

## INDUSTRY OVERVIEW

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### SOURCE AND RELIABILITY OF INFORMATION

We have commissioned Frost & Sullivan, a market research and consulting company and an independent third party, to conduct an analysis of, and to report on China’s data center and data center energy management market. The report prepared by Frost & Sullivan for us is referred to in the document as the F&S Report. The F&S Report has been prepared by Frost & Sullivan independent of our influence. The fee payable to Frost & Sullivan for preparing the F&S Report is RMB540,000 which we believe reflects market rates for similar services.

The F&S Report contains a series of market projections which were produced based on the following assumptions, without limitations: (i) China’s and global economy is likely to maintain steady growth in the next decade; (ii) China’s and global social, economic, and political environment is likely to remain stable from 2025 to 2030 (“**Forecast Period**”).

### OVERVIEW OF CHINA DATA CENTER MARKET

#### Introduction and Definition of Data Center

Data center refers to a facility designated to house server and storage and associated networking equipment which is used to organize, process, store and disseminate large volumes of data.

Data centers include two types: Carrier-operated data centers and carrier-neutral data centers. A carrier-operated data center offers access to only one carrier that controls access to the facility. These facilities are operated by telecom carriers who own or manage networks and typically require customers to use the carrier’s own network. A carrier-neutral data center offers access to a number of different carriers. These facilities are network agnostic and offer interconnection to networks operated by multiple network service carriers and internet service providers.

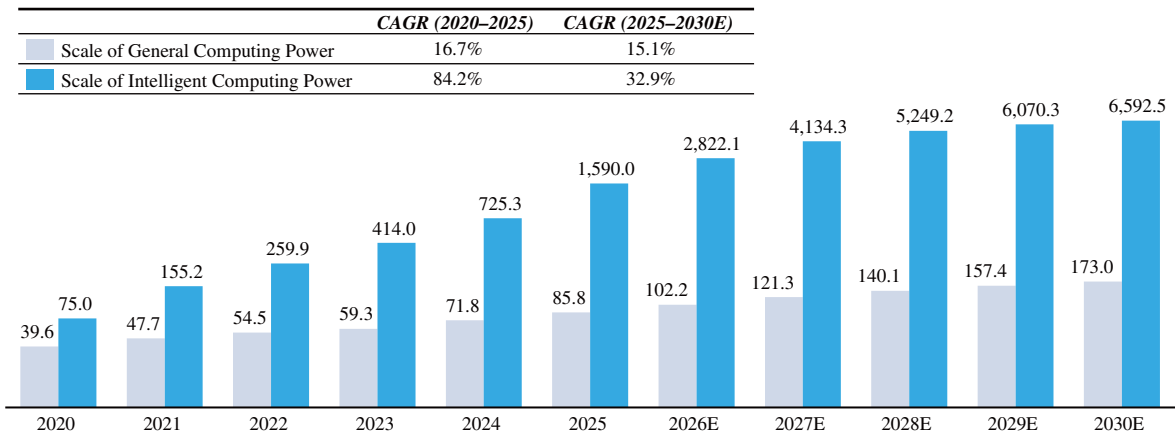
#### Market Size of China Data Center Industry

Computing power is an important indicator to measure the scale of data centers, which consists of general computing power and intelligent computing power. General computing power refers to the standard computational capacity used for a broad range of routine workloads such as data processing, simulation and general-purpose cloud applications. Intelligent computing power, by contrast, is designed for data-intensive and computation-heavy tasks related to artificial intelligence, machine learning and big-data analytics, and is primarily used for AI training and inference. The scale of China’s general computing power increased from 39.6 extra floating-point operations per second (EFLOPS) in 2020 to 85.8 EFLOPS in 2025, representing a CAGR of 16.7%. Over the same period,

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China’s intelligent computing power experienced a faster growth, from 75.0 EFLOPS in 2020 to 1,590.0 EFLOPS in 2025, representing a CAGR of 84.2%, driven by the rapid advancement of large model technologies and the increasing deployment of intelligent applications across industries. Looking ahead, the scale of intelligent computing power is expected to maintain rapid growth, reaching 6,592.5 EFLOPS in 2030 with a CAGR of 32.9%, along with ongoing investments in intelligent computing centers. The scale of general computing power is expected to reach 173.0 EFLOPS in 2030, with a CAGR of 15.1% over the same period.

Scale of Computing Power (China), 2020–2030E



Source: Ministry of Industry and Information Technology, Frost & Sullivan Analysis

Market Drivers and Future Trends

**Rapid Growth of the Computing Demand:** With the rapid development of the AI, video streaming, autonomous driving and IoT, global demand for high-performance computing and data processing continues to surge. Companies require robust computing power for model training, real-time inference, and large-scale data analysis, which not only fuels the expansion of data centers, but also accelerates the iteration of hardware such as servers, GPUs, and specialized chips. With the adoption of edge computing and virtual-real fusion technologies, the demand for computing power is expected to maintain strong growth.

**Accelerated Digital Transformation:** Traditional industries such as government, manufacturing, and healthcare are accelerating their digital and intelligent transformation. Cloud computing, big data, and AI have become essential tools for enhancing operational efficiency and innovation capabilities. More organizations are migrating core business systems to the cloud to improve flexibility and reduce costs.

**Stronger Policy Support:** China’s policy framework for data centers provides institutional support for sustainable development. Under the national guidelines issued by NDRC, the average Power Usage Effectiveness (PUE) of China’s data centers is expected to reach internationally advanced levels by 2030, reflecting a more stringent energy efficiency standard particularly for new data centers. Policies also support the adoption of innovative solutions such as liquid cooling and smart energy management.

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**Goals of Low-Carbon Development:** Driven by China’s “dual carbon” goals and ESG policies, data center industry faces increasingly strict requirements for green and low carbon development. Such requirements has promoted the widespread adoption of advanced energy-saving technologies such as liquid cooling, phase-change immersion and non-phase-change immersion, along with increased use of renewable energy sources.

### OVERVIEW OF CHINA’S ENERGY MANAGEMENT SOLUTION MARKET

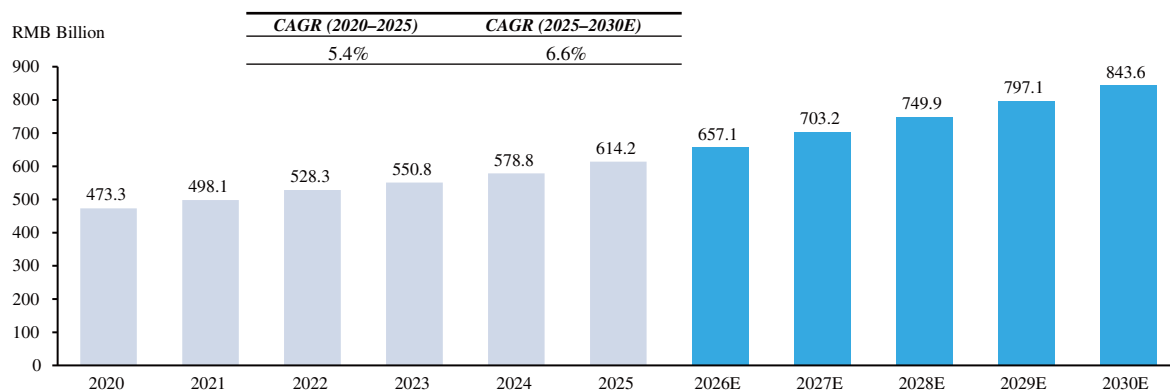
#### Introduction and Definition of Energy Management Solution

An energy management solution refers to an integrated service combining consulting and technology. It is designed to enable the systematic management of energy generation, transmission, and consumption across buildings, industrial facilities, and infrastructure through centralized monitoring, data analysis, and intelligent optimization. The solution typically includes energy assessment, system design, system integration, operational optimization, performance monitoring, and lifecycle management, covering subsystems such as power, thermal management, lighting efficiency, and building envelope systems. The application scenarios mainly include data centers, commercial buildings and office spaces, and industrial facilities, etc.

#### Market Size of China Energy Management Solution Industry

China’s energy management solution industry has experienced a steady growth in terms of value, from RMB473.3 billion in 2020 to RMB614.2 billion in 2025, represented a CAGR of 5.4%, driven by increasing energy demand and the growing adoption of smart technologies especially in data centers. Energy management solutions are widely used across sectors such as intelligent buildings, industrial factories and data centers, with data center energy management solutions accounting for 12.5% of the total market in 2025. Looking forward, the energy management solution market is expected to maintain rapid growth, reaching RMB843.6 billion in 2030 with a CAGR of 6.6%, driven by continuous government support for carbon neutrality goals and rising demand for energy efficiency.

**Market Size of Energy Management Solution Industry (China), 2020–2030E**



Source: ESCO Committee of China Energy Conservation Association, Frost & Sullivan Analysis

#### Market Drivers and Future Trends

**Growing Demand for Power Resource Aggregation Capabilities:** As power market reforms accelerate, the market-based pricing mechanisms such as real-time tariffs were introduced, electricity prices begin to reflect supply and demand dynamics, which exposes companies to cost volatility. Energy

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management solution providers are increasingly integrating decentralized energy resources with energy-saving equipment offerings, helping companies manage electricity price fluctuations and meet grid flexibility requirements.

**Continuous Integration of ESG and Energy Management Solutions:** As corporate ESG disclosure requirements tighten and internal carbon reduction targets are clearly defined, energy management is transforming from a cost-control tool to a key strategy for environmental responsibilities. Future solutions should automatically quantify and report carbon emission reductions, integrating the data into company ESG frameworks.

**Tightening Policy and Carbon Constraints:** The energy management solution market is primarily driven by a rapidly tightening regulatory environment centered on national carbon neutrality goals. The expansion of the carbon market and the introduction of stricter energy consumption standards across industries are transforming energy management from a voluntary efficiency tool into a compliance requirement for enterprises.

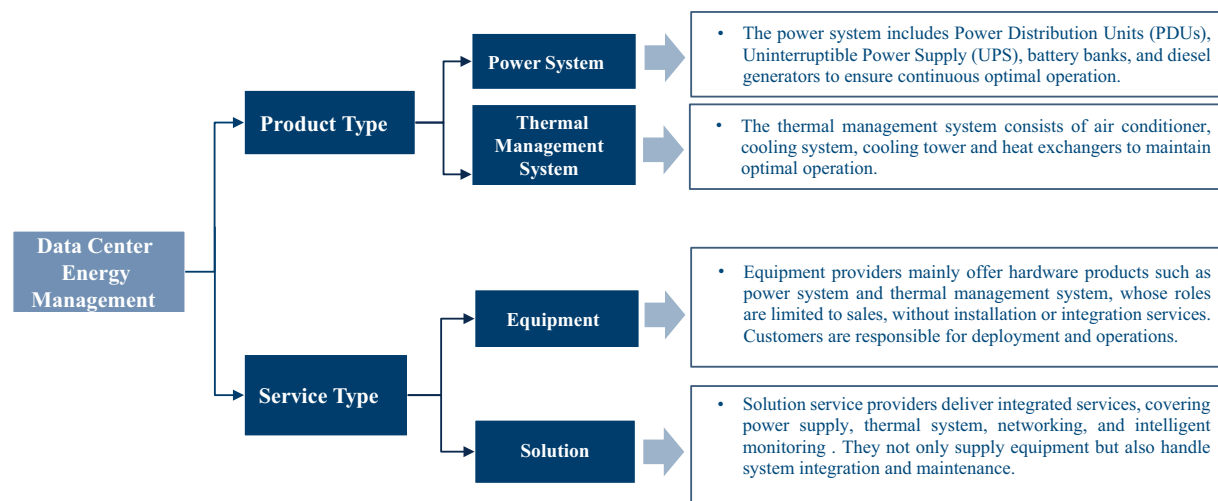
## OVERVIEW OF CHINA’S DATA CENTER ENERGY MANAGEMENT MARKET

### Introduction and Definition of Data Center Energy Management

In data center energy management industry, service targets cover both newly built data centers and the upgrading of existing ones, addressing initial construction and performance optimization.

The products of the industry mainly consist of power system and thermal management system. Service of the industry includes equipment and solution. Equipment providers mainly supply hardware products without offering installation or integration, leaving deployment and operations to customers. In contrast, solution providers deliver integrated services across power system and thermal management system, covering both equipment supply and ongoing system integration and maintenance.

### Classification of Data Center Energy Management Industry



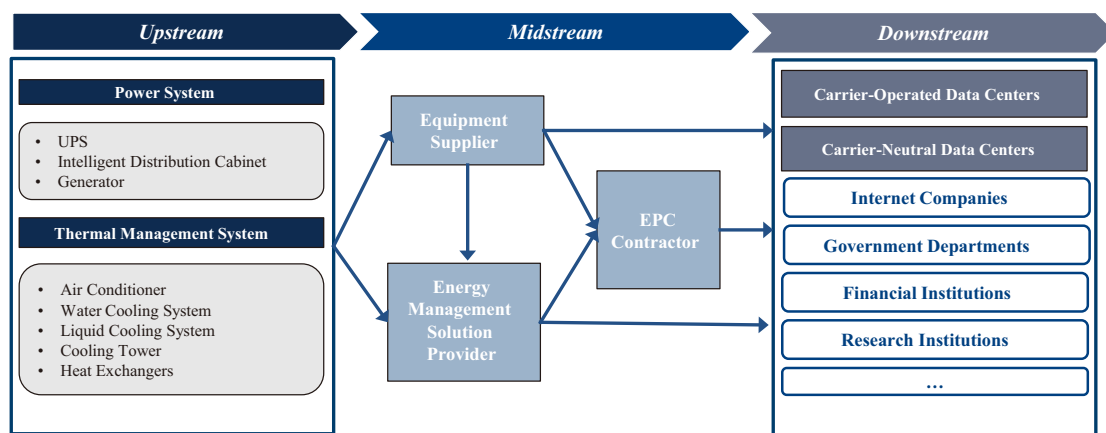
Source: Frost & Sullivan Analysis

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### Value Chain of China Data Center Energy Management Industry

The upstream of the industry includes power system and thermal management system. The midstream of the industry includes equipment supplier, energy management solution provider and engineering, procurement, construction (EPC) contractors. Equipment supplier and energy management solution provider can not only provide products and services to EPC contractor, but also directly provide products and services to downstream data centers. Solution providers can purchase equipment from equipment suppliers and engage in early construction phase, participating in overall planning, setting PUE targets, and optimizing foundational elements of the projects. EPC contractor directly serves downstream data centers. The downstream of the industry includes carrier-operated data centers and carrier-neutral data centers such as internet companies, government departments, financial institutions, and research institutions etc.

### Value Chain of China Data Center Energy Management Industry



Source: Frost & Sullivan Analysis

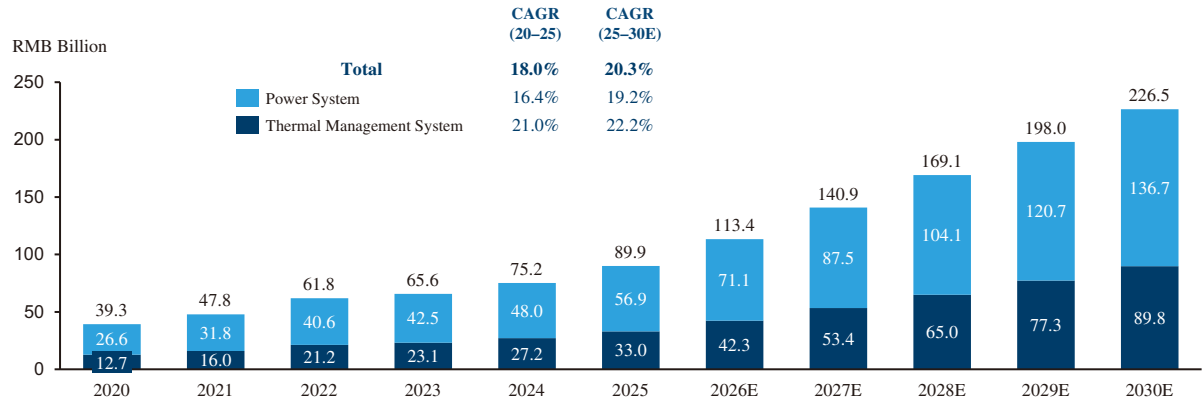
### Market Size of China Data Center Energy Management Industry

The market size of China’s data center energy management, measured by investment value, has expanded significantly in recent years. By product type, the market is primarily composed of power systems and thermal management systems. Between 2020 and 2025, the market grew in line with the expansion of data center capacity, increasing from RMB39.3 billion to RMB89.9 billion, representing a CAGR of 18.0%. Notably, the thermal management segment has experienced faster growth than the power segment, driven by the emergence of higher-value liquid cooling technologies and increasing adoption of advanced cooling solutions.

Looking forward, China’s data center energy management market is expected to maintain strong growth, driven by the continued expansion of data center capacity. Total market size is projected to reach RMB226.5 billion by 2030, with power systems accounting for RMB136.7 billion and thermal management systems contributing RMB89.8 billion. The thermal management segment is anticipated to continue growing at a faster pace than power segment, driven by the increasing adoption of higher-value solutions such as liquid cooling and other advanced thermal technologies.

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### Market Size of Data Center Energy Management, Breakdown by Product Type, Measured by Value (China), 2020–2030E

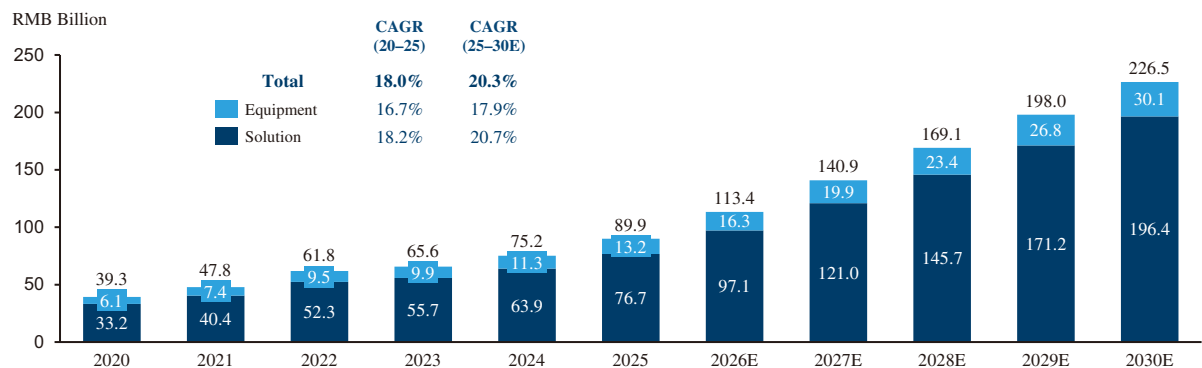


Source: IDC, Frost & Sullivan Analysis

The market size of China’s data center energy management, measured by investment value, can also be segmented by service type, which is broadly classified into equipment and solution.

Currently, the market is predominantly driven by solution, as data center operators increasingly seek turnkey offerings that ensure seamless integration of power and thermal management systems, optimize energy efficiency, and reduce operational risks associated with complex installations. From 2020 to 2025, the equipment segment of China’s data center energy management market increased from RMB6.1 billion to RMB13.2 billion, representing a CAGR of 16.7%. Looking ahead, this segment is projected to reach RMB30.1 billion by 2030. In comparison, the solution segment grew from RMB33.2 billion in 2020 to RMB76.7 billion in 2025 and is expected to reach RMB196.4 billion by 2030.

### Market Size of Data Center Energy Management, Breakdown by Service Type, Measured by Value (China), 2020–2030E



Source: IDC, Frost & Sullivan Analysis

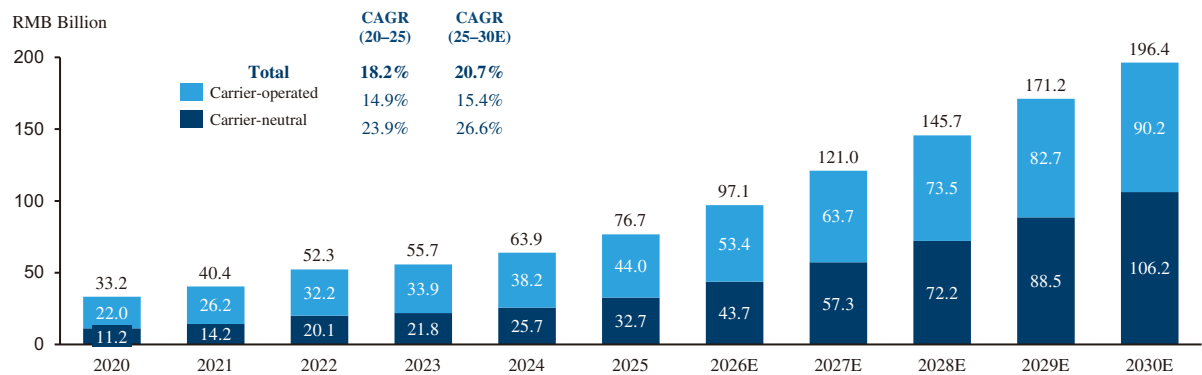
### Market Size of China Data Center Energy Management Solution Industry

The solution segment of China’s data center energy management market can further be classified by end customer type into carrier-operated and carrier-neutral facilities.

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From a market perspective, the carrier-neutral segment of data center energy management solution has been expanding at a faster pace than carrier-operated facilities, which is largely driven by the high investment in artificial intelligence, cloud computing, and digital services by internet companies. From 2020 to 2025, the market size of carrier-neutral solution grew from RMB11.2 billion to RMB32.7 billion, representing a CAGR of 23.9%. In the future, the market is expected to maintain strong growth momentum and reach RMB106.2 billion by 2030.

**Market Size of Data Center Energy Management Solution, Breakdown by Operator Type (China), Measured by Value, 2020–2030E**



Source: IDC, Frost & Sullivan Analysis

### Market Drivers and Future Trends

**AI Computing Demand Drives Growth of Advanced Data Centers:** The increasing adoption of large language models and generative AI is steadily raising the need for computing power. To support AI training and inference, data centers are evolving toward higher-power racks, GPU clusters, and more intelligent computing environments. Power consumption for AI servers is several times higher than that of conventional CPU servers, placing additional pressure on power supply and cooling systems. This development is leading to greater demand for efficient power distribution, liquid-cooling technologies, and intelligent energy control platforms.

**Continued Digital Transformation Sustains Cloud Infrastructure Expansion:** As industries advance their digital transformation and adopt cloud-based operations, the need for large-scale and dependable data centers continues to grow. Organizations are placing higher value on real-time data processing, stable operations, and cybersecurity, driving ongoing improvements in cloud infrastructure. The combined effects of AI expansion and enterprise digitalization are broadening the overall market and promoting wider adoption of efficient energy systems, improved cooling, and intelligent management tools that help ensure reliable cloud performance.

**Increasing Adoption of Liquid Cooling and Advanced Thermal Management:** With the continuous rise in per-cabinet power density, traditional cooling systems are unable to meet the thermal management needs of high-density computing environments. Liquid cooling now is rapidly gaining adoption in China’s data centers. In the future, advanced cooling system will not only be the preferred choice for supercomputing power centers but will also expand into small and medium-sized data centers. Furthermore, the combination of liquid cooling with other advanced thermal managements methods will significantly reduce PUE levels and accelerate the development of green data centers.

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***Specification Upgrades Driving Innovation in Energy Solutions:*** With the rapid growth of computing demand, the average cabinet power consumption in China’s data centers has risen from approximately 4 KW to more than 8 KW, and keep increasing because of the increased number of smart computing power centers. This trend places pressure on data centers built to older standards, prompting infrastructure upgrades. Higher specifications are driving not only equipment replacement but also broader solution-level innovation.

### Challenges

***Uncertainty from Rapid Energy Management Technology Evolution:*** The rapid advancement of technologies in power distribution, liquid cooling, and AI-driven energy optimization brings both opportunities and uncertainty to data center energy management. While these innovations promise higher efficiency and reduced energy waste, their fast-changing nature creates risks of obsolescence. Operators must continuously upgrade systems, which raises costs and disrupts stability. Suppliers are pressured to invest in R&D to provide reliable, scalable, and future-proof energy management solution.

***Supply Chain Risks in Energy Management Equipment:*** Energy management in data centers relies heavily on specialized components such as advanced power modules, high-performance chips, and precision cooling systems, which often come from global supply chains, making them vulnerable to disruptions caused by geopolitical tensions, trade restrictions, or material shortages. Any supply delay not only increases operational costs but also limits the adoption of energy-efficient solutions, thereby constraining the ability of operators to achieve sustainable and stable energy management.

## COMPETITIVE LANDSCAPE ANALYSIS

### Competitive Landscape of China Energy Management Solution Industry

In 2025, the number of market players in China’s energy management solutions industry is more than 20,000. The energy management solutions market in China is highly fragmented and the Group occupied about 0.2% market share in 2025 in terms of revenue.

### Competitive Landscape of China Data Center Energy Management Solution Industry

In 2025, there were more than 3,000 market players in China data center energy management solution industry. Top 10 players in China’s data center energy management solution market accounted for 58.1% market share in 2025 in terms of sales revenue. The Group ranked ninth in China’s data center energy management solution industry in terms of revenue in 2025, with a market share of 1.5%.

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### Top 10 Data Center Energy Management Solution Company by Sales Revenue (China), 2025

| Rank | Company   | Identities or Background                                                                                                                                                                                                                                                                              | Market Share (%)<br>2025 |
|------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1    | Company A | Founded in 1987, Company A is a private company primarily engaged in information and communications technology (ICT) infrastructure and intelligent terminals. Company A is headquartered in Guangdong, China.                                                                                        | 27.7%                    |
| 2    | Company B | Founded in 2000, Company B is a listed company primarily engaged in critical digital infrastructure, offering comprehensive power, cooling, and IT infrastructure solutions and technical services. Company B is headquartered in Ohio, the United States, and listed on the New York Stock Exchange. | 5.5%                     |
| 3    | Company C | Founded in 1997, Company C is a listed company primarily engaged in IDC investment, operation, and the provision of data center solutions. Company C is headquartered in Shanghai, China, and listed on the Shanghai Stock Exchange.                                                                  | 5.0%                     |
| 4    | Company D | Founded in 1988, Company D is a listed company primarily engaged in data center services and energy solutions. Company D is headquartered in Fujian, China, and is listed on the Shenzhen Stock Exchange.                                                                                             | 4.6%                     |
| 5    | Company E | Founded in 1993, Company E is a listed company primarily engaged in integrated data center products, photovoltaic inverters, and UPS. Company E is headquartered in Guangdong, China, and listed on the Shenzhen Stock Exchange.                                                                      | 3.7%                     |
| 6    | Company F | Founded in 1836, Company F is a listed company primarily engaged in energy management and automation solutions. Company F is headquartered in Rueil-Malmaison, France, and is listed on Euronext Paris.                                                                                               | 3.6%                     |
| 7    | Company G | Founded in 1911, Company G is a listed company primarily engaged in power distribution systems, UPS, and vehicle electrification. Company G is headquartered in Dublin, Ireland, and listed on the New York Stock Exchange.                                                                           | 3.6%                     |
| 8    | Company H | Founded in 2002, Company H is a listed company primarily engaged in energy solutions for digital infrastructure. Company H is headquartered in Sichuan, China, and listed on the Shenzhen Stock Exchange.                                                                                             | 1.6%                     |
| 9    | The Group | /                                                                                                                                                                                                                                                                                                     | 1.5%                     |
| 10   | Company I | Founded in 2000, Company I is a listed company primarily engaged in integrated environmental solutions for data services, industrial applications, and public buildings. Company I is headquartered in Guangdong, China, and listed on the Shenzhen Stock Exchange.                                   | 1.3%                     |

Source: Frost & Sullivan Analysis

### Competitive Landscape of China Carrier-Neutral Data Center Energy Management Solution Industry

In 2025, the number of market players in China’s carrier-neutral data center energy management solution industry is more than 1,000. Top 5 players in China’s carrier neutral data center energy management solution market accounted for 44.6% market share in 2025 in terms of sales revenue. The Group ranked fifth in China’s carrier-neutral data center energy management solution industry in terms of revenue in 2025, with a market share of 3.5%.

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### Top 5 Carrier-Neutral Data Center Energy Management Solution Company by Sales Revenue (China), 2025

| Rank | Company   | Identities or Background                                                                                                                                                                                                                                                                                     | Market Share (%)<br>2025 |
|------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1    | Company A | <i>Founded in 1987, Company A is a private company primarily engaged in information and communications technology (ICT) infrastructure and intelligent terminals. Company A is headquartered in Guangdong, China.</i>                                                                                        | 24.9%                    |
| 2    | Company B | <i>Founded in 2000, Company B is a listed company primarily engaged in critical digital infrastructure, offering comprehensive power, cooling, and IT infrastructure solutions and technical services. Company B is headquartered in Ohio, the United States, and listed on the New York Stock Exchange.</i> | 8.7%                     |
| 3    | Company D | <i>Founded in 1988, Company D is a listed company primarily engaged in data center services and energy solutions. Company D is headquartered in Fujian, China, and is listed on the Shenzhen Stock Exchange.</i>                                                                                             | 3.9%                     |
| 4    | Company E | <i>Founded in 1993, Company E is a listed company primarily engaged in integrated data center products, photovoltaic inverters, and UPS. Company E is headquartered in Guangdong, China, and listed on the Shenzhen Stock Exchange.</i>                                                                      | 3.7%                     |
| 5    | The Group | /                                                                                                                                                                                                                                                                                                            | 3.5%                     |

Source: Frost & Sullivan Analysis

### Entry Barriers

**Technology Barrier:** The data center energy management industry heavily relies on advanced technologies such as liquid cooling, intelligent scheduling algorithms, power optimization, and integrated energy storage systems. Leading companies maintain strong barriers through sustained R&D and patent accumulation, ensuring efficiency and system reliability. New entrants without proprietary technologies face difficulties meeting performance demands, long catch-up periods, and intellectual property risks.

**Client and Brand Barrier:** Major data center operators prioritize stability and reliability in energy systems, adopting a highly selective approach to suppliers. Established brands have built trust and loyalty through long-term cooperation, becoming preferred partners. In contrast, newcomers lacking proven track records and market validation struggle to secure key clients, creating significant entry barriers.

**Capital and Scale Barrier:** Projects in data center energy management demand large-scale capital investment and long implementation cycles, requiring strong financial strength for R&D, construction, and operations. Industry leaders leverage economies of scale to reduce costs and enhance bargaining power in procurement and integration. New entrants without sufficient capital or scale struggle to compete on pricing and efficiency.

**Supply Chain Barrier:** The sector of data center energy management depends on diverse components such as chips, power modules, and cooling systems, making supply chain integration and operational capabilities critical. Leading companies secure product reliability and service continuity through long-term partnerships with suppliers and operators. New entrants struggle to establish equally stable and efficient systems quickly, often falling behind in delivery and service quality.

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### Cost Analysis

Energy management solution providers usually purchase core components such as UPS, air conditioners, and generators, among other things, to deliver comprehensive services for data centers. Copper and steel account for a significant portion of the material costs of core components, and fluctuations in metal prices directly influence component prices. Consequently, they impact the overall costs of the solution providers. The price of copper increased from RMB48,899.2 per ton in 2020 to RMB81,075.7 per ton in 2025. The price of steel has decreased slightly each year since 2021, with a price of RMB4,205.3 per ton in 2025.

#### Prices of Raw Materials for Data Center Energy Management Equipment, 2020–2025

|                  | Units     | 2020     | 2021     | 2022     | 2023     | 2024     | 2025     |
|------------------|-----------|----------|----------|----------|----------|----------|----------|
| Copper . . . . . | RMB/Tonne | 48,899.2 | 68,654.6 | 67,410.3 | 68,328.3 | 74,951.4 | 81,075.7 |
| Steel . . . . .  | RMB/Tonne | 4,467.3  | 5,640.1  | 5,091.5  | 4,715.4  | 4,432.5  | 4,205.3  |

Source: London Metal Exchange, Frost & Sullivan Analysis