

## Let Green Energy Benefit All HITHIUM

Company Presentation 2024.07

**Overview** R&D Product Case ESG

Business Scope

### What we do

HiTHIUM offers top-quality energy storage products and solutions for ecology, productivity, and daily life. We solely focus on stationary energy storage and manufacture just the BESS from the cell to the battery system.

Productivity

### Ecology

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Life

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### Let green energy benefit all, equally.

Every day, our energy storage products and solutions are powering the world.

We are accelerating the transition to clean energy and leveraging our expertise to ensure access to affordable, reliable, sustainable and modern energy for all, while making the journey toward net-zero society. Together.

🗘 HTHIUM



### A team with values of freedom, innovation, share and love



### What we achieved

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Achievements

#### **Global Top 5** No.2 in China

in 2023 BESS shipments<sup>2</sup>



in 2023 utility-scale BESS shipments<sup>1</sup>

### 🐧 Top 5 bankable

battery manufacturers<sup>3</sup>

1 Resource: ESSA's report about BESS shipments for utility-scale projects in China 2 Resource: China Energy Storage Alliance (CNESA) report about stationary energy storage manufacturers' 2023 shipments stem Cost Survey 2023, HITHIUM ranks TOP 5 bankable battery manufacturers from China 3 Resource: BNEF Energy Storage

### **30+ GWh** total shipment<sup>4</sup>

HTHIUM



#### **Global Presence**







### Warranty and after-sales capability

### **Overview** R&D Product Case ESG After-sales

### Localized Support

- Local technicians and engineers
- USA & Canada: 170+
- Europe: 80+
- Asia Pacific: 60+
- Accompanied with warehouses and end-of-life battery recycling services in each region

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### **Timely Support**

- Response time  $\rightarrow$  0.5~48 hours
- Issue resolving  $\rightarrow$  3~7 days
- Arrival time  $\rightarrow$  24~72 hours

### **Expert Support**

 Training technical professionals with state-of-the-art training facilities where we prepare our technicians for the field

High level of warranty against performance degradation and risk of defect, with coverage for up to 15 years.







### Relentless innovators

Innovators

Research and development have an extremely high priority at HiTHIUM, because they are the basis for the competitiveness of our products. For this reason, we invest heavily in research and development. HiTHIUM has a fast growing R&D team with more than 1200 engineers work in four company-owned research institutes

- Battery Research Institute
- Institute of Advanced Technology
- Shenzhen Research Institute
- Engineering Center

### 3400+

Intellectual property filed



#### Overview **R&D** Product Case ESG

Innovations

### Innovations creating value

# Energy Efficiency Lifetime Safety

#### **Maximum** lifetime

- Active and sustained lithium ions release technology
- Stable SEI and high kinetic solvation







#### **Maximum Energy Efficiency**

- Multi-element doping design
- Uniform carbon coating
- Low viscosity & High conductivity electrolyte







#### **Maximum safety**

- Multi-dimensional safety design from materials, to cell and system
- No fire. No explosion.







### **Product Overview**

### Cell

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	Jaah C HTHIUM	280Ab C HTHIUM	280Ab C HTHIUM
Prismatic cell	314Ah	280Ah	280Ah 1P
Operating voltage	2.5-3.6	5V (T > 0℃ )2.0-3.65V (T ≤ 0℃	2)
Charge & discharge rate	0.5P	0.5P	1P
Energy density	≥ 175Wh/kg	≥ 160Wh/kg	≥ 160Wh/kg
Operating temperature		-30℃ ~60℃	
$Dimension~({\tt L}{\tt x}{\tt W}{\tt x}{\tt H})$	174.70*71.70*207.11mm	174.70*71.65*207.11mm	174.70*71.65*207.11mm
Cycle life (25°C , 100%DOD , 0.5P , @70%SOH )	11000cls( 0.5P)	10000cls( 0.5P)	7000cls(1P)



### Product Overview

### Cell

for long-duration energy storage

Prismatic cell	MIC 1130Ah	
Operating voltage	2.5-3.65V (T > 0°C ) 2.0-3.65V (T ≤ 0°C )	
Charge & discharge rate	0.25P	
Energy density	≥ 180Wh/kg	
Operating temperature	-30℃ ~60℃	
Dimension (L x W x H)	580.44 *75.22*208.31mm	
Cycle life (25°C , 100%DOD , 0.25P , @60%SOH )	15000cls	

**О** НТНІОМ

MIC 1130Ah

\*The above are for reference only, the specifications sheets shall prevail



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### **Product Overview**

### Modules

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Battery Module	43kWh Battery Module	104kWh Battery Module	104kWh Battery Module
Series-parallel mode	1P48S	2P52S	1P104S
Charge & discharge rate		0.5P/0.5P	
Rated voltage	153.6V	166.4V	332.8V
Rated energy	43.008kWh	104.5 kWh	104.5 kWh
IP degree		IP67	
$Dimension~(L^{\star}W^{\star}H)$	820*1092*245 mm	800*2184*243 mm	780*2188*249 mm
Weight	310kg	680 kg	680 kg





### HiTHIUM $\infty$ Block

Energy Storage System





Product	Cabinet 344 kWh	Container 3.44 MWh	Container 5.015 MWh
Series-parallel mode	1P384S	10P384S	6*2P416S
Charge & discharge rate		0.5P/0.5P	
Rated voltage	1228.8V	1228.8V	1331.2V
Rated energy	344kWh	3.44MWh	5.015MWh
IP degree		IP55	
$Dimension~(L\times W\times H)$	1300*1300*2350mm	6058*2438*2896 mm	6058*2438*2896 mm
Weight	<3.5t	< 34t	< 42 t



### Product Overview

### Cylindrical cell & Module



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Cylindrical cell	50Ah	Module	2.56kWh	5.12kWh
Operating voltage	2.5-3.65V (T > 0℃) 2.0-3.65V (T ≤ 0℃)	Series-parallel mode	1P16S	1P32S
Charge & discharge rate	1C	Charge & discharge rate	1	С
Energy density	≥ 150Wh/kg	Rated voltage	51.2V	102.4V
Operating temperature	-30°C ~60°C	Rated energy	2.56kWh	5.12kWh
Dimension $(D^*H)$	φ64*151mm	Dimension (L*W*H)	581*152*175mm	591*308*175mm
Cycle life (25℃,100%DOD,1C, @70%SOH)	8000cls	Weight	≤20kg	≤35kg



### Product Overview

# HeroEE Energy Solution



**One PV module** 

**One battery energy** storage system



One intelligent



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	HeroEE 1	HeroEE 2
Rated power	200W	1000W
Rated capacity	1kWh	2kWh
AC input (Grid)	200-240 [VAC]	200-240 [VAC]
DC input (Solar)	12-36 [VDC]	12-60 [VDC]
Cell cycle life	10,000 cls	10,000 cls
Dimension (L*W*H)	210*130*285mm	280*210*311mm
Weight	8.5kg	16kg





"Andustries" A Full-stack Energy Storage Solution For C&I Use





	HCL 125kW-261kWh- 400-A02	HCL 215kW-417kWh- 690-A01	HCL -261kWh-A01
Series-parallel mode	1P260S	1P416S	1P260S
Charge & discharge rate		0.5P	
Rated voltage	400VAC, 3W+N+PE	690VAC, 3W+PE	832V
Rated energy	261kWh	417kWh	261kWh
IP degree		IP55	
Dimension $(L*W*H)$	1000*1350*2350mm	1500*1350*2350mm	1000*1350*2350mm
Weight	<3t	<4t	<3t



### **Quality Assurance**

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The HiTHIUM Test Verification Center has been certified by TÜV Rheinland and CNAS

### MATERIAL VERIFICATION 100% in house



- Coin-cell testing lab
- ICP lab (Inductively Coupled Plasma)
- SEM lab (Scanning Electroscope Microscopy)
- Electrolyte lab
- Anode and cathode materials R&D lab
- Advanced technology lab
- EVC lab

### PERFORMANCE TEST **39000+ testing channels**



- Covering R&D on energy storage pouch, prismatic, and cylindrical cell as well as module, and DC-system.
  - Meet testing requirements of capacity, lithium analysis, H/L, OCV, HPPC, DCR, rate performance, long-term cycling and aging.

SAFETY AND RELIABILITY TEST from cell to battery system



 Support 24+ safety and reliability tests such as thermal runaway, nail impact and drop test.



### BESS on power generation

HiTHIUM's BESS products enable the power generation to restore a stable power grid, optimize the power output, reduce solar and wind curtailment, increase the proportion of renewable energy in total power generation, and optimize the energy structure



#### Ningxia, China 100MW / 200MWh

It effectively smooths out power generation fluctuations, reduce power abandonment rates, and safeguard operation of the power system. With the annual energy generation of ca. 1.8 billion kWh, it is expected to satisfy the daily electricity needs of 1.5 million households per year.



Gansu, China 60MW / 120MWh



#### Inner Mongolia, China 20MW / 40MWh



Hainan, China 25MW / 50MWh



### BESS on transmission

HiTHIUM's BESS products are applied in power transmission and distribution modulate frequency and peak according to power grid loads. It helps to ensure the safe, stable, efficient and low-cost operation of the power grid



#### Ningxia, China 200MW / 400MWh

The largest stand-alone storage power station in China. Annual energy generation of 1,33 billion kWh. The site can store up to 400.000 kWh of electricity on a single charge.







Shandong, China 100MW / 200MWh



Chongqing, China 100MW/ 200MWh



### BESS on consumption

HiTHIUM's BESS products have been applied in large-scale industrial and commercial, UPS/base stations, charging stations, etc. helping to reduce electricity costs, ensure a stable power supply, and benefit social and economic



#### Guangdong, China

7.5MW / 21.5MWh

A benchmark project of the large-scale C&I application. The plant stores power during low hours, supplying it during peak hours. It saves the C&I customer on electricity costs and serves as a backup power source



Henan, China 5MW / 14.9MWh



Henan, China 4.8MW / 18.08MWh



Zhejiang, China 10MW / 20MWh



#### Overview R&D Product Case ESG

### BESS on consumption

HiTHIUM's BESS products have also been applied in Solar + ESS + Charging Station and new rural construction. Those projects further proved ESS is the cornerstone of successful energy transition



#### Chongqing, China 400kW solar, 2\*860kWh ESS, 12\*160kW charging station

The storage devices are charged once a day at 'valley' and 'flat' times and then discharged at top and peak times, achieving peak shaving. The plant eases the impact on the grid of high power demand by prioritizing the consumption of solar energy.



Shandong, China 224kW solar 860kWh ESS 5\*120kW charging station



Chongqing, China 4.8MW / 18.08MWh



### Global ESG commitment







We align our strategies and operations to have a powerful combination of our technology, our people, and our purpose. We aim to help communities around the globe





With the company culture of "Freedom, innovation, sharing, love", we commit to creating a workplace that enhances employee well-being and satisfaction



Carbon Neutral PAS 2060



Our approach to meeting ESG goals and achieving sustainable manufacturing is rooted in our company culture. We see reducing our own carbon emissions as a core commitment



# Together we're powering the future



