

INDUSTRY OVERVIEW

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OVERVIEW OF THE GLOBAL NEW ENERGY BATTERY INDUSTRY

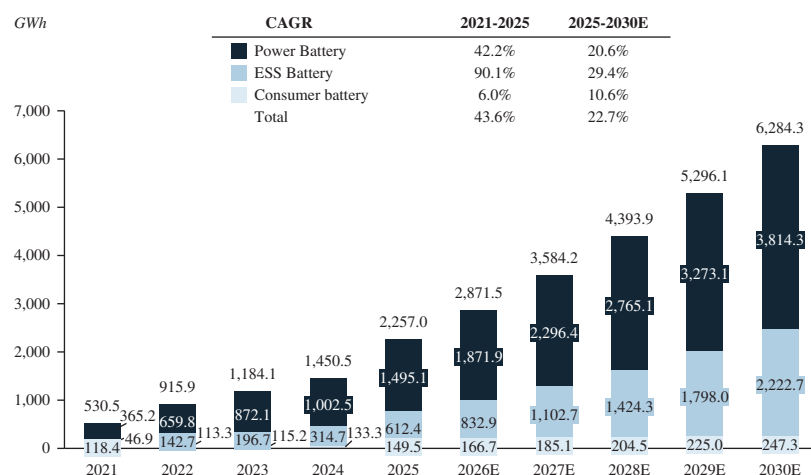
Overview of new energy battery

New energy battery technologies are centered on lithium-ion battery technology, while new technologies such as sodium-ion batteries and solid-state batteries are accelerating R&D and industrialization. The performance of new energy battery product is continuously optimized toward higher energy density, enhanced safety, longer cycle life, faster charging capability, and lower costs. Classified by downstream applications, new energy batteries can be divided into energy storage batteries, power batteries, and consumer batteries. Power batteries are primarily used in new energy vehicles; energy storage batteries are mainly used in energy storage system, power transmission and distribution, power consumption, data center and other sub-sectors; consumer batteries are used in mobile phones, laptops, drones, small robots, wearable devices, and other emerging consumer electronic devices.

Market size of new energy battery

From 2021 to 2025, the global new energy battery market maintained a rapid growth trend, with the market size increasing from approximately 530.5 GWh in 2021 to about 2,257.0 GWh in 2025, representing a CAGR of 43.6% during the period. The rapid growth of the market size at this stage was mainly driven by the rising penetration rate of new energy vehicles, increasing demand in the energy storage sector, as well as technological progress and cost reduction of batteries. In the future, with the advancement of the global energy structure transformation and the implementation of carbon neutrality targets, the global new energy battery market size is expected to continue expanding, reaching around 6,284.3 GWh by 2030, with a CAGR of 22.7% from 2025 to 2030.

Market size of new energy battery by downstream application, Global, 2021-2030E



Source: CIC

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Market Drivers

- **Growth of the power battery industry:** In the power battery sector, sustained growth in global demand for new energy vehicles has driven the rapid expansion of the power battery market. According to CIC, global sales of new energy vehicles reached 23.5 million units in 2025, representing a year-on-year increase of 29.1%, and is expected to reach more than 50 million unit in 2030. Meanwhile, the continuous improvement of charging and swapping infrastructure has further promoted the growth of new energy vehicles. The number of public charging stations worldwide exceeded 7 million in 2025, representing a more than threefold increase compared with 2021. The number of new energy vehicle battery swapping stations globally surpassed 6,000 in 2025, representing a more than sixfold increase compared with 2021. Furthermore, with technological progress and innovation, the application scope of power batteries has gradually expanded to emerging fields such as construction machinery, ships, eVTOL, and intelligent applications, further driving the growth in demand for power batteries. Global power battery shipments are expected to reach approximately 3.8 TWh by 2030.
- **Development of the energy storage industry:** In the energy storage battery sector, according to CIC, global electricity demand continues to grow driven by global economic development, population growth, and accelerating electrification. Global electricity demand reached approximately 27,000 TWh in 2025 and is projected to reach 31,000 TWh in 2030. The share of renewable energy in the global power mix has been rising continuously, from approximately 10% in 2021 to 18% in 2025, and is expected to reach around 31% in 2030. With the wide adoption of renewable energy, energy storage systems have become a key technology to balance the mismatch between intermittent power generation and consumption, driving demand for high-efficiency, high-energy-density and long-cycle-life new energy batteries. Global energy storage battery shipments are expected to reach approximately 2.2 TWh by 2030. In addition, advances in artificial intelligence have fueled a surge in data centers’ demand for computing power and electricity consumption. By 2030, global data center electricity consumption is forecast to reach about 2,600 TWh, with corresponding energy storage battery shipments for data centers reaching approximately 0.4 TWh.
- **Rising demand for consumer electronic products:** In the consumer battery sector, traditional consumer electronic products such as smartphones, tablets, and laptops continue to be upgraded, and end-users’ requirements for core battery performance including energy density, cycle life, and fast-charging capability keep rising, which continuously drives the iterative innovation of consumer battery technologies. At the same time, the rapid popularization and steady increase of emerging intelligent terminals such as wearable devices, drones, small robots and AR/VR devices have further expanded the scale of the consumer electronics terminal market. Global consumer battery shipments will reach approximately 0.2 TWh by 2030.

Market Trends

- **Higher requirements for new energy battery materials:** Continuous improvement in the performance of new energy batteries represents a core development trend of the industry. Driven by upgrading demands for battery performance from downstream sectors including new energy vehicles, consumer electronics and energy storage, higher requirements are imposed on the performance, quality and production processes of new energy battery materials. Such end-use performance demands are transmitted upstream to the material segment through the industrial chain, promoting the upgrading of core materials such as separators, anodes, functional materials, cathodes and electrolytes toward high-end, refined and high-performance applications. The new energy battery materials industry focuses on R&D of advanced materials, and the research and application of new materials including silicon-based anodes, solid-state electrolytes and composite current collectors are progressing steadily. In the future, the industry will continue to increase investment in R&D of new energy battery materials and accelerate the industrialization of research achievements.
- **Further development of new energy battery equipment:** Amid the continuous expansion of global new energy battery production capacity and rising market demand for higher consistency, safety and stability of battery products, the intelligence and automation level of new energy battery

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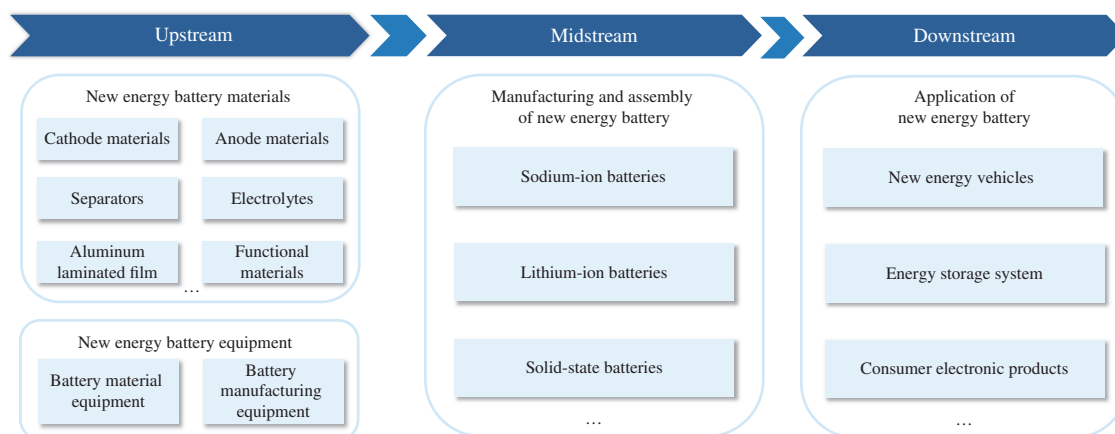
manufacturing is being steadily enhanced, becoming one of the core trends of industry development. Enterprises are promoting the intelligent upgrading of production lines by introducing technologies such as industrial robots, visual inspection and digital twins to realize full-process automated operation. This trend directly drives the upgrading of the new energy battery equipment industry and raises higher requirements for equipment precision, efficiency, stability and compatibility.

THE GLOBAL AND CHINA’S NEW ENERGY BATTERY INDUSTRY CHAIN

Overview of new energy battery industry chain

The new energy battery industry chain covers the supply of core materials and equipment, battery manufacturing and assembly, as well as multi-scenario end applications. As the core foundation of the entire industry chain, the upstream segment provides critical support for the whole industry, mainly including core battery materials such as cathode materials, anode materials, separators, electrolytes, aluminum laminated film and functional materials, as well as battery material equipment and battery manufacturing equipment. Their technological maturity and capacity supply directly determine the production efficiency and product quality of the midstream segment. The midstream segment focuses on the manufacturing and assembly of various new energy batteries including lithium-ion batteries, sodium-ion batteries and solid-state batteries. The downstream segment widely applies the battery products produced in the midstream to diverse scenarios such as new energy vehicles, energy storage system and consumer electronic products.

New energy battery industry chain



Source: CIC

OVERVIEW OF GLOBAL NEW ENERGY BATTERY SEPARATOR INDUSTRY

Overview of new energy battery separators

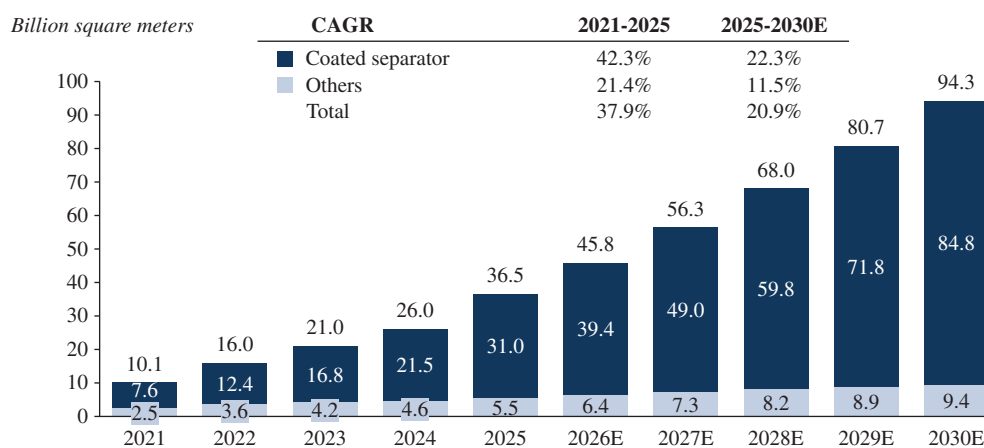
New energy battery separators are one of the key materials in new energy batteries. Featuring a large number of tortuous and interconnected micropores, they allow the free passage of ions to form charge-discharge circuits. Their primary function is to prevent short circuits caused by contact between cathode and anode materials while enabling the free migration of ions to ensure normal battery operation. The performance of separators directly affects key battery characteristics such as safety, cycle life, energy density, and rate performance. Separators can be classified into dry-process separators and wet-process separators by production technology, among which wet-process separators usually require coating. Coated separators are manufactured by applying functional materials on one or both sides of the base separator film for new energy batteries. With superior thermal resistance and safety, coated separators have become the mainstream choice for new energy batteries.

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Market size of new energy battery separators

The global new energy battery separator market experienced rapid growth from 2021 to 2025. The overall market size surged from approximately 10.1 billion square meters to 36.5 billion square meters, representing a CAGR of 37.9% over the period, showing explosive expansion. The market size of new energy battery separators is expected to continue expanding and reach 94.3 billion square meters by 2030. As an effective approach to improve the cycle performance and thermal stability of separators in new energy batteries, the coating technology has driven a continuous rise in market demand for coated separators. From 2021 to 2025, the global market size of new energy battery coated separators grew rapidly from approximately 7.6 billion square meters to 31.0 billion square meters, representing a CAGR of 42.3% over the period. With the increasing importance of battery safety performance, coated separators are expected to serve as the mainstream type of new energy battery separators in the future, reaching a market size of 84.8 billion square meters by 2030.

Market size of new energy battery separators, Global, 2021-2030E



Notes: Others are primarily uncoated separators.

Source: CIC

Market size of new energy battery wet-process coated separators

The market size of wet-process coated separators grew from 6.4 billion square meters in 2021 to 28.5 billion square meters in 2025, with a CAGR of 45.5% during 2021–2025; it is projected to reach 79.7 billion square meters by 2030, representing a CAGR of 22.9% from 2025 to 2030. This robust growth is mainly driven by the rapid expansion of demand for power batteries in new energy vehicles and energy storage systems, as well as the advantages of wet-process coated separators in safety and thermal stability, which have boosted their penetration rate.

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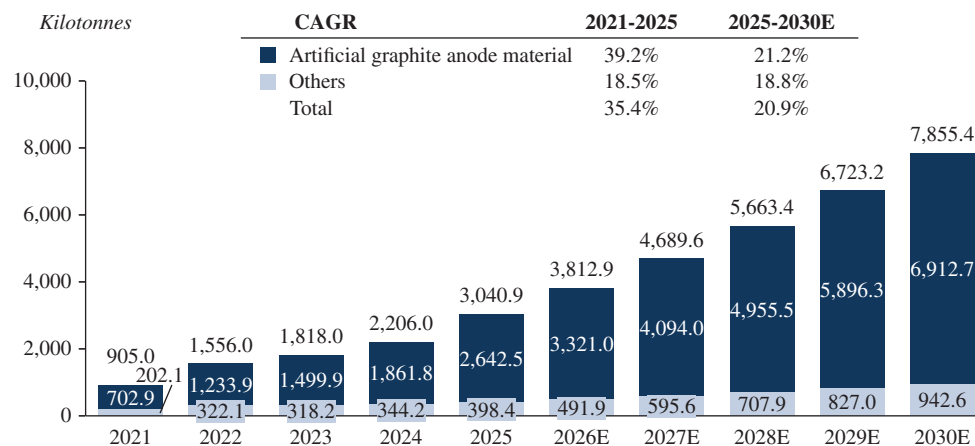
OVERVIEW OF NEW ENERGY BATTERY ANODE MATERIAL INDUSTRY

Anode materials in new energy batteries are responsible for the intercalation and deintercalation of ions during battery charge and discharge processes. The performance of anode materials has a direct impact on the energy density, fast-charging performance, cycle life, safety performance and cost of new energy batteries. Anode materials are generally categorized into artificial graphite anode materials, natural graphite anode materials and silicon-based anode materials. Silicon-based anode materials offer a higher designed specific capacity than conventional carbon-based materials and represent one of pathway toward achieving a higher energy density in new energy batteries.

Shipment volume of the new energy battery anode material industry

The global new energy battery anode materials market is undergoing a phase of rapid capacity expansion. The shipment volume reached 905.0 kilotonnes in 2021 and reached 3,040.9 kilotonnes in 2025, representing a CAGR of 35.4% during the period from 2021 to 2025. Such accelerated growth is primarily driven by the rapid penetration of new energy vehicles and energy storage applications, as well as the continued adoption of artificial graphite anode material and continuous breakthroughs in new energy battery anode technology. By 2030, the shipment volume of the new energy battery anode materials is expected to exceed 7,855.4 kilotonnes, maintaining a CAGR of 20.9%. Artificial graphite anode material is the anode material with the largest shipment share. Its market size increased from 702.9 kilotonnes in 2021 to 2,642.5 kilotonnes in 2025, and is expected to reach 6,912.7 kilotonnes by 2030.

Shipment volume of the new energy battery anode materials, Global, 2021-2030E



Notes: Others include natural graphite and silicon-based anode materials.

Source: CIC

Overview of new energy battery functional materials

New energy battery functional materials are key supporting materials that ensure the structural stability, performance optimization and safety enhancement of new energy battery cells, including cathode and anode binders such as PVDF and PAA, as well as ceramic coating materials such as boehmite and alumina.

Overview of PVDF for new energy battery

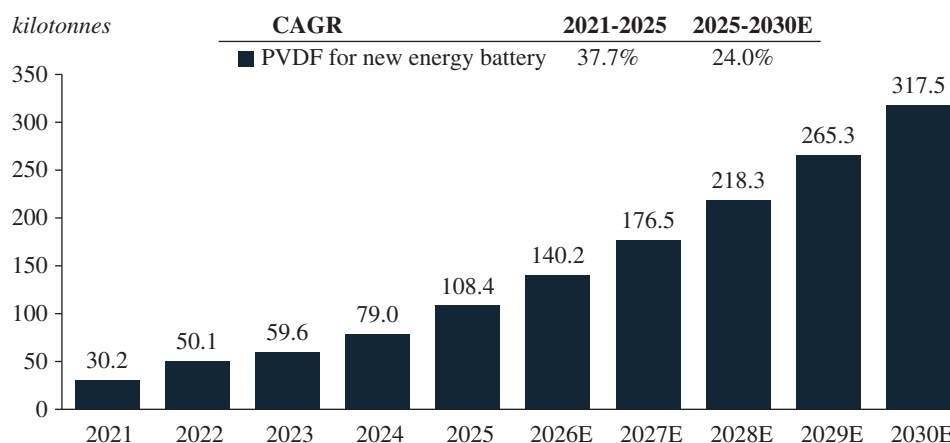
PVDF for new energy batteries is a key functional material mainly used as cathode binders and separator coating materials in the production of new energy batteries. With outstanding chemical stability, electrochemical compatibility and mechanical strength, PVDF can firmly bond cathode active materials, conductive agents and current collectors during charge-discharge cycles, effectively maintaining the structural integrity of electrodes, thereby improving the cycle life and rate performance of batteries. Meanwhile, as a separator coating material, PVDF can enhance the thermal resistance and electrolyte wettability of separators, further improving the safety and ion conduction efficiency of battery cells. PVDF, which features both bonding and coating functions, has become one of the core supporting materials for the performance upgrading of new energy batteries. Its market demand continues to rise along with the rapid development of the new energy industry.

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Market size of PVDF for new energy battery

The global market of PVDF for new energy batteries is in a phase of continuous expansion. The market size was 30.2 kilotonnes in 2021 and increased to 108.4 kilotonnes in 2025, representing a CAGR of 37.7% from 2021 to 2025. This growth was mainly driven by the rapid development of the downstream new energy vehicle and energy storage industries, as well as the rigid demand for PVDF in bonding and coating applications in high-energy-density batteries. The market is expected to maintain a CAGR of 24.0% in the future, reaching 317.5 kilotonnes by 2030. Overall, with the iteration of new energy battery technologies and the continuous expansion of application scenarios, the market demand for PVDF as a core functional material will maintain long-term growth.

Market size of PVDF for new energy battery, Global, 2021-2030E



Source: CIC

Overview of PAA for new energy battery

PAA for new energy batteries is a new type of functional binder material, mainly used in the anode formulation and separator of new energy batteries. It features excellent hydrophilicity and bonding strength, and can form an elastic bonding layer on the surface of high-expansion active materials such as silicon-based materials and significantly improving the cycle life and structural stability of silicon-based batteries. Meanwhile, the molecular structure of PAA can enhance the wettability between the electrode and the electrolyte, reduce interface impedance, and help improve the rate performance of batteries.

Market size of PAA (solid content) for new energy battery

The market size of PAA (solid content) for the new energy battery was 1.6 kilotonnes in 2021 and rapidly rose to 15.0 kilotonnes in 2025, representing a CAGR of 74.2% from 2021 to 2025. The rapid growth during this period was mainly driven by PAA's water-based and environmentally friendly material properties, which can effectively reduce environmental pollution and safety risks in the production process, as well as its core role in buffering the volume expansion of anode materials and maintaining the structural stability of electrodes. The market is expected to maintain a CAGR of 25.0% in the future, with the market size projected to exceed 45.9 kilotonnes by 2030.

OVERVIEW OF NEW ENERGY BATTERY EQUIPMENT INDUSTRY

New energy battery equipment covers the entire industrial chain, including the preparation of core battery materials, battery manufacturing, as well as module and pack assembly. The process precision and level of automation of such equipment have a direct impact on the performance, quality and production efficiency of battery products. New energy battery equipment is generally categorized into battery manufacturing equipment and battery material equipment.

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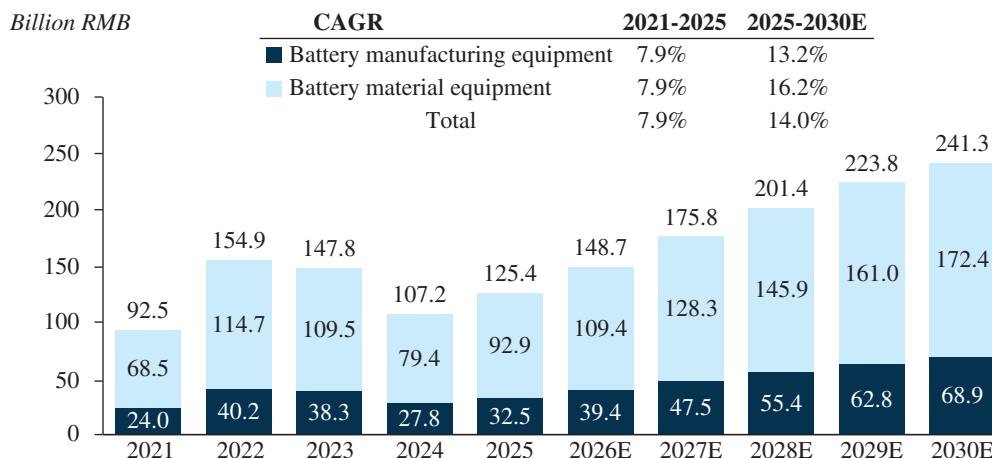
Battery manufacturing equipment is applied in the front-end, mid-end and back-end production processes of battery manufacturing as well as module assembly. It includes core equipment such as electrode coating machine, winding machines, stacking machine, and formation and capacity grading equipment, and represents a key enabler for the large-scale and standardized production of battery cells. Battery material equipment focuses on the processing and preparation of core battery materials, including separators, cathode and anode materials and other materials. Such equipment is designed to accommodate different material production processes and provides battery manufacturing with fundamental materials that meet required performance specifications.

Market size of new energy battery equipment industry

From 2021 to 2022, the global new energy battery equipment market experienced rapid growth, with market size increasing from RMB92.5 billion in 2021 to RMB154.9 billion in 2022. As the new energy industry has gradually matured, growth in downstream demand for new energy batteries has moderated since 2023, leading to a deceleration in capacity expansion by battery manufacturers. The moderation in investment activity in the downstream new energy battery sector has had a certain impact on upstream new energy battery equipment suppliers.

In 2025, the global new energy battery equipment market reached RMB125.4 billion, representing a CAGR of 7.9% during the period from 2021 to 2025. Beyond 2025, the global new energy battery equipment market is projected to resume its growth trajectory, with total market size expected to reach RMB241.3 billion by 2030.

Market size of new energy battery equipment industry, Global, 2021-2030E



Source: CIC

OVERVIEW OF NEW ENERGY BATTERY INDUSTRY

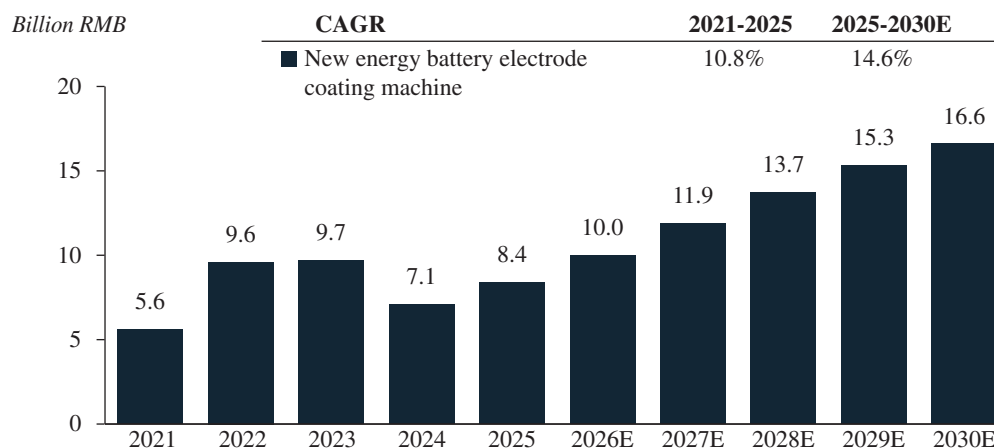
New energy battery electrode coating machines, as core equipment in the front-end production process of new energy battery manufacturing, are primarily used to uniformly coat cathode and anode slurries onto aluminum foil and copper foil current collectors, thereby forming electrodes with precisely controlled thickness and areal density. The coating precision, processing speed and operational stability of electrode coating machines have a direct impact on electrode consistency, which in turn affects the energy density, cycle life and safety performance of new energy batteries.

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Market size of new energy battery electrode coating machine industry

Global new energy battery electrode coating machine market has exhibited steady growth momentum in recent years. The market size of global new energy battery electrode coating machine reached RMB5.6 billion in 2021 and expanded at a CAGR of 10.8% during the period from 2021 to 2025, primarily driven by the rigid demand for high-precision electrode coating machines arising from the increasing penetration of high energy-density power batteries. By 2025, the market reached RMB8.4 billion. Beyond 2025, supported by next-generation battery technology iterations, continuous process optimization and ongoing equipment upgrade requirements, the electrode coating machine market is projected to maintain growth at a CAGR of 14.6%, with the total market size expected to exceed RMB16.6 billion by 2030.

Market size of new energy battery electrode coating machine industry, Global, 2021-2030E



Source: CIC

Competitive landscape of the new energy battery coated separator industry

In 2025, the Company ranked as the world’s largest supplier of coated separators for new energy batteries by shipment volume, with total shipments reaching 10.9 billion square meters, accounting for 35.3% of the global market and have ranked first in the industry for seven consecutive years. In 2025, the global shipment volume of wet process coated separators for new energy batteries reached 28.5 billion square meters. The Company is the world’s largest supplier of wet process coated separators for new energy batteries, with a market share of 38.4%.

The top five new energy battery coated separator companies in terms of shipment volume¹, Global, 2025

Ranking	Company	Shipment volume, 2025, Billion square meters	Global market share, 2025
1	The Company	10.9	35.3%
2	Company A ²	5.5	17.7%
3	Company B ³	2.7	8.6%
4	Company C ⁴	1.9	6.1%
5	Company D ⁵	1.0	3.2%
	CR5	22.0	70.9%
	Global Total	31.0	100.0%

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Notes:

1. The shipment volume only covers coated separator shipments and excludes base separator film shipments.
2. Established in 1996, Company A is a listed company headquartered in Yuxi, Yunnan Province, China, specializing in the R&D and manufacturing of new energy battery separators, aluminum plastic films and sulfide electrolyte materials, serving as a core supplier for leading global enterprises across the new energy battery, cigarette, food and beverage industries.
3. Established in 2003, Company B is a listed company headquartered in Shenzhen, Guangdong Province, China, specializing in the R&D, manufacturing and sale of new energy battery separators, serving a wide range of applications, including new energy vehicles, energy storage power stations and consumer electronics.
4. Established in 2010, Company C is a non-listed company headquartered in Handan, Hebei Province, China, specializing in the R&D, manufacturing and sale of wet-process new energy battery separators and coated separators.
5. Established in 2019, Company D is a listed company headquartered in Seoul, South Korea, and a subsidiary of a leading South Korean energy and petrochemical group, specializing in the R&D, manufacturing and sale of new energy battery separators for applications including new energy vehicles, energy storage systems and consumer electronics.

Source: CIC

Competitive landscape of the new energy battery anode material industry

In 2025, the Company ranked sixth globally of new energy battery anode materials in terms of shipment volume, with total shipments of 143.0 kilotonnes, accounting for 4.7% of the global new energy battery anode material industry and 5.4% of the global new energy battery artificial graphite anode material industry.

The top ten new energy battery anode materials companies in terms of shipment volume, Global, 2025

Ranking	Company	Shipment volume, 2025, kilotonnes	Global market share, 2025
1	Company E ¹	595.0	19.6%
2	Company F ²	518.0	17.0%
3	Company G ³	373.0	12.3%
4	Company H ⁴	285.0	9.4%
5	Company I ⁵	252.0	8.3%
6	The Company	143.0	4.7%
7	Company J ⁶	140.0	4.6%
8	Company K ⁷	125.0	4.1%
9	Company L ⁸	100.0	3.3%
10	Company M ⁹	95.0	3.1%
	CR10	2,626.0	86.4%
	Global Total	3,040.9	100.0%

Notes:

1. Established in 2000, Company E is a listed company headquartered in Shenzhen, Guangdong Province, China, specializing in the manufacturing of new energy battery anode materials applied in multiple fields such as power, energy storage and consumer batteries.
2. Established in 1992, Company F is a listed company headquartered in Ningbo, Zhejiang Province, China, specializing in the manufacturing of products applied in multiple fields such as power, energy storage and consumer batteries, and providing comprehensive solutions for new energy battery materials and polarizers.
3. Established in 2001, Company G is a non-listed company headquartered in Changsha, Hunan Province, China, specializing in the providing high-performance anode material solutions.
4. Established in 2008, Company H is a listed company headquartered in Shijiazhuang, Hebei Province, China, dedicated to the production of artificial graphite anode materials, supplying high-quality anode materials for power, energy storage and consumer battery fields, and offering tailored integrated production solutions.

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5. Established in 2012, Company I is a non-listed enterprise headquartered in Dongguan, Guangdong Province, China, focusing on the manufacturing of new energy battery anode materials. Its products are widely used in new energy vehicles, digital products and emergency power supplies, and it provides personalized customization services for new energy battery manufacturers based on their specific needs.
6. Established in 2018, Company J is a non-listed company headquartered in Shijiazhuang, Hebei Province, China, engaged in the R&D and production of artificial graphite anode materials. The company provides high-quality anode products for energy storage, power and consumer battery industries.
7. Established in 2022, Company K is a non-listed enterprise headquartered in Quzhou, Zhejiang Province, China, focusing on new energy battery anode materials. While manufacturing anode materials for power, energy storage and consumer battery fields, it actively promotes the layout and integration of the entire anode material industrial chain.
8. Established in 2011, Company L is a NEEQ-listed company, headquartered in Zhanjiang, Guangdong Province, China, specializing in the production of anode materials, including artificial graphite and natural graphite, which are widely used in power, energy storage and consumer batteries, and is committed to providing high-standard carbon material products.
9. Established in 2009, Company M is a listed company headquartered in Shanghai, China, focusing on high-end graphite and silicon-carbon anode materials. Its products are applied in new energy vehicles, energy storage and consumer electronics.

Source: CIC

Competitive landscape of the new energy battery PVDF industry

In 2025, the Company ranked as the world’s largest supplier of new energy battery PVDF by shipment volume, with total shipments of 29.9 kilotonnes, accounting for 27.6% of the global market and 34.0% of the China’s market.

The top five new energy battery PVDF companies in terms of shipment volume¹, Global, 2025

Ranking	Company	Shipment volume, 2025, kilotonnes	Global market share, 2025
1	The Company	29.9	27.6%
2	Company N ²	20.0	18.5%
3	Company O ³	14.0	12.9%
4	Company P ⁴	11.0	10.1%
5	Company Q ⁵	10.0	9.2%
	CR5	84.9	78.3%
	Global Total	108.4	100.0%

Notes:

1. The shipment volume only includes PVDF for new energy batteries and excludes other fluorochemicals.
2. Established in 2006, Company N is a non-listed high-tech enterprise headquartered in Shaoxing, Zhejiang Province, China, focusing on the R&D and manufacturing of fluorine-containing new materials, including PVDF for new energy batteries. Its products are widely used in new energy battery, fluorine film and cable fields.
3. Established in 2004, Company O is a listed global leading special chemical enterprise headquartered in La Défense, France. It specializes in the R&D and supply of new energy battery materials such as PVDF binders, carbon nanotubes and PA materials, and provides one-stop special material solutions for the battery industry.
4. Established in 1863, Company P is a listed global chemical group headquartered in Brussels, Belgium. It is engaged in the manufacturing of high-purity new energy battery materials such as PVDF, and continuously accelerates its layout in the new energy battery material field.
5. Established in 2000, Company Q is a non-listed company headquartered in Hangzhou, Zhejiang Province, China, engaged in fluorocarbons, fluorine-containing fine chemicals, fluoropolymers, new energy battery chemicals, inorganic fluorides and other businesses.

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Competitive landscape of the new energy battery electrode coating machine industry

In 2025, the Company ranked as the world’s largest supplier of new energy battery electrode coating machine by revenue, with total revenue reaching 2.9 billion RMB, accounting for 35.2% of the global market.

The top five new energy battery electrode coating machine companies in terms of revenue, Global, 2025

Ranking	Company	Revenue, 2025, Billion RMB	Global market share, 2025
1	The Company	2.9	35.2%
2	Company R ¹	1.9	22.7%
3	Company S ²	0.7	8.0%
4	Company T ³	0.4	4.8%
5	Company U ⁴	0.3	3.0%
	CR5	6.2	73.7%
	Global Total	8.4	100.0%

Notes:

1. Established in 2006, Company R is a listed company headquartered in Shenzhen, Guangdong Province, China, specializing in the manufacturing of products applied in multiple fields such as power, energy storage and consumer batteries, and providing intelligent digital factory solutions for new energy battery industry.
2. Established in 2002, Company S is a listed company headquartered in Wuxi, Jiangsu Province, China, specializing in the manufacturing of products in fields including new energy battery intelligent equipment, photovoltaic intelligent equipment, intelligent logistics, automobile production lines and hydrogen energy intelligent equipment.
3. Established in 2014, Company T is a listed company headquartered in Huizhou City, Guangdong Province, China, providing digital and intelligent plant solutions for enterprises in industries such as new energy, smart logistics, AI computing power and auto parts.
4. Established in 2019, Company U is a non-listed company headquartered in Guangzhou, Guangdong Province, China, specializing in the R&D, design, manufacturing, and technical services of battery cell processing equipment and coating technology.

Source: CIC

Key success factors and entry barriers

- **Technical barriers:** The new energy battery materials and equipment industry is technology intensive with prominent technical barriers. Material manufacturers face stringent requirements for purity, performance, stability, and safety. Core formulations and processes require long-term accumulation and iteration, and must pass strict downstream certification. New entrants struggle to quickly achieve stable mass production and cost control. Equipment manufacturing relies on precision manufacturing, automatic control, and process adaptation, featuring high customization and long validation cycles. Coupled with rapid technological iteration in the industry, the overall technical threshold is further elevated.
- **Scale Barriers:** With continuous improvements in production processes and technologies, leading enterprises in the industry have gradually established scale advantages by upgrading technologies, introducing advanced production processes and equipment, enhancing product quality, reducing raw material and labor consumption, and improving production efficiency. Enterprises with scale advantages possess stronger cost control capabilities, moderate market pricing power, and relatively stable profitability. By contrast, new entrants are constrained by factors such as technical level, process accumulation, talent pool, capital strength, and customer resources, making it difficult to form scale effects and competitive advantages in the short term.

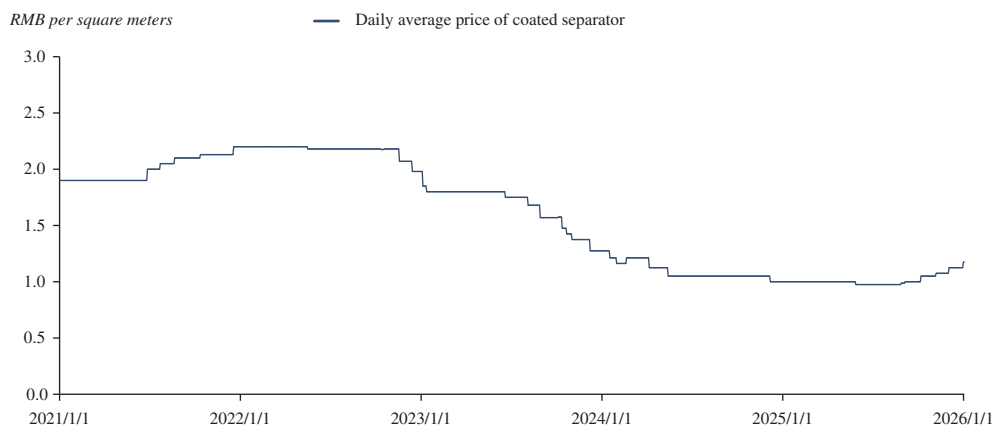
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- Customer Entry Barriers:** New energy battery manufacturers impose extremely high requirements on product safety and consistency, resulting in very strict supplier selection procedures. Suppliers are comprehensively evaluated and certified for R&D and design capabilities, production equipment, process flow, management level, product performance parameters, and quality control systems, followed by multiple phases including sample testing, on-site audits, small-scale trial orders, and finally mass supply. Therefore, new energy battery manufacturers rarely switch suppliers. Enterprises that have entered the mainstream supply chain enjoy stable market channels, and new entrants can hardly gain recognition from key customers in the short run.

Price analysis

From 2021 to 2025, the price of new energy battery separators in China exhibited a fluctuating trend. From 2021 to 2022, rapid growth in downstream demand from the new energy vehicle and energy storage markets led to tight industry supply and demand, pushing separator prices to a high level. Starting from the second half of 2022, large-scale domestic capacity expansion, coupled with cost optimization driven by technological progress and intensified industry competition, resulted in a continuous decline in prices, which remained at a low level from 2024 to the first half of 2025. In the second half of 2025, as downstream demand recovered and inefficient capacity was gradually phased out, the industry’s supply-demand situation improved, and separator prices saw a slight rebound.

Daily Average Price of New Energy Battery Coated Separators, China, 2021-2025



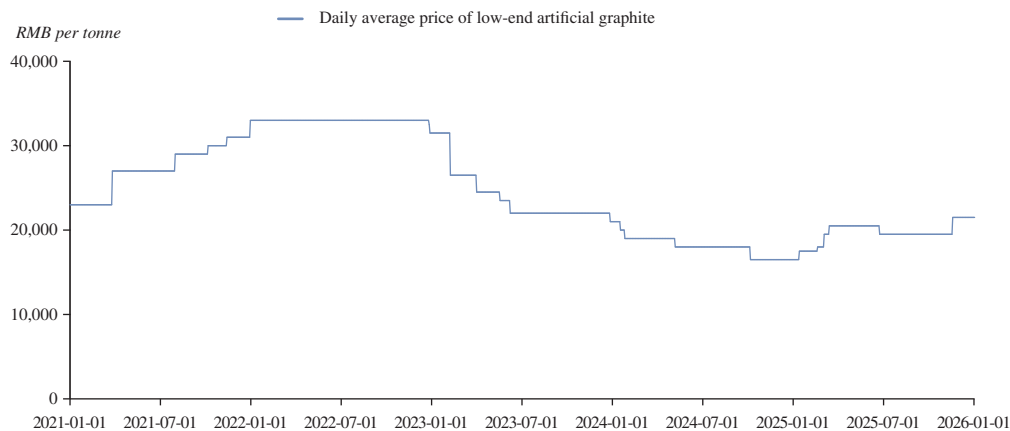
Source: CIC

Note: Price includes both base separator film and coating.

The price of artificial graphite anode material remained high until early 2023, supported by robust demand from downstream new energy batteries and tight supply. Subsequently, as industry production capacity continued to expand and the supply-demand balance loosened, prices embarked on a sustained decline, hitting a low in the second half of 2024. Since 2025, with the clearance of outdated capacity and a gradual recovery in demand, the downward trend was halted, and prices began to rebound from the bottom and gradually stabilize.

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Daily Average Price of artificial graphite anode material, China, 2021-2025



Source: CIC

DATA SOURCES AND RESEARCH METHODOLOGY

We have commissioned CIC to conduct an analysis and report on the global new energy battery materials and equipment market. CIC is a market research and consulting firm established in Hong Kong, engaged in providing professional consulting services across various industries. We have agreed to pay CIC a fee of RMB400,000 for the preparation of the CIC Report. We have extracted certain information from the CIC Report in this section, as well as from the sections of “Summary,” “Risk Factors,” “Business,” “Financial Information” and elsewhere in this Document. The data and information collected by CIC is independently prepared by CIC and is not subject to any influence from us or other interested parties. Unless otherwise specified, all data and forecasts contained in this section are sourced from the CIC Report. Our Directors confirm, to the best of their knowledge, and after making reasonable enquiries, that there have been no adverse changes in the industry since the date of the CIC Report which may qualify, contradict or have an impact on the information set out in this section.

The information and data collected by CIC have been analyzed, evaluated and verified using CIC’s internal analysis models and techniques. Primary research is conducted through interviews with key industry experts and leading industry participants. Secondary research involves analyzing data from various public data sources such as the National Bureau of Statistics of China and various industry associations. The market forecasts in the CIC Report are made based on the following key assumptions: (1) in the forecast period, the overall social, economic and political environment globally and in China is expected to remain stable; (2) in the forecast period, relevant key industry drivers are likely to continue to drive the growth of the energy storage market, such as technological advancements, supportive policies, and the increasing downstream demand; and (3) in the forecast period, there will be no extreme force majeure events or unforeseeable industry regulations that could have a drastic or fundamental impact on the market.