The information and statistics set out in this section and other sections of this document were extracted from the report prepared by Frost & Sullivan, which was commissioned by us, and from various official government publications and other publicly available publications. We engaged Frost & Sullivan to prepare the Frost & Sullivan Report, an independent industry report, in connection with the **[REDACTED]**. *The information from official government sources has not been independently verified by us, the Joint Sponsors,* **[REDACTED]** *any of the* **[REDACTED]**, *any of our or their respective directors, officers, employees, agents, or representatives of any of them or any other parties involved in the* **[REDACTED]**, *and no representation is given as to its accuracy, fairness and completeness.*

SOURCE OF INFORMATION

We commissioned Frost & Sullivan to conduct market research on the global new energy market and prepare the Frost & Sullivan Report. Frost & Sullivan is an independent global consulting firm founded in 1961 in New York that offers industry research and market strategies. We have contracted to pay RMB816,000 to Frost & Sullivan to compile the Frost & Sullivan Report.

In preparing the Frost & Sullivan Report, Frost & Sullivan conducted detailed primary research, which involved discussing the status of the industry with certain leading industry participants and conducting interviews with relevant parties. Frost & Sullivan also conducted secondary research, which involved reviewing company reports, independent research reports and data based on its own research database. Frost & Sullivan obtained the figures for estimated total market sizes from historical data analysis plotted against macroeconomic data, and considered the above-mentioned industry key drivers.

These elements primarily include the expert-opinion forecasting methodology, integration of market drivers and restraints, integration with the market challenges, integration of the new energy market trends and integration of econometric variables.

The Frost & Sullivan Report is compiled based on the following assumptions: (i) the social, economic and political environment of the globe and the PRC is likely to remain stable in the forecast period; and (ii) related industry key drivers are likely to drive the market in the forecast period.

Our Directors confirm that, after making reasonable enquiries, there is no adverse change in the market information since the date of the Frost & Sullivan Report that may qualify, contradict or have a material impact on the information.

OVERVIEW OF GLOBAL NEW ENERGY INDUSTRY

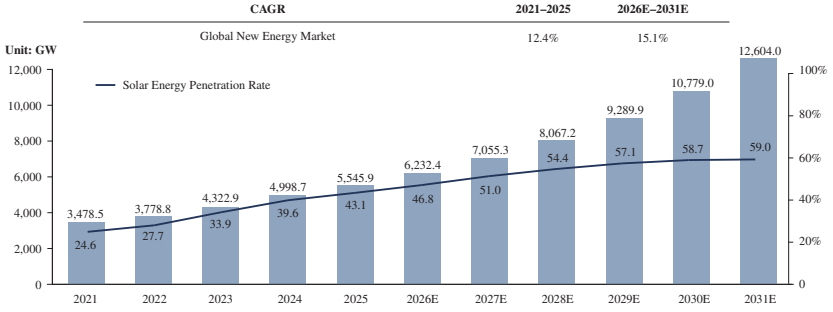
Definition and Classification of New Energy

New energy generally refers to various forms of energy beyond traditional fossil fuels, mainly comprising renewable energy sources such as solar photovoltaic (PV), wind and hydropower, as well as nuclear energy. Benefiting from relatively low environmental impact, lower carbon emissions and increasing economic efficiency, new energy serves as an important driver supporting the transformation of the global energy system from a fossil fuel dominated structure toward a cleaner, lower carbon and more diversified energy mix.

Market Size of New Energy Market

Driven by the accelerated global energy transition, continued growth in installed capacity of new energy and increasing adoption of energy storage and grid integration solutions, the global new energy market has maintained a sustained growth trends. Global cumulative installed capacity of new energy increased from 3,478.5 GW in 2021 to 5,545.9 GW in 2025, representing a CAGR of 12.4%. Market size is expected to further expand to 12,604.0 GW in 2031, corresponding to a CAGR of 15.1% from 2026 to 2031. Share of Solar PV in Global Cumulative Installed Capacity of New Energy increased from 24.6% in 2021 to 43.1% in 2025 and is projected to reach 59.0% by 2031.

Global New Energy Cumulative Installed Capacity and Solar Energy Penetration Rate, 2021–2031E



Source: International Renewable Energy Agency (IRENA), China Photovoltaic Industry Association (CPIA), International Atomic Energy Agency (IAEA), World Nuclear Association (WNA), Frost & Sullivan

Drivers and Trends of the New Energy Market

Policy support: long term demand expectations are supported by carbon neutrality and net zero targets adopted by many countries and regions. In China, targets of carbon peaking by 2030 and carbon neutrality by 2060 are supported by improvements in renewable energy consumption mechanisms and market-based trading frameworks. In the European Union, the 2030 climate target proposes increasing the share of renewable energy in the overall energy mix from 32 percent to at least 40 percent. The following sets forth the policy supports of the new energy market in countries where the Group has major operations:

- Germany: the government introduced *Solar Package I*, which supports photovoltaic deployment through expanded auction volumes, improved remuneration mechanisms and simplified grid connection procedures.
- Australia: the government launched the *Capacity Investment Scheme (CIS)*, which supports renewable energy and storage investment by providing long-term revenue visibility through competitive tenders.
- Brazil: the federal government is launching its first major *battery energy storage system (BESS)* tender, which supports battery storage deployment by enabling long-term contracted revenues and participation in capacity procurement.
- South Africa: "*Integrated Resource Plan 2025 (IRP 2025)*" together with the *Renewable Energy Independent Power Producer Procurement Programme (REIPPPP)* supports renewable energy development through a clearer capacity roadmap and government-backed power purchase arrangements.

Technology driven innovation: integrated application of photovoltaic, energy storage and charging solutions improves flexibility and grid integration capability of renewable power generation. Adoption of third generation semiconductors including silicon carbide in inverters and power electronics improves conversion efficiency, power density and voltage tolerance.

These improvements support higher efficiency, smaller equipment size and improved reliability of energy storage systems, enabling broader application across industrial, commercial and public infrastructure scenarios.

Market-based mechanisms: According to Integration of photovoltaic and energy storage and electricity pricing reform: according to *Notice on Deepening Market Based Reform of On Grid Electricity Pricing for New Energy and Promoting High Quality Development of New Energy (《關於深化新能源上網電價市場化改革促進新能源高質量發展的通知》)*, new energy electricity is increasingly traded through market-based mechanisms, while declining subsidy support and improving time-based electricity pricing mechanisms are driving wider adoption of photovoltaic-plus-storage solutions among industrial and commercial users.

OVERVIEW OF GLOBAL ENERGY STORAGE SYSTEM MARKET

Overview of Energy Storage Systems

Energy storage systems (ESS) serve as important infrastructure supporting integration of new energy and balancing electricity supply and demand. Core components mainly include energy storage inverters, energy storage batteries, battery management systems (BMS) and energy management systems (EMS). Energy storage inverters perform critical functions including conversion between direct current and alternating current and grid connection control, serving as core interface equipment between the battery side and the power grid or load side. Conversion efficiency, control accuracy and protection functions largely determine operational safety, stability and grid dispatch responsiveness of ESS. Energy storage batteries serve as the primary energy carrier of ESS and support electricity storage and release. Key performance indicators including energy density, safety performance and cycle life directly influence system capacity configuration and overall economic performance. Based on application scenarios, ESS are generally classified into residential energy storage, with power ratings generally less than 20kw, and C&I energy storage and utility scale grid side energy storage, with power ratings generally not less than 20kw.

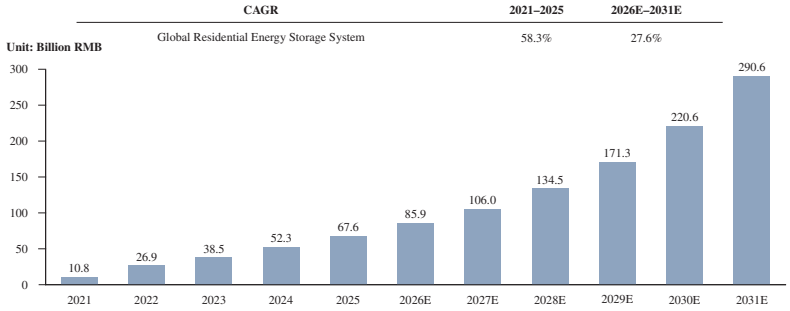
The value chain of ESS market mainly comprises upstream, midstream and downstream segments. The upstream segment includes raw materials such as cathode and anode materials, electrolytes and separators, as well as components including insulated gate bipolar transistor (IGBT) and main control unit (MCU) chip. The midstream segment focuses on design and manufacturing of ESS products, covering equipment mainly including energy storage inverters, batteries and BMS, which are integrated to form complete ESS solutions. The downstream segment serves diversified application scenarios, divided by residential energy storage, commercial and industrial (C&I) energy storage and Utility-scale energy storage.

Utility-scale and C&I ESS are typically equipped with PCS for grid interaction, whereas residential ESS generally uses residential energy storage inverters compatible with rooftop PV systems. In addition, ESS solutions are usually larger and more customized, driven mainly by grid stability and renewable integration, while residential ESS products are smaller and more standardized, driven mainly by household electricity cost savings and backup power needs.

Market Size of Global Residential ESS Market

Driven by accelerated deployment of residential ESS globally, rising residential electricity prices and increasing demand for energy self-consumption and backup power supply, the global residential ESS market has achieved rapid growth. Market size increased from RMB10.8 billion in 2021 to RMB67.6 billion in 2025, representing a CAGR of 58.3%. Market size is expected to reach RMB290.6 billion in 2031, corresponding to a CAGR of 27.6%. According to Frost & Sullivan, the shipment volume of residential ESS reached 38.1 GWh in 2025. The global shipment volume represented approximately 3.2 million sets in 2025, implying an average price of approximately RMB21,301 per set.

Global Residential Energy Storage System Market, by revenue, 2021–2031E



Source: IRENA, CPIA, CNESA, EESA, Frost & Sullivan

Competitive Landscape of the Global Residential ESS Market

Within the global residential ESS market, leading players exhibit relatively high market concentration and competition remains active. Chinese enterprises hold an important market position. The figure below presents the ranking of major participants in the global residential ESS market by revenue in 2025.

Ranking[(1)(2)(3)]	Company	Country	Related Revenue *(RMB billion)*	Market Share, 2025
1	Company A [(4)]	China	~12.0	17.7%
2	Company B [(5)]	China	~11.2	16.5%
3	Company D [(6)]	China	~7.6	11.2%
4	Company C [(7)]	The U.S.	~7.4	11.0%
5	Company E [(8)]	China	~5.5	8.1%
6	**The Company**	**China**	**4.0**	**5.9%**
7	Company M [(9)]	China	~3.8	5.6%
8	Company F [(10)]	China	~3.5	5.1%
9	Company N [(11)]	China	~2.5	3.7%
10	Company O [(12)]	China	~2.1	3.1%

Source: Annual reports, Expert Interview, Frost & Sullivan

Notes:

(1) The market share data of Company A to O is based on estimation calculated by unit sales and other available public information, cross-checked with industry participants and experts on best effort, thus may be different from the auditing data from the above players.

(2) Available public information includes financial reports of listed companies and publicly available industry reports, etc.

(3) Only revenue generated from core components related to residential energy storage batteries and residential energy storage inverters is included.

(4) Company A was founded in 2021 and is headquartered in Guangdong, China, specializing in digital energy products and solutions. It aims to integrate digital technology and power electronics technology. It is a private company.

(5) Company B was founded in 1995 and is headquartered in Guangdong, China. It is listed on the Shenzhen Stock Exchange and the Hong Kong Stock Exchange. The company's main business spans four industries: automobiles, electronics, new energy, and rail transit.

(6) Company D was established in 1997 and is headquartered in Anhui, China. It is listed on the Shenzhen Stock Exchange. Its main business includes photovoltaic inverters, energy storage systems, wind turbine converters, electric control systems for new energy vehicles, and power supply systems.

(7) Company C was founded in 2003, has its headquarters in the United States, and is listed on the NASDAQ stock exchange. Its main business areas include electric vehicles, energy storage systems, and solar products.

(8) Company E was established in 2019 and is headquartered in Zhejiang, China. Its main business includes new energy power equipment and solutions for distributed energy conversion, storage and management. It is a private company.

(9) Company M was founded in 2022 and is headquartered in Shanghai, China. It is a listed company on the Stock Exchange, and specializing in smart energy storage systems, solar inverters, EV chargers and energy management solutions for residential and commercial applications. It aims to drive innovation in clean energy and support a greener and more sustainable future.

(10) Company F was established in 2011 and is headquartered in Guangdong, China. Its main products include photovoltaic inverters and energy storage systems, which are primarily intended for use by residential and commercial & industrial end-users. It is a private company.

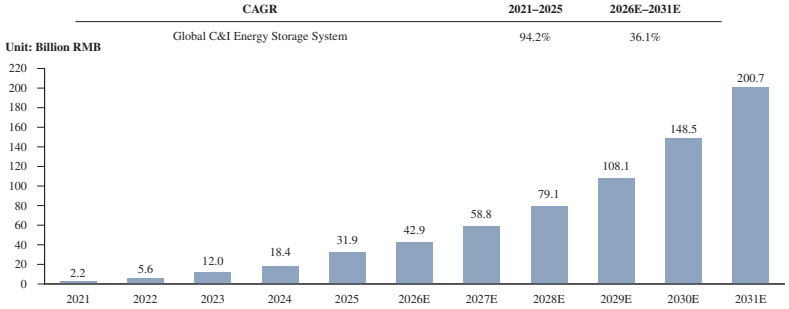
(11) Company N was founded in 2012 and is headquartered in Jiangsu, China, specializing in energy storage systems and integrated smart energy solutions for residential, commercial, industrial and utility-scale applications. It aims to make smart, clean energy accessible to every person around the globe. It is a private company.

(12) Company O was founded in 2012 and is headquartered in Hangzhou, China, specializing in photovoltaic energy storage solutions, including energy storage inverters, batteries, all-in-one ESS and grid-tied inverters. It aims to be the trusted global leader in smart energy solutions. It is a listed company on Shanghai Stock Exchange.

Market Size of Global C&I ESS Market

The global C&I energy storage system market experienced rapid growth from 2021 to 2025, primarily driven by the increasing penetration of distributed renewable energy, greater economic benefits from peak-valley electricity price differentials, and growing demand among commercial and industrial users for electricity cost management and power supply reliability. The market size increased from RMB2.2 billion in 2021 to RMB31.9 billion in 2025, representing a CAGR of 94.2%. Looking forward, supported by declining system costs, broader deployment of behind-the-meter energy storage and increasing adoption of intelligent energy management solutions, the market size is expected to increase from RMB42.9 billion in 2026 to RMB200.7 billion in 2031, representing a CAGR of 36.1%.

Global C&I Energy Storage System Market, by revenue, 2021–2031E



Source: IRENA, CPIA, CNESA, EESA, Frost & Sullivan

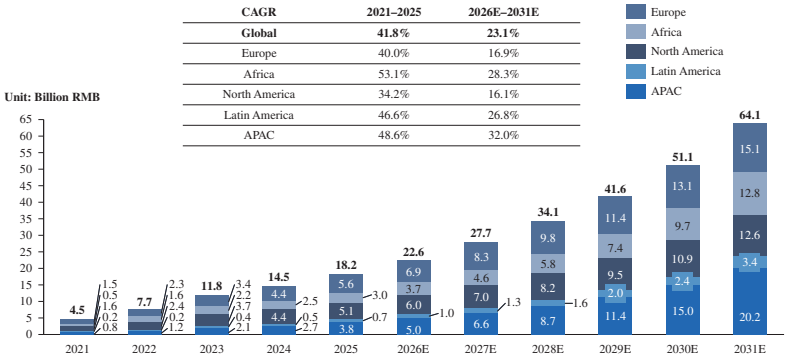
Market Size of Global Residential Energy Storage Inverter Market

Serving as an important component of residential ESS, the global residential energy storage inverter market continues to expand driven by integrated deployment of PV, energy storage and charging solutions. The market size increased from RMB4.5 billion in 2021 to RMB18.2 billion in 2025, representing a CAGR of 41.8%. The market size is expected to further increase to RMB64.1 billion in 2031, corresponding to a CAGR of 23.1%. According to Frost & Sullivan, in terms of shipment volume, the global residential energy storage inverter market reached 29.5

GW in 2025. The global shipment volume represented approximately 3.5 million units in 2025, implying an average price of approximately RMB5,230 per unit.

Europe represents the largest regional market by revenue, with market size of RMB5.6 billion in 2025 and projected to reach RMB15.1 billion by 2031, corresponding to a CAGR of 16.9% from 2026 to 2031. The APAC is expected to be the fastest growing regional market, with the market size of RMB3.8 billion in 2025 and expected to reach RMB20.2 billion by 2031, corresponding to a CAGR of 32.0% from 2026 to 2031, respectively.

Global Residential Energy Storage Inverter Market, by revenue, 2021–2031E



Source: IRENA, MIIT, CPIA, Wood Mackenzie, Frost & Sullivan

Note:

(1) The APAC covers the vast majority of the Middle East.

Competitive Landscape of the Global Residential Energy Storage Inverter Market

Within the global residential energy storage inverter market, Chinese enterprises have established an important market position. The Company ranked first by revenue in 2025 with a market share of 20.6%. The figure below presents the ranking of major participants in the global residential energy storage inverter by revenue in 2025.

Ranking[(1)(2)]	Company	Country	Related Revenue *(RMB billion)*	Market Share, 2025
1	**The Company**	**China**	**3.7**	**20.6%**
2	Company A	China	~2.4	13.4%
3	Company F	China	~1.6	8.9%
4	Company E	China	~1.5	8.0%
5	Company D	China	~1.4	8.0%

Source: Annual reports, Expert Interview, Frost & Sullivan

Notes:

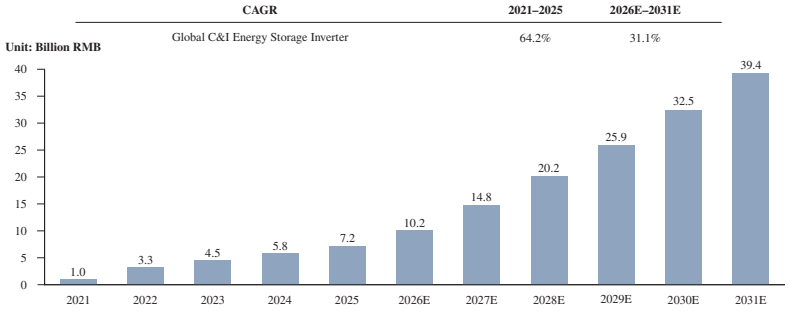
(1) The market share data of Company A to F is based on estimation calculated by unit sales and other available public information, cross-checked with industry participants and experts on best effort, thus may be different from the auditing data from the above players.

(2) Available public information includes financial reports of listed companies and publicly available industry reports.

Market Size of Global C&I Energy Storage Inverter Market

Driven by the growing demand for peak-valley electricity price arbitrage, higher power supply reliability and the integration of distributed renewable energy, the global C&I energy storage inverter market expanded rapidly from 2021 to 2025. The market size increased from RMB1.0 billion in 2021 to RMB7.2 billion in 2025, representing a CAGR of 64.2%. Looking forward, the continued deployment of C&I energy storage systems, declining system costs and increasing demand for flexible energy management are expected to support further market growth. The global C&I energy storage inverter market is expected to increase from RMB10.2 billion in 2026 to RMB39.4 billion in 2031, representing a CAGR of 31.1%.

Global C&I Energy Storage Inverter Market, by revenue, 2021–2031E



Source: International Energy Agency (IEA), CNESA, Frost & Sullivan

Competitive Landscape of the Global C&I Energy Storage Inverter Market

In 2025, the global C&I energy storage inverter market reached RMB7.2 billion, the company ranked second with market share of 20.4%. The rest of major competitors in global C&I energy storage inverter market mainly include Company D, Company A, Company G, and Company P.

Ranking[(1)(2)]	Company	Country	Related revenue *(RMB billion)*	Market share, 2025
1	Company D	China	~1.6	21.7%
2	**The Company**	**China**	**1.5**	**20.4%**
3	Company A	China	~1.2	16.3%
4	Company G	China	<0.5	6.3%
5	Company P[(3)]	China	<0.5	4.6%

Source: Annual reports, Expert Interview, Frost & Sullivan

Notes:

(1) The market share data of Company A to P is based on estimation calculated by unit sales and other available public information, cross-checked with industry participants and experts on best effort, thus may be different from the auditing data from the above players.

(2) Available public information includes financial reports of listed companies and publicly available industry reports.

(3) The company P was established in 2007 and is headquartered in Shenzhen, China. It is listed on the Shenzhen Stock Exchange. Its main products include industrial power supply and power quality equipment, energy storage converters and systems, electric vehicle charging equipment, and battery formation and testing equipment.

Drivers and Trends of Energy Storage Inverters

Continued growth in global energy storage demand: In emerging markets with weaker grid stability and in developed markets such as Europe and North America with relatively high electricity prices, growing adoption of residential and C&I energy storage systems continues to support demand for energy storage inverters. In Europe, improving policy and market conditions have supported residential and C&I ESS demand, while in Australia, *the Cheaper Home Batteries Program* has accelerated the adoption of residential PV, energy storage systems and related inverters. Certain policies pertaining to energy storage inverters are set out below:

- Germany – *Zero VAT Rate for PV Systems:* Effective from January 2023, Germany has applied a zero VAT rate to residential solar PV systems installed on or adjacent to residential properties. The incentive covers key system components, including PV inverters and battery energy storage systems, thereby reducing the overall cost of residential solar-plus-storage installations.
- Australia – *NSW Virtual Power Plant (VPP) Incentive:* The NSW Government provides financial incentives for households to connect residential battery energy storage systems to virtual power plants (VPPs), supporting grid interaction capabilities.
- South Africa – *City of Cape Town Cash for Power:* The programme enables eligible small-scale embedded generation (SSEG) customers to export surplus electricity to the municipal grid in exchange for financial credits, thereby improving the economic returns of residential solar-plus-storage systems.

Technology upgrade and functional expansion: The development of virtual power plants and distributed power dispatch mechanisms is raising requirements for intelligent control, grid interaction and real-time response of energy storage inverters, driving products toward more intelligent and grid-responsive functions.

Transition toward integrated ESS solutions: Improvements in battery performance and system integration technologies are accelerating the adoption of integrated PV-ESS-inverter solutions, while also supporting the transition of energy storage inverter manufacturers toward system.

Entry Barriers of Energy Storage Inverters

Entry barriers of the energy storage inverter market mainly include the following: (1) Technology barriers: energy storage inverters require strong capabilities in topology design, control algorithms, component selection and manufacturing processes, together with compliance with grid-connection, safety and reliability requirements. (2) Channel and service barriers: leading players have established broad sales networks and localized service capabilities, while new entrants generally require significant investment and time to build comparable channel and after-sales coverage. (3) Brand barriers: as energy storage inverters directly affect the safety and economic performance of photovoltaic and energy storage systems, customers place significant emphasis on brand reputation, product quality and operating track record, supporting the competitive advantage of established manufacturers.

OVERVIEW OF GLOBAL AND CHINA SOLAR PV INVERTERS MARKET

Overview of Solar PV Inverters

Solar PV inverters are the core equipment of the photovoltaic power generation system. The primary function is to convert direct current (DC) generated by PV panels into alternating current (AC). Depending on the technology applied, solar PV inverters are mainly classified into string inverters, micro inverters, and centralized inverters.

String inverters are primarily applied in small-to-medium distributed PV stations, connecting to panel strings via independent ports. Micro inverters are typically installed beneath individual panels for smaller distributed systems. Centralized inverters, characterized by large size and high capacity, centrally process power and are mainly applied in centralized PV power stations.

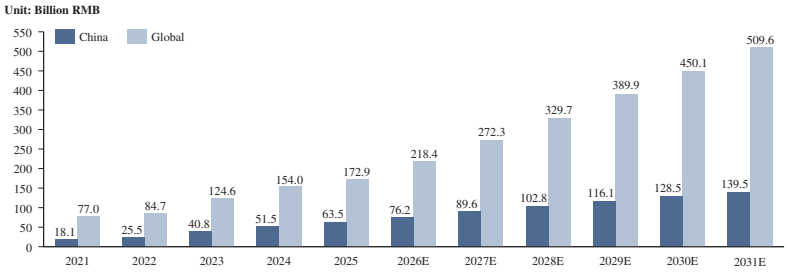
The solar PV inverters value chain includes upstream materials, midstream manufacturing and downstream applications. Upstream supplies core components like SiC chip, IGBT, capacitors and heat sinks; midstream focuses on designing and manufacturing string, micro and centralized solar PV inverters; downstream covers residential, C&I and centralized applications, supported by certification and maintenance services.

Market Size of Global and China Solar PV Inverters Market

Driven by carbon neutrality and energy transition initiatives, the global solar PV inverters market by revenue grew from RMB77.0 billion in 2021 to RMB172.9 billion in 2025, representing a CAGR of 22.4%. During the same period, China's market revenue expanded from RMB18.1 billion to RMB63.5 billion, representing a CAGR of 36.9%. With continuous global PV deployment, the market size is expected to grow steadily. By 2031, the global and China markets are projected to reach RMB509.6 billion and RMB139.5 billion, respectively, with CAGRs of 18.5% and 12.8% from 2026 to 2031.

Global and China Solar PV Inverters Market, by revenue, 2021–2031E

CAGR	2021–2025	2026E–2031E
Global	22.4%	18.5%
China	36.9%	12.8%

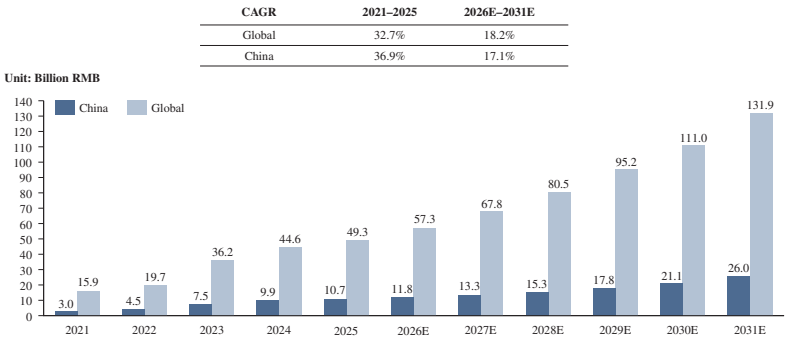


Source: IRENA, CPIA, Wood Mackenzie, Frost & Sullivan

Market Size of Global and China Residential Solar PV Inverters Market

Global energy price volatility has accelerated residential green power adoption. Global residential solar PV inverters market grew from RMB15.9 billion in 2021 to RMB49.3 billion in 2025, representing a CAGR of 32.7%. During the same period, the China's market increased from RMB3.0 billion to RMB10.7 billion, with a CAGR of 36.9%. By 2031, the global and China markets are projected to reach RMB131.9 billion and RMB26.0 billion, representing CAGRs of 18.2% and 17.1% from 2026 to 2031, respectively. According to Frost & Sullivan, in terms of shipment volume, the global residential PV inverter market reached 166.3 GW in 2025. The global shipment volume represented approximately 33.3 million units in 2025, implying an average price of approximately RMB1,482 per unit.

Global and China Residential Solar PV Inverters Market, by revenue, 2021–2031E

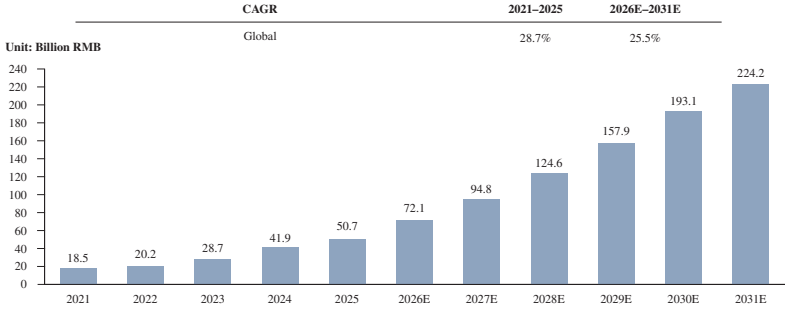


Source: CPIA, IRENA, Wood Mackenzie, Frost & Sullivan

Market Size of Global C&I Solar PV Inverters Market

Rising electricity costs, supportive renewable energy policies and growing corporate decarbonization commitments have accelerated the deployment of C&I solar PV inverters. The global C&I solar PV inverter market grew from RMB18.5 billion in 2021 to RMB50.7 billion in 2025, representing a CAGR of 28.7%. From 2026 to 2031, the market is expected to expand from RMB72.1 billion to RMB224.2 billion, representing a CAGR of 25.5%, supported by the broader adoption of distributed solar PV inverters, the continued electrification of C&I facilities, and deeper integration of solar PV inverters with energy storage and intelligent energy management systems.

Global C&I Solar PV Inverters Market, by revenue, 2021–2031E



Source: CPIA, IRENA, Wood Mackenzie, Frost & Sullivan

Competitive Landscape of Global Residential Solar PV Inverters Market

The global residential solar PV inverters market is relatively fragmented. In terms of revenue, the top five companies together accounted for a market share of 30.3% in 2025.

Ranking[(1)(2)]	Company	Country	Related revenue *(RMB billion)*	Market Share, 2025
1	Company D	China	~5.0	10.1%
2	Company A	China	~3.7	7.6%
3	Company G[(3)]	China	~2.3	4.8%
4	Company H[(4)]	China	~2.0	4.1%
5	Company I[(5)]	China	~1.8	3.7%

Ranking[(1)(2)]	Company	Country	Related revenue *(RMB billion)*	Market Share, 2025
6	**The Company**	**China**	**1.1**	**2.1%**
7	Company F	China	~0.9	1.9%
8	Company J[(6)]	China	~0.8	1.7%
9	Company K[(7)]	Germany	~0.7	1.5%
10	Company L[(8)]	China	~0.5	1.0%

Source: Annual reports, Interviews with Industry Experts, Frost & Sullivan

Notes:

(1) The market share data of Company A to L is based on estimation calculated by unit sales and other available public information, cross-checked with industry participants and experts on best effort, thus may be different from the auditing data from the above players.

(2) Available public information includes financial reports of listed companies and publicly available industry reports, etc.

(3) Company G, founded in 2005, is headquartered in China and listed on the Shenzhen Stock Exchange. Its main products include energy storage and off-grid inverters, photovoltaic grid-connected inverters.

(4) Company H was established in 2009 and is headquartered in Shanghai, China. Its main products include photovoltaic grid-connected inverters, energy storage inverters, intelligent charging stations, and smart energy management systems. It is a private company.

(5) Company I was established in 2010, with its headquarters located in Jiangsu, China and a listing on the Shanghai Stock Exchange. Its main products include photovoltaic grid-connected inverters, photovoltaic energy storage inverters, energy storage battery systems, intelligent data collectors, photovoltaic building materials, and smart energy management systems.

(6) Company J was established in 2012 and is headquartered in Zhejiang, China. It is listed on the Shanghai Stock Exchange. The company's main products include photovoltaic inverters and other power conversion equipment, as well as electrical complete sets, which are primarily used in integrated solar and storage scenarios for residential, commercial & industrial, and large-scale power plants.

(7) Company K was founded in 1981, is headquartered in Germany, and is listed on the Frankfurt Stock Exchange. Its main products include photovoltaic inverters, battery inverters, solar cells, and products and solutions for solar power generation, storage, and energy management.

(8) Company L was founded in 2013, is headquartered in Guangdong, China and listed on the Shenzhen Stock Exchange. Its main products include photovoltaic grid-connected inverters, energy storage inverters, and energy storage battery systems.

Drivers and Trends of Global Solar PV Inverters Market

Carbon Neutrality Targets and Policy Support: global carbon neutrality goals have driven nations to enact supportive policies, stimulating industry growth through tax credits, power absorption mandates, and tariff protections. For instance, the U.S. *Inflation Reduction Act* offers investment tax credits for solar PV projects. The PRC implements *Renewable Energy Power Absorption Guarantee Mechanism* (《可再生能源電力消納保障機制》) to mandate clean energy use, while Germany's revised *Renewable Energy Act* to guarantee electricity tariff. Certain policies pertaining to solar PV inverters are set out below:

- Australia – *Small-scale Renewable Energy Scheme (SRES):* The scheme reduces the upfront cost of residential rooftop solar PV systems through the issuance of Small-scale Technology Certificates (STCs), thereby encouraging residential PV installations and supporting demand for residential PV inverters.
- South Africa – *Residential Solar PV Panel Tax Rebate:* Individuals could claim a tax rebate of 25% of the cost of qualifying solar PV panels, subject to a maximum rebate of ZAR15,000, thereby encouraging residential rooftop PV installations.

- Germany – *KfW 442 – Solar Power for Electric Cars:* The program required the installation of a residential solar PV system as part of the eligibility requirements, thereby supporting demand for residential PV inverters.

Technological Upgrades: continuous technological advancements have optimized the performance and cost structure of solar PV inverters. Innovations in high power density and higher voltage levels have improved power generation efficiency and reduced transmission losses. These upgrades effectively lower electricity generation costs for centralized and commercial & industrial projects, significantly enhancing their economic viability.

Expansion of Global Data Centers: the explosive growth of AI and cloud computing has fueled data center expansion, leading to a surge in power consumption. To meet sustainability goals, enterprises are prioritizing green power, which drives demand for renewable energy equipment. This shift is accelerating the deployment of solar PV inverters in high power-consuming facilities.

Entry Barriers of Global Solar PV Inverters Market

Entry barriers of the global solar PV inverters market mainly include the following: (1) Technology barriers: solar PV inverters require strong capabilities in power design, EMC control, grid-connection algorithms and safety protection to ensure long-term reliability and stable operation, while lengthy development cycles and stringent validation requirements further raise entry thresholds. (2) Brand barriers: as inverter performance directly affects system stability, downstream customers generally place significant emphasis on suppliers' track record, project references and product reliability, which increases customer stickiness and makes market acceptance more difficult for new entrants. (3) Channel barriers: global sales and services rely heavily on established relationships with local distributors, installers and EPC contractors, while building such regional networks typically requires long-term localized layout and sustained resource accumulation, creating substantial market access barriers for emerging players.

OVERVIEW OF GLOBAL AND CHINA DEHUMIDIFIER MARKET

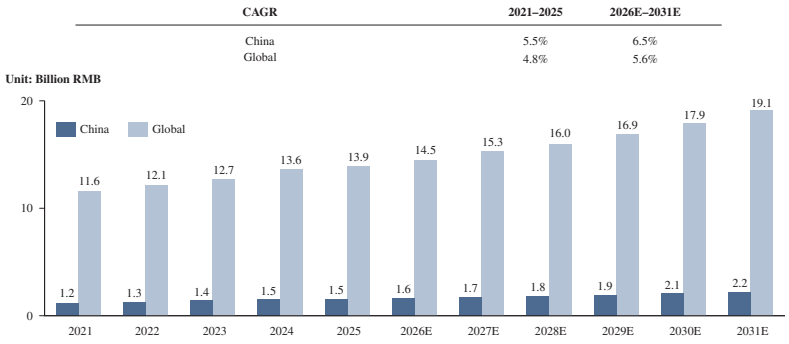
Definition of Dehumidifiers Market

Dehumidifiers are electrical appliances used to reduce air humidity by removing moisture from the air through refrigeration condensation or adsorption processes. Such equipment lowers ambient relative humidity and improves indoor dryness and comfort. Applications are widely found across residential, commercial and industrial environments. Residential dehumidifiers are generally supplied as standalone cabinet-type appliances, while commercial and industrial products are more commonly integrated with ventilation, air-conditioning or broader environmental control systems.

Market Size of Global and China Residential Dehumidifiers Market

The global and China residential dehumidifier markets recorded steady growth from 2021 to 2025, driven by rising awareness of indoor humidity management and air quality, increasing demand in humid regions and the broader adoption of standalone residential dehumidifiers. The global market size increased from RMB11.6 billion in 2021 to RMB13.9 billion in 2025, representing a CAGR of 4.8%, while the China market increased from RMB1.2 billion to RMB1.5 billion, representing a CAGR of 5.5%. Supported by improving household living standards, increasing product penetration and continued product upgrades, the global and China markets are expected to reach RMB19.1 billion and RMB2.2 billion, respectively, in 2031, representing CAGRs of 5.6% and 6.5% from 2026 to 2031.

Global and China Residential Dehumidifiers Market, by revenue, 2021–2031E



Source: China Meteorological Administration (CMA), Frost & Sullivan

Competitive Landscape of China Residential Dehumidifiers Market

Competition in the Chinese residential dehumidifiers market is increasingly diversified, with Chinese companies demonstrating strong competitiveness. The following table sets the ranking of major participants in China's residential dehumidifier market by revenue in 2025.

Ranking[(1)(2)(3)]	**Company**	**Country**	**Related revenue** *(RMB million)*	**Market Share, 2025**
1	**The Company**	**China**	**490.5**	**31.7%**
2	Company Q[(4)]	China	~366.3	23.6%
3	Company R[(5)]	China	~252.5	16.3%
4	Company S[(6)]	China	~163.2	10.5%
5	Company T[(7)]	Japan	~103.0	6.6%

Source: Annual reports of related companies, Frost & Sullivan

Notes:

(1) The revenue data of Company Q to T is based on estimation calculated by unit sales and other available public information, cross-checked with industry participants and experts on best effort, thus may be different from the auditing data from the above players.

(2) Available public information includes financial reports of listed companies and publicly available industry reports, etc.

(3) The market excludes dehumidification functions integrated into residential air-conditioning systems.

(4) Company Q was founded in 1968 and is headquartered in Guangdong, China. It is listed on the Shenzhen Stock Exchange and the Hong Kong Stock Exchange. Its main products include residential and commercial air-conditioning systems, refrigerators, laundry appliances, kitchen appliances, dehumidifiers and other household appliances.

(5) Company R was established in 1991 and is headquartered in Guangdong, China. It is listed on the Shenzhen Stock Exchange. Its main products include residential and commercial air-conditioning systems, dehumidifiers and other air treatment appliances, household appliances and industrial equipment.

(6) Company S was founded in 1984 and is headquartered in Shandong, China. It is listed on the Shanghai Stock Exchange, the Frankfurt Stock Exchange and the Hong Kong Stock Exchange. Its main products include refrigerators and freezers, laundry appliances, air conditioners, kitchen appliances, water appliances, dehumidifiers and other smart home products and solutions.

(7) Company T was founded in 1918 and is headquartered in Japan. Its parent company, Panasonic Holdings Corporation, is listed on the Tokyo Stock Exchange. Its main products include home appliances, air-conditioning and indoor air quality products, dehumidifiers, consumer electronics, electrical equipment and industrial solutions.

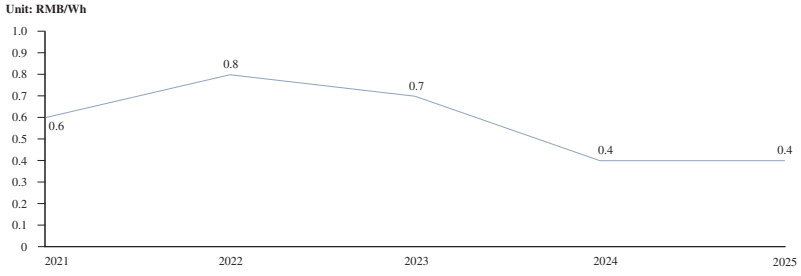
Entry Barriers of Residential Dehumidifiers

Entry barriers to the residential dehumidifier market mainly include the following: (1) Technology barriers: residential dehumidifiers require capabilities in refrigeration system design, airflow management, noise control, humidity sensing and energy efficiency optimisation to ensure stable performance, safety and reliability. (2) Brand and channel barriers: consumers generally prefer established brands with proven product quality, broad online and offline distribution networks and comprehensive after-sales services, while building brand recognition and channel coverage requires sustained investment. (3) Supply chain and scale barriers: manufacturing depends on the stable supply of compressors, heat exchangers, motors, sensors and controllers, while leading enterprises benefit from economies of scale in procurement and production, making it difficult for new entrants to achieve comparable cost competitiveness and delivery capability.

RAW MATERIAL ANALYSIS

As the key ingredient in energy storage battery cells, the price of Lithium Iron Phosphate (LFP) is the primary determinant of cell costs. From 2021 to 2022, a combination of urgent energy transition demands and supply chain volatility caused by global public health events led to rapidly rising raw material costs. This pushed the average price of LFP cells up from RMB0.6/Wh to RMB0.8/Wh. Since 2023, the rapid scaling of the electric vehicle and energy storage markets created significant supply chain capacity. As the supply chain shifted from shortage to surplus, raw material prices fell, bringing LFP cell prices down to RMB0.4/Wh by 2024. Driven by rising industry capacity utilization and increasing raw material prices, LFP cell prices gradually recovered in 2025.

Average Price of LFP Battery Cells in China



Source: Shanghai Metals Market (SMM), Frost & Sullivan