

Global and China Li-ion Power Battery Industry Report, 2016-2020

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STUDY GOAL AND OBJECTIVES

This report provides the industry executives with strategically significant competitor information, analysis, insight and projection on the competitive pattern and key companies in the industry, crucial to the development and implementation of effective business, marketing and R&D programs.

REPORT OBJECTIVES

- To establish a comprehensive, factual, annually updated and costeffective information base on market size, competition patterns, market segments, goals and strategies of the leading players in the market, reviews and forecasts.
- To assist potential market entrants in evaluating prospective acquisition and joint venture candidates.
- To complement the organizations' internal competitor information gathering efforts with strategic analysis, data interpretation and insight.
- To suggest for concerned investors in line with the current development of this industry as well as the development tendency.
- To help company to succeed in a competitive market, and

METHODOLOGY

Both primary and secondary research methodologies were used in preparing this study. Initially, a comprehensive and exhaustive search of the literature on this industry was conducted. These sources included related books and journals, trade literature, marketing literature, other product/promotional literature, annual reports, security analyst reports, and other publications. Subsequently, telephone interviews or email correspondence was conducted with marketing executives etc. Other sources included related magazines, academics, and consulting companies.

INFORMATION SOURCES

The primary information sources include Company Reports, and National Bureau of Statistics of China etc.

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Abstract

In 2014, the global electric vehicle sales volume reached 329,800 units, up 51.8% from a year earlier, including 115,500 plug-in hybrid electric vehicles and 214,300 battery electric vehicles. In the first half of 2015, this figure amounted to 204,300 units. Affected by lower oil prices, the sales volume of electric vehicles in Japan and the United States declined while that in China and Europe maintained faster growth.

In 2014, the global demand for Li-ion power battery for electric vehicles came to 9.8GWh, up 87% from a year earlier, of which the demand from passenger vehicles totaled 7.3GWh and commercial vehicles 2.5GWh. In H1 2015, the global demand for EV Li-ion power battery hit 7GWh, maintaining high growth

There are mainly three technology roadmaps for power battery worldwide.

(1) Ternary materials-based. This mainly takes NCA and NCM as cathode materials. NCM-based batteries have high energy density. With a sustained growth of electric vehicles, the procurement costs of the batteries have in recent years declined dramatically, which has gradually made them a mainstream battery technology for electric vehicles. After 2014, domestic battery companies represented by Samsung SDI, SKI, Tianjin Lishen, and Boston-Power have also shifted their focus to NCM-based batteries. NCA adopts 18650-type battery, which is mainly used in Tesla and Toyota RAV4. It has the highest energy density so far. But because of poor safety performance, the advanced BMS is needed to monitor the operating condition of the battery. Thus, the battery has not been widely used. The typical enterprise is Panasonic. (2) LFP-based. Canada and the United States were the first to develop power battery technology, with main patent owners including the U.S. Valence, A123 and University of Texas, and the Canadian Phostech and Hydro-Quebec. In China, by contrast, LFP, the mainstream technology in power lithium battery, is widely used in passenger vehicles and buses, with the typical companies including BYD and Guoxuan High-tech. However, due to the factors like low specific energy and poor low-temperature starting performance, LFPbased batteries are not made available worldwide. The Chinese heavyweight passenger vehicles launched in 2014H2-2015, such as BAIC EV200, Zhidou, Zotye Yun 100, Kandi K10/K11, and JAC iEV5, have begun to use ternary or hybrid ternary batteries-based batteries. The largest LFP-based battery manufacturer, BYD also announced that its new model "Song" will be equipped with its own ternary lithium battery. But due to low costs and strong cycle performance, LFP still will be used in electric commercial vehicles as the preferred battery technology for a long period of time. This is particularly true in China. In 2015, battery electric buses showed explosive growth, which would drive a surge in demand for LFP-based batteries.

(3) Manganese series. It mainly takes LMO as the cathode materials, but LMO is generally modified and is combined with a little bit of NCM or LNO to increase battery energy density. The major typical manufacturers include LGC, AESC, LEJ, etc. And in China, they are MGL, Do-Fluoride Chemicals Co., etc. Manganese series battery is also one of the mainstream technology roadmaps for electric vehicles globally.

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At present, manganese-series power battery, including NCM and LMO, occupies the mainstream status on a global scale, with the cost of battery packs generally standing at USD400-550/kWh, which reflects an obvious decline since 2014. The cylindrical NCA 18650 battery produced through coiling, though lower costs for its cells, is popular with automakers due to high BMS costs and safety; Similarly, because of poor comprehensive performance, low-cost LFP battery is only is used in China and the United States. However, the US automakers have gradually abandoned LFP batteries and turned to ternary materials-based and Mn-series batteries from Japanese and S. Korean companies. When it comes to the development trends in Li-ion power battery technology, passenger vehicles will mainly adopt manganese series and ternary materials-based batteries while commercial vehicles will primarily use LFP batteries and gradually turn to ternary materials-based batteries.

At present, no major technological breakthrough has not yet been made in power battery. It is estimated that the drop in prices for power battery mainly resulted from a fall in the costs of raw materials and economies of scale, but with a limited decline.

In 2014, China's power battery shipments totaled 3.7GWH, up 470% from a year earlier. Among them, the demand for passenger vehicle power batteries was 1.6GWh and that for commercial vehicles 2.1GWh. In H1 2015, China's power battery shipments came to 2.72GWh. As battery electric buses showed explosive growth in the second half of 2015, and if we calculate the new energy vehicle output based on 250,000 units for the full year, the corresponding battery demand will reach 11 GWh.

As far as Chinese Li-ion power battery manufacturers are concerned, in H1 2015, any of such companies as BYD, Guoxuan, ATL, Tianjin Lishen, OptimumNano, Boston Power, and Pride Battery has a battery output of 100MWH. The shipments of 13 major battery manufacturers accounted for an aggregate 71% in market share, of which BYD had the largest market share of 17%.

From the perspective of global trends, the support from big carmakers is vital to power battery manufacturers. Traditional consumer electronics companies are aggressively conducting transformation. On the other hand, battery materials manufacturers and vehicle manufacturers have also begun to enter this field through various ways. Thus, the first echelon represented by BYD, Guoxuan, Tianjin Lishen, and ATL and the second echelon including OptimumNano, Boston Power, and Pride Battery, BESK, Do-Fluoride Chemicals, CALB, and Shenzhen BAK have taken shape.

Global and China Li-ion Power Battery Industry Report, 2016-2020 by ResearchInChina mainly covers the followings: Analysis of industry chain, including the key materials, cells, Pack & BMS, etc.;

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Global and China Li-ion Power Battery Industry Report, 2016-2020 by ResearchInChina mainly covers the followings:

- > Analysis of industry chain, including the key materials, cells, Pack & BMS, etc.;
- > Analysis of technology roadmap of Li-ion power battery, including costs, performance, and development directions, etc.;
- Analysis of global and Chinese electrical vehicle industry, including the industry overview, overseas markets, model output and sales volume, and performance parameter, etc.;
- > Analysis of global and Chinese Li-ion power battery industry, including shipment, market size, price, supply relationship, etc.;
- Operation, technology, development plan, production & marketing of 9 overseas lithium battery manufacturers, mainly from Korea, Japan and USA;
- > Operation, technology, development plan, production & marketing of 10 Chinese Li-ion power battery manufacturers.

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Table of contents

1. Introduction to Power Lithium Battery

- 1.1 Classification of Power Battery
- 1.2 Structure of Power Cell

2. Power Lithium Battery Industry Chain Analysis

2.1 Industry Overview 2.2 Critical Materials 2.2.1 Cathode Materials 2.2.2 Anode Materials 2.2.3 Separator 2.2.4 Electrolyte 2.3 Cell 2.3.1 Cell Cost 2.3.2 Cell Capacity 2.3.3 Cell Structure 2.3.4 Supply Relationship 2.4 PACK+BMS 2.4.1 Battery Costs 2.4.2 BMS 2.5 Technology Roadmap 2.5.1 Cost Analysis 2.5.2 Selection of Technology Roadmap 2.5.3 Technology Trends 3. Global Electric Vehicle Market 3.1 Classification

3.2 Global EV Market 3.2.1 Overview 3.2.2 USA

- 3.2.3 Europe
- 3.2.4 Japan
- 3.3 Chinese EV Market
- 3.3.1 Overview
- 3.3.2 Passenger Vehicle

3.3.3 Commercial Vehicle

4. Global Power Lithium Battery Indus try 4.1 Demand

4.1 Demand
4.1.1 Global
4.1.2 China
4.2 Price
4.3 Market Size
4.4 Power Lithium Battery Companies
4.3.1 Market Share
4.3.2 Supporting Relationship

5. Major Power Lithium Battery Manuf acturers in Korea

5.1 LG Chemical 5.1.1 Profile 5.1.2 Battery Technology 5.1.3 Business Development and Prospe cts 5.1.4 Customers 5.1.5 Business Layout in China 5.1.6 Capacity and Output 5.2 SDI 5.2.1 Profile 5.2.2 Battery Technology 5.2.3 Business Development and Prospe cts 5.2.4 Customers 5.2.5 Business Layout in China 5.2.6 Capacity and Output 5.3 SKI 5.3.1 Profile 5.3.2 Battery Technology 5.3.3 Development and Prospects

5.3.4 Business in China 5.3.5 Output & Capacity

6. Lithiumion Power Battery Enterprises in Japan

6.1 Panasonic
6.1.1 Profile
6.1.2 Battery Technology
6.1.3 Development and Prospects
6.1.4 Business in China
6.1.5 Customers
6.1.6 Output & Capacity
6.2 AESC
6.2.1 Profile
6.2.2 Battery Technology
6.2.3 Business Development and Prospects
6.3 LEJ

7. Major Power Lithium Battery Manufacturers i n Europe and America

7.1 Li-Tec&Accumotive 7.2 A123

8. Major Chinese Power Battery Companies

8.1 Hefei Guoxuan Hightech Power Energy Co., Ltd
8.2 BYD
8.3 Beijing Pride Power System
8.4 Tianjin Lishen Battery Joint-Stock Co., Ltd.
8.5 ATL
8.6 CHINA BAK BATTERY, INC.
8.7 Wanxiang EV
8.8 Sinopoly Battery
8.9 CITIC GUOAN Mengguli
8.10 China Aviation Lithium Battery

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Selected Charts

- Power-type and Capacity-type Power Lithium Battery Classification
- Prismatic Cell Structure
- Cylindrical Cell Structure
- Pouch Cell Structure
- Power Lithium Battery Value Chain
- Power Lithium Battery Production Process
- Operating Principle of Lithium Battery
- Cost Structure of Lithium Battery
- Shipments of Global Cathode Materials (by Product), 2006-2014
- Prices of Cathode Materials in China, 2010-2016E
- Market Share of Global Cathode Material Enterprises, 2014
- Ranking of Major Cathode Material Manufacturers in China, 2014
- Output Structure of Global Anode Materials, 2014
- Market Share of Global Anode Material Enterprises, 2014
- Technical Feature Comparison among Several Anode Materials
- Ranking of Major Anode Material Manufacturers in China, 2014
- Common Electronics and Automobiles' Consumption of Lithium Battery Separator
- Global Shipments of Lithium Battery Separator, 2007-2016E
- Global Separator Price, 2008-2016E
- Market Share of Global Lithium Battery Separator Enterprises, 2014
- Global Power Battery Supporting Separator, 2013
- Ranking of Major Separator Manufacturers in China, 2014
- Global Shipments of Lithium Battery Electrolyte, 2011-2016E
- Cost Structure of Lithium Battery Electrolyte
- Market Share of Global LiPF6 Enterprises, 2014

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Selected Charts

- Global LiPF6 Price, 2009-2016E
- Market Share of Global Electrolyte Enterprises, 2014
- Ranking of Major Separator Manufacturers in China, 2014
- Price Trend of Functional Electrolyte in China, 2011-2015
- Price Trend of General Electrolyte in China, 2011-2015
- Cost Structure of Lithium Battery Cells in China
- Cost Reduction Trend of Lithium Battery Cells in China
- Cells Used on Major Electric Vehicle Models Worldwide, 2014
- Single Cell Capacity Distribution of Mainstream Electric Vehicles Worldwide (Ah), 2014
- Battery Structure of Mainstream Electric Vehicles Worldwide, 2014
- Supply Chain of Key Materials of Global Power Battery Manufacturers, 2014
- Supply Chain of Key Materials of Global Cell Manufacturers, 2014
- Cost Decomposition of Lithium Battery Pack
- Global Electric Vehicle Battery Technologies, Suppliers and Costs, 2014
- The Falling Trend of Battery Cost of Tesla Model S
- Predicted Price and Performance Parameters of Tesla Model 3
- 20700 Ternary NCA Battery with New Material System Adopted by Tesla Model 3
- Technical Parameters of Panasonic's NCA 18650 Cell Adopted by Tesla
- Major BMS Suppliers for Electrical Vehicles Worldwide
- Metal Content of Cathode Materials in Different Technology Roadmaps
- Cost Analysis of Cathode Materials in Different Technology Roadmaps
- Performance of Lithium-Ion Battery Packs in Different Technology Roadmaps
- Life Cycle of Cathode Material Products
- Comparison of Cathode Materials LFP and LMP
- Specifications of Cathode Materials in Different Technology Roadmaps

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Selected Charts

- Development Trend in New Cathode Materials
- Chemical Structure of Laminar Lithium-Rich Manganese-Based Cathode Materials
- Electric Passenger Vehicle Sales in Major Countries, 2013-2014
- Sales of Top20 Electric Passenger Vehicles Worldwide, 2013-2014
- Sales of Top20 Electric Passenger Vehicles Worldwide, 2015H1
- Sales of Electric Passenger Vehicles (EV&PHEV) Worldwide, 2011-2020E
- Sales Volume of Electric Vehicles in the US by Model, 2013-2015H1
- Sales Volume of Electric Vehicles in Europe by Model, 2013-2015H1
- Sales Volume of Electric Vehicles in Japan by Model, 2013-2015H1
- Output and Sales Volume of EVs in China, 2010-2015H1
- Sales Volume of Electric Vehicles by Model, 2011-2020E
- Sales Volume of Electric Passenger Car (EV&PHEV), 2011-2020E
- Proportion of China's Electric Passenger Car in Global Total by Sales Volume, 2011-2020E
- Plan for Promotion of EVs in China, 2014-2015
- Output of Electric Commercial Vehicle by Model, Jan.-Sep.2015
- Output of Electric Bus by Technology Roadmap, Jan.-Sep.2015
- Output of Electric Bus and Electrification in China, 2009-2017E
- Sales Volume of Electric Bus (by Application), 2012-2020E
- Battery Capacity and Endurance of 40 Electric Passenger Vehicles Worldwide, 2014
- Single-vehicle Battery Capacity of Electric Passenger Vehicle Worldwide, 2011-2020E
- Power Lithium Battery Demand from Electric Passenger Vehicle Worldwide, 2011-2020E
- Power Lithium Battery Demand from Electric Vehicle Worldwide by Type, 2011-2020E
- Power Lithium Battery Output, 2014 & 2015H1 (GWh)
- Total Power Lithium Battery Output, 2010-2014 (GWh)
- Power Lithium Battery Output, 2015H1 (GWh)

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Selected Charts

- Output of Battery for Battery Electric and Plug-in Hybrid Vehicles, 2010-2015 (MWh)
- Output of Auto Models and Battery, 2015
- Output Proportion of Auto Models and Battery Capacity Carried, 2014
- China's Demand for Power Lithium Battery by Type, 2011-2020E
- Technology Roadmap of Power Lithium Battery: NCA Rising Quickly and NMC Growing Steadily
- Cost Trend of Major Carmakers and Battery Manufacturers
- Cost Structure of Power Lithium Battery
- Global Power Lithium Battery Price Trend, 2011-2020E
- Global Power Lithium Battery Industry Scale, 2011-2020E
- China Power Lithium Battery Industry Scale, 2011-2020E
- Global Top20 Suppliers of Battery for New Energy Passenger Vehicle and Parameters, 2014
- Market Share of Suppliers of Battery for New Energy Passenger Vehicle Worldwide, 2014
- Shipments and Share of Power Lithium Battery for New Energy Passenger Vehicle Worldwide, 2013-2014
- Proportion of Power Battery for New Energy Passenger Vehicle in China (by Type of Technology), 2015H1
- Market Share of Major Battery Manufacturers, 2015H1
- Shipments of Major Battery Manufacturers, 2015H1
- EU and US Power Lithium Battery Companies and Their Supported Models
- S. Korean Power Lithium Battery Companies and Their Supported Models
- Japanese Power Lithium Battery Companies and Their Supported Models
- Chinese Power Lithium Battery Companies and Their Supported Models
- Equity Structure of LGC, 2014
- Operating Performance of LGC, 2007-2015H1
- Revenue of LGC by Region, 2014
- Material Costs Structure of LGC's PHEV Cell
- LGC Road Map for HEV LIB Technology

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Selected Charts

- LGC Road Map for PHEV LIB Technology
- LGC Road Map for EV LIB Technology
- Business Development and Prospects of LGC's Lithium Business
- Operating Performance of LGCPI, 2010-2014
- Operating Performance of HL Green Power, 2010-2014
- Operating Performance of LGC's Battery Business, 2013Q1-2015Q2
- Electric Vehicles Supported by LGC's Power Lithium Batteries
- Managing Organizations of LGC in China
- Production and Sales Network of LGC in China
- Shipment of LGC's Power and Energy Storage Batteries, 2012-2015
- Equity Structure of SDI, 2014
- Operating Performance of SDI, 2008-2015H1
- Revenue of SDI by Region,2014
- SDI Road Map for xEV LIB Technology
- Technical Performance of SDI's Power Lithium Batteries
- Operating Performance of SDI's Battery Business, 2007-2015H1
- SDI's Battery Shipments and Average Selling Price, 2007-2014
- SDI's Revenue of Power and Energy Storage Batteries, 2013Q1-2014Q4
- Electric Vehicles Supported by SDI's Power Lithium Batteries
- SDI's Shipment of Power and Energy Storage Batteries (MWh), 2012-2015
- Major Subsidiaries of SKI
- Supported EV Models of SKI's Lithium Power Battery
- Equity Structure of BESK
- Profile of BESK
- Specifications of BESK's Lithium Power Battery

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Selected Charts

- Operation Performance of Panasonic, FY2008/09- FY2013/14
- R & D Costs of Panasonic, FY2008/09-FY2013/14
- Revenue Breakdown of Panasonic by Segment, 2012-2014
- Operating Profit Breakdown of Panasonic by Segment, 2012-2014
- Revenue Breakdown of Panasonic by Region,2014
- Specifications of Panasonic's NCA 18650 Cell Applied in Tesla
- Cost Strucuture of Panasonic's PHEV Cell
- Development Plan of Panasonic's Automotive Batteries, FY2013-FY2019
- Development Plan of Panasonic's Automobile Segment, FY2013- FY2019
- Development Plan of Panasonic by Segment, FY2013-FY2019
- Electric Vehicles Supported by Panasonic's Lithium-ion Power Battery
- Deliveries of Tesla's Electric Vehicle,2010-2016E
- Shipment of Panasonic's Power Battery and Energy-storage Battery (MWh), 2011-2015
- Equity Structure of AESC, 2014
- Cost Structure of AESC BEV Cell Materials
- AESC Power Lithium-ion Battery Module Structure
- Specification and Connection of AESC High-capacity Power Battery
- Performance Parameter of AESC High-capacity Power Battery
- Specification and Connection of AESC High Power Battery
- Performance Parameter of AESC High Power Battery
- AESC Power Battery System Solutions
- Supporting Electric Vehicles of AESC Power Lithium Battery
- Shipments of AESC Power and Energy Storage Battery (MWh), 2011-2015E
- Equity Structure of LEJ, 2014
- Specifications of LEJ Power Lithium Batteries

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Selected Charts

- Electric Vehicles Supported by LEJ's Power Lithium Batteries
- LEJ's Shipment of Power and Energy Storage Batteries (MWh), 2011-2015
- Specifications of Li-Tec's High-Capacity Power Batteries
- Performance Parameters of Li-Tec's High-Capacity Power Batteries
- Li-Tec's power battery plant in Kamenz, Germany
- History of A123Systems
- Operating Performance of A123, 2007- 2012Q3
- Electric Vehicles Supported by A123's Power Lithium Batteries
- Equity Structure Chart of Guoxuan (before Backdoor listing)
- Operating Performance of Guoxuan, 2009-2015H1
- Technical Parameters for Guoxuan's LFP Cathode Materials
- Specification Parameters for Guoxuan's LFP Power Cells
- Technical Parameters for Models Supported by Guoxuan's Power Batteries
- Major Customers of Guoxuan High-Tech Power Energy, 2014
- Power Battery Shipments of Guoxuan High-Tech Power Energy, 2009-2015H1
- Price of Power Battery Pack of Guoxuan High-Tech Power Energy, 2009-2014
- LiFePo4 Cathode Materials and Power Battery Capacity of Guoxuan High-Tech Power Energy, 2009-2014
- Investment Plans of Guoxuan High-Tech Power Energy, 2013-2014
- Operating Performance of BYD, 2008-2015H1
- Revenue Structure of BYD (by Business), 2012-2015H1
- Gross Margin of BYD (by Business), 2009-2015H1
- Major Characteristics of BYD Lithium Iron Phosphate Battery
- Capacity, Weight and Cost of BYD Automotive Battery Pack
- Lithium Battery Capacity and Weight of BYD Electric Forklifts
- Lithium Battery Capacity of BYD ESS

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Selected Charts

- Lithium Battery Capacity of BYD EPS
- Sales Volume of BYD Electric Vehicle (by Model), Jan. 2014-Sep. 2015
- Sales Volume of BYD Electric Vehicles, 2011-2017E
- Parameters of Main Battery Packs for New Energy Vehicle of BYD
- Power Battery Business Scale of BYD, 2011-2017E
- Shareholding Structure of Pride,2014
- Operating Performance of Pride, 2011-2014
- Performance Parameters of Pride's Power Battery Pack
- Shareholding Structure of Lishen
- Operating Performance of Lishen, 2011-2014
- Technology Roadmap for Power Cell of Lishen
- Technology Roadmap for Power Battery Pack of Lishen
- Performance Parameters of Spiral Wound Power Cell of Lishen
- Performance Parameters of Laminated Power Cell of Lishen
- Performance Parameters of Laminated Power Cell of Lishen
- Technical Parameters of Power Cell of Lishen
- Customers of Lishen's Power Battery
- Performance Parameters of Power Battery Pack of Lishen
- Lithium Battery Capacity of Lishen, 2000-2014
- Investment Plan for Power Battery of Lishen, 2012-2014
- Operating Performance of ATL, 2008-2014
- Profile of Qinghai Contemporary Amperex Technology
- Customers of ATL's Power and Small Battery
- Suppliers of Raw Materials for ATL's Power Battery
- Power Battery Output and Utilization of ATL, 2012-2014

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Selected Charts

- Power and Small Battery Capacity of ATL
- Power and Energy Storage Battery Revenue and Prices of ATL, 2012-2014
- Small Lithium Battery Revenue of ATL, 2008-2014
- Small Lithium Battery Shipments of ATL, 2008-2014
- Operating Performance of CHINA BAK BATTERY, 2008-2015H1
- Revenue Structure of CHINA BAK BATTERY (by Region), 2009-2014
- R&D Costs and % of Total Revenue of CHINA BAK BATTERY, 2010-2015Q1
- Technical Parameters of Power Cell of CHINA BAK BATTERY
- Basic Information of BAK International (Tianjin) Limited
- Basic Information of BAK Power Battery (Dalian)
- Sales of High-power Lithium Battery Cells of CHINA BAK BATTERY, 2009-2009-2015H1
- Investment Plan of High-power Lithium Battery Cells of CHINA BAK BATTERY, 2013-2014
- Revenue and Gross Margin of Sinopoly Battery, 2011-2014
- Net Income of Sinopoly Battery, 2011-2014
- Specifications of Sinopoly's Power Cell
- Operating Results of CITIC GUOAN Mengguli,2009-2015H1
- Technical Parameters of Cathode Materials of CITIC GUOAN Mengguli
- Technical Parameters of Power Battery Modules of CITIC GUOAN Mengguli
- Equity Structure of China Aviation Lithium Battery, 201
- Operating Results of China Aviation Lithium Battery, 2010-2015H1
- Pure Electric Vehicle BMS of China Aviation Lithium Battery
- Battery Certification of China Aviation Lithium Battery
- Global Sales Network of China Aviation Lithium Battery
- Major Customers of China Aviation Lithium Battery

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