	51.2V	76.8V
Rated capacity	50Ah	105Ah	50Ah	105Ah	100Ah
System operating voltage rang	30-43.8V	30-43.8V	40-58.4V	40-58.4V	40-58.4V
Maximum continuous charging current	100A	100A	100A	100A	100A
Maximum continuous discharge current	100A	100A	100A	100A	100A
Standard charging current	50A	50A	50A	50A	50A
Standard discharge current	50A	50A	50A	50A	50A
Operating temperature	-20℃~+60℃	-20℃~+60℃	-20℃~+60℃	-20℃~+60℃	-20℃~+60℃
Communication function	CAN/RS485	CAN/RS485	CAN/RS485	CAN/RS485	CAN/RS485
Battery size	500*200*150mm	385*338*245mm	522*200*150mm	490*364*245mm	1015*248*337mm
Case material	Iron	Iron	Iron	Iron	Iron
Weight	25kg	34 kg	30kg	45kg	65KG
Cooling mode	Natural cooling	Natural cooling	Natural cooling	Natural cooling	Natural cooling

Forklift Batteries

Model	ECE-FB001	ECE-FB002	ECE-FB003	ECE-FB004	ECE-FB005
Rated voltage	25.6V	25.6V	51.2V	51.2V	51.2V
Rated capacity	200Ah	300Ah	200Ah	280Ah	560Ah
System operating voltage rang	20-29.2V	20-29.2V	40-58.4V	40-58.4V	40-58.4V
Maximum continuous charging current	100A	100A	100A	100A	100A
Maximum continuous discharge current	100A	100A	100A	100A	100A
Standard charging current	50A	50A	50A	50A	50A
Standard discharge current	50A	50A	50A	50A	50A
Operating temperature	-20℃~+60℃	-20℃~+60℃	-20℃~+60℃	-20℃~+60℃	-20℃~+60℃
Communication function	CAN/RS485	CAN/RS485	CAN/RS485	CAN/RS485	CAN/RS485
Battery size	750*176*574mm	792*212*635mm	792*212*635mm	760*500*548mm	945x810x585mm
Case material	Iron	Iron	Iron	Iron	Iron
Weight	27.7 kg	295 kg	295 kg	400 kg	400 kg
Cooling mode	Natural cooling	Natural cooling	Natural cooling	Natural cooling	Natural cooling

AGV Batteries

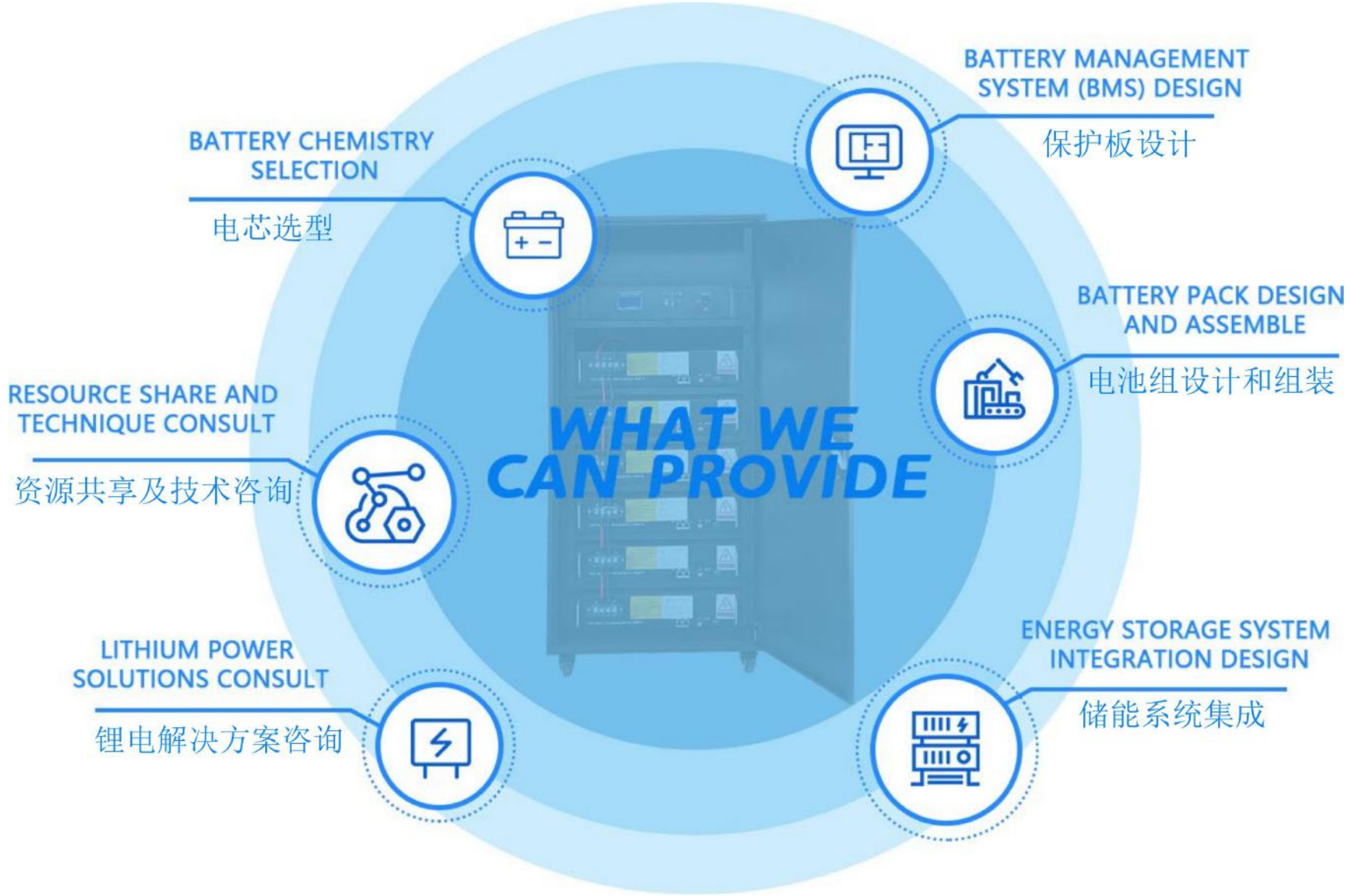


Model	ECE-AB001	ECE-AB002	ECE-AB003	ECE-AB004	ECE-AB005
Rated voltage	25.6V	25.6V	25.6V	51.2V	51.2V
Rated capacity	50Ah	60Ah	100Ah	50Ah	100Ah
System operating voltage rang	20-29.2V	20-29.2V	20-29.2V	40-58.4V	40-58.4V
Maximum continuous charging current	100A	100A	100A	100A	100A
Maximum continuous discharge current	100A	100A	100A	100A	100A
Standard charging current	50A	50A	50A	50A	50A
Standard discharge current	50A	50A	50A	50A	50A
Operating temperature	-20℃~+60℃	-20℃~+60℃	-20℃~+60℃	-20℃~+60℃	-20℃~+60℃
Communication function	CAN/RS485	CAN/RS485	CAN/RS485	CAN/RS485	CAN/RS485
Battery size	370*177*116mm	304×243×152mm（Max）	160*250*410mm	456.5*441*133mm	620*325*240mm（Max）
Case material	Iron	Iron	Iron	Iron	Iron
Weight	15kg	15kg	28kg	35kg	55kg
Cooling mode	Natural cooling	Natural cooling	Natural cooling	Natural cooling	Natural cooling

Customized Products

- ECE Energy is a high-quality lithium battery manufacturer with professional R&D and design team. It has a complete set of equipment for lithium battery pack testing and production, and rich experience in ODM and OEM services. ECE Energy can accurately understand customers' personalized needs and quickly develop personalized solutions.

Diversified Customization Plate



Lead Acid Alternative

Model	ECE-CB12.8V100AH	ECE-CB12.8V200AH
Rated voltage	12.8V	12.8V
Rated capacity	100Ah	200Ah
Rated energy	1280 Wh	2560 Wh
System operating voltage rang	10-14.6V	10-14.6V
Maximum continuous charging curre	100A	100A
Maximum continuous discharge current	100A	200A
Standard charging current	50A	100A
Standard discharge current	50A	100A
Operating temperature	-20℃~+60℃	-20℃~+60℃
Communication function	bluethooth	bluethooth
Battery size	330*172*215mm	345*190*245mm
Case material	ABS	ABS
Weight	10Kg	20Kg

- Under the new situation, the electric low-speed vehicle industry presents a new national standard, new power, new mode and new ecology. With the "wind and clouds" of lead lithium battery to replace lead acid , drive the various lithium power to run into the market. In the future, we will usher in a more lightweight, intelligent, lithium electrochemical green energy market.

Outdoor Portable Power Supply

Model	ECE-CB51.2V50Ah
Rated output power	2000W
Output port	AC220V,DC12V,DC51.2V,USB
Rated DC voltage	51.2V
Rated capacity	50Ah
Rated energy	2560Wh
System operating voltage range	40-58.4V
Maximum continuous charging current	50A
Maximum continuous discharge current	50A
Standard charging current	20A
Standard discharge current	20A
Operating temperature	-20℃~+60℃
Communication function	RS485
Battery size	575*421*287mm
Case material	ABS
Weight	35Kg
Cooling mode	Fan cooling

- Outdoor mobile portable power supply reflects a clean, environmental protection, low carbon, safe and easy to carry, stable performance without loss of safety and comfort in home and outdoor travel. Portable energy storage outdoor power supply, easy to use and carry, no noise, no pollution, high storage energy density, large capacity for a variety of application scenarios.

Small Industrial High Voltage Energy Storage Cabinet

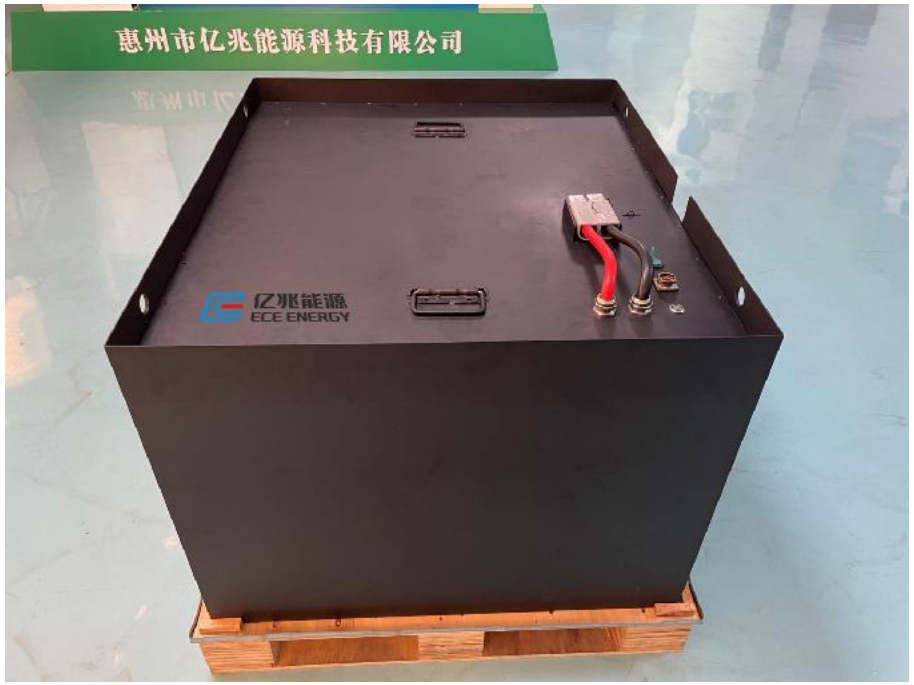
亿兆能源 ECE ENERGY

Model	ECE-CB422.4V280Ah
Rated voltage	422.4V
Rated capacity	280Ah
Rated energy	120KWh
System operating voltage rang	380-465V
Maximum continuous charging curre	300A
Maximum continuous discharge current	300A
Standard charging current	100A
Standard discharge current	100A
Operating temperature	-20℃~+60℃
Communication function	RS485
Battery size	1800*1225*700mm
Case material	Iron
Weight	--
Cooling mode	Fan cooling

High voltage energy storage system is developed for power grid energy storage, industrial and commercial energy storage, home high voltage energy storage, high voltage UPS and data room and other applications. ECE Energy can provide customers with integrated delivery solutions from battery modules, energy storage systems, container energy storage systems and other scheme, flexibly forming various voltage platforms (within 1000V) and capacity levels system.

City Sweeper Battery Solutions

Model	ECE-CB51.2V1000Ah
Rated voltage	51.2V
Rated capacity	1000Ah
Rated energy	51200 Wh
System operating voltage rang	40-58.4V
Maximum continuous charging curre	350A
Maximum continuous discharge current	350A
Standard charging current	200A
Standard discharge current	200A
Operating temperature	-20℃~+60℃
Communication function	RS485
Battery size	970*846*631mm
Case material	Iron
Weight	450Kg

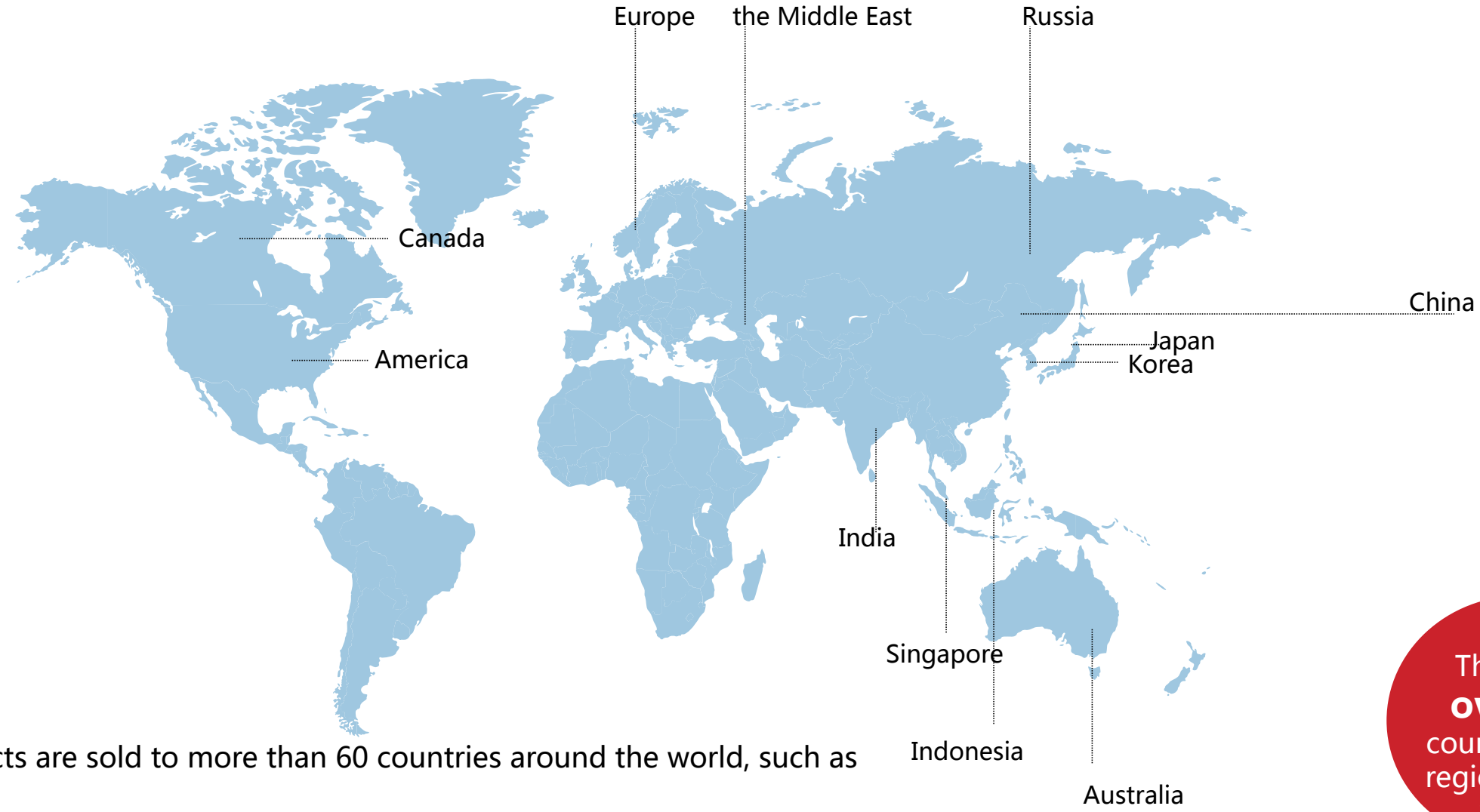


- In order to meet the needs of the pure electric sanitation vehicle with longer endurance mileage and increased load quality, in the future, the lithium iron phosphate battery with good high-temperature performance, higher safety factor and lighter volume has become the development trend of the power battery of pure electric sanitation vehicle.

03 Development Plan

- Global Business Layout
- Future Development Plan

Global Business Layout



There are **over 60** countries and regions in the world

- ECE products are sold to more than 60 countries around the world, such as the United States, Canada, the United Kingdom, Germany, Japan, etc. ECE products are safe, reliable, stable and durable, favored by many customers

Future Development Plan

亿兆能源 ECE ENERGY

1 Energy storage technology leads the industry

2 Overseas market account for 55% of annual sales

Committed to becoming a world leader in integrated energy storage system

3 The domestic market accounts for 45% of annual sales

4 Planning IPO

亿兆能源
ECE ENERGY

Thanks for Watching