

Critical Power & Cooling Market to Reach USD 82 Billion by 2034, Driven by Data Center Demand & Technology Advancements

Enterprises' digital shift boosts demand for reliable power and cooling, driving growth in advanced data centers amid rising AI, cloud, and big data needs.

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The future of mission-critical infrastructure hinges on scalable, intelligent, and energy-efficient power and cooling systems." opines Nikhil Kaitwade, Associate Vice President at FMI NEWARK, DE, UNITED STATES, May 28, 2025

/EINPresswire.com/ -- The global <u>critical power and cooling</u> <u>market</u> is experiencing unprecedented momentum as organizations prioritize infrastructure resilience and operational continuity. Valued at USD 26.2 billion in 2024, the market is projected to reach USD 82 billion by 2034, growing at a robust CAGR of 12.1%. The rapid advancement of digital technologies and the surge in dataintensive operations are fueling demand for reliable power backup and efficient thermal management systems.

Enterprises across sectors from finance to manufacturing and healthcare—are transitioning toward digital-first strategies. This shift is increasing dependency on uninterrupted power and optimal cooling, particularly in data centers, telecommunication hubs, and mission-critical industrial environments. These facilities demand precision-engineered solutions that ensure reliability and efficiency.

As cloud computing, AI, and big data analytics become foundational to modern operations, the number and complexity of data centers have expanded significantly. This expansion has led to an urgent need for scalable power and cooling systems that can support high-density computing environments without compromising uptime or energy efficiency.

Furthermore, growing environmental consciousness and regulatory frameworks are pushing organizations to adopt greener, more energy-efficient infrastructure. As such, innovative cooling technologies and sustainable power systems are becoming essential components of critical facility design and operation.

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The report provides in-depth insights into market segments, technological trends, competitive landscape, and regional growth patterns. It includes data on:

- Market size and forecast (2024–2034)

- Regional and vertical-specific growth
- Technological advancements
- Competitive benchmarking and
- company profiles
- Strategic recommendations for stakeholders

The convergence of AI, edge computing, and growing global digitalization is redefining the operational demands placed on critical infrastructure, creating significant growth opportunities for power and cooling solutions.

The rising adoption of edge computing is decentralizing data processing, bringing it closer to the source of data generation. This trend reduces latency and boosts real-time analytics but also necessitates the deployment of robust localized power infrastructure.

Edge facilities, often located in remote or harsh environments, require highly reliable and compact critical power systems that can withstand challenging conditions while ensuring operational continuity.

Data consumption is exploding globally due to streaming, cloud services, and connected devices.



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This surge in data traffic generates significant heat loads, particularly in high-density server environments.

To address this, organizations are investing in advanced cooling technologies, such as liquid cooling and AI-optimized airflow systems, to maintain operational efficiency and reduce energy consumption.

As industries digitalize core operations, the tolerance for downtime has dropped to near-zero levels. This is compelling enterprises to adopt highly redundant and intelligent power backup solutions to ensure seamless operation.

UPS systems, modular power designs, and smart energy storage are now standard in new facility planning, making them a cornerstone of digital resilience strategies.

The global surge in AI, remote work, and digital infrastructure is radically transforming demand patterns for power and cooling solutions. Organizations now require systems that are not only reliable but also agile, efficient, and sustainable. With the rise of hyperscale and edge deployments, innovation in cooling and power technologies will be central to maintaining business continuity and competitiveness.

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Al and machine learning workloads are inherently power- and heat-intensive, placing enormous stress on legacy cooling systems. Traditional air-cooling methods are becoming insufficient for modern data loads.

To cope, companies are adopting liquid cooling and immersion cooling technologies, which offer superior thermal management and help reduce energy usage in AI-driven facilities.

The global shift to remote and hybrid work models has extended the edge of digital infrastructure to homes and co-working spaces. This demands a more distributed but reliable power ecosystem.

Enterprises are now investing in microgrids, portable UPS units, and smart backup systems that

ensure uptime for remote operations and decentralized workflows.

- Schneider Electric – A leader in digital energy management and automation, offering ecofriendly UPS and precision cooling.

- ABB – Provides advanced UPS systems and modular power solutions with intelligent control technologies.

- General Electric – Delivers resilient critical power systems for industrial and data center applications.

- Eaton Corporation – Specializes in scalable power backup systems and intelligent energy distribution solutions.

- Delta Electronics – Known for its high-efficiency cooling systems and integrated data center infrastructure.

- Socomec Group – Offers modular UPS systems and monitoring tools tailored for mission-critical environments.

The construction of hyperscale data centers, each hosting thousands of servers, is setting new benchmarks for thermal performance. These mega-facilities demand ultra-efficient, environmentally compliant cooling systems.

In response, providers are developing AI-assisted, liquid-based, and modular cooling solutions that meet the twin goals of uptime and sustainability, even in extreme heat zones.

- North America: Leads the market with extensive cloud infrastructure and early adoption of AI.
- Latin America: Experiencing steady growth driven by telecom and fintech industries.
- Western Europe: Strong emphasis on energy efficiency and green data centers.
- Eastern Europe: Growing investments in IT and telecom sectors.
- East Asia: Rapid data center expansion in China, Japan, and South Korea.
- South Asia & Pacific: Rising digital inclusion and startup ecosystem fuel demand.
- Middle East & Africa: Accelerated infrastructure modernization and smart city initiatives.

By Type:

- Uninterrupted power supply
- Generators
- Air conditioning
- Chilling units

By End-Use:

- Industrial
- Commercial
- IT & Telecommunication
- Transportation

global <u>sealless magnetic drive pump market</u> is to surpass USD 1,393.71 million, growing at a CAGR of 6.2%

The <u>fire rated cables market</u> is expected to increase steadily, reaching an estimated value of USD 1.9 billion in 2025 and is anticipated to reach around USD 2.8 billion by 2035

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