

Microgrid Market by Connectivity (Grid Connected, Off-grid), Offering (Hardware (Power Generators, Controllers, Energy Storage Systems), Software, Services), Power Source, End User, Power Rating and Region - Global Forecast to 2029

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Abstracts

The projected trajectory of the global microgrid market indicates significant expansion, with anticipated growth from USD 37.6 billion in 2024 to USD 87.8 billion by 2029, with a CAGR of 18.5% throughout the forecast period. This robust growth is underpinned by several compelling factors, including the imperatives of decarbonization, rural electrification imperatives, heightened focus on resilience, and the associated economic and environmental benefits, alongside mounting cybersecurity concerns. The market's potential for expansion is further underscored by a confluence of factors such as governmental interventions, ongoing technological innovations, the integration of electric vehicles, effective management of distributed energy resources, the application of artificial intelligence for microgrid optimization, and expanding utilization across industrial and commercial domains.

“Grid-connected microgrids expected to witness highest CAGR during the forecast period.”

The grid-connected segment is positioned to dominate the market share and demonstrate substantial expansion over the forecast duration. Grid-connected microgrids establish direct ties with the utility switching infrastructure at the point of common coupling (PCC), providing the capability to seamlessly connect and disconnect from the main grid as required. These microgrids integrate diverse distribution systems and sophisticated control mechanisms, thereby augmenting power quality, addressing environmental concerns, and bolstering grid resilience. Consequently, the demand for

grid-connected microgrids is anticipated to escalate owing to their heightened versatility and associated advantages.

“Microgrid software market likely to witness higher CAGR between 2024 and 2029.”

During the forecast period, the microgrid software market is anticipated to achieve the most substantial growth rate. The increasing complexity of microgrid systems, characterized by diverse energy sources, energy storage systems, and intelligent controls, necessitates advanced software solutions for effective management and optimization. Microgrid software offers comprehensive management functionalities, including energy flow control, load balancing, real-time monitoring, and predictive analytics, thereby facilitating the efficient and dependable operation of microgrids.

“Healthcare Facilities to witness second highest growth rate for the end-user segment during the forecast period.”

The healthcare facilities sector presents substantial growth prospects within the microgrid market, driven by critical power demands, opportunities for cost-effective energy solutions, a heightened focus on environmental sustainability, resilience and emergency preparedness imperatives, and supportive regulatory frameworks. Facilities such as hospitals and clinics necessitate reliable power sources crucial for patient care and safety. Uninterrupted power supply is indispensable for the operation of medical equipment, life support systems, refrigeration units for vaccines and medications, as well as for maintaining lighting and HVAC systems. Microgrids offer a resilient power infrastructure, ensuring continuous electricity provision even amidst grid outages or disturbances, thereby effectively meeting the critical power requisites of healthcare facilities.

“America is likely to hold the largest market share in 2024.”

The microgrid market within the Americas is segmented into North America and South America. As of 2024, North America accounted for 68.8% of the microgrid market share in the region. The dominance of the Americas in the microgrid market can be attributed to its technological innovation, favorable governmental regulations, prioritization of energy security, varied market prospects, and robust research and development initiatives. These factors collectively contribute to the region's prominent position within the microgrid market landscape.

Breakdown of primaries

Microgrid Market by Connectivity (Grid Connected, Off-grid), Offering (Hardware (Power Generators, Controllers...

A variety of executives from key organizations operating in the microgrid market were interviewed in-depth, including CEOs, marketing directors, and innovation and technology directors.

By Company Type: Tier 1 = 50%, Tier 2 = 30%, and Tier 3 = 20%

By Designation: C-level Executives = 35%, Directors = 30%, and Others (sales, marketing, and product managers, as well as members of various organizations) = 35%

By Region: Americas = 40%, Europe = 25%, Asia Pacific = 20%, and Rest of the World = 15%

Key players profiled in this report

Schneider Electric (France), General Electric (US), Siemens (Germany), Eaton (Ireland), ABB (Switzerland), Hitachi Energy Ltd. (Switzerland), Honeywell International Inc. (US), HOMER Energy (US), S&C Electric Company (US), Power Analytics Global Corporation (US) are the key players in the microgrid market. These leading companies possess a robust portfolio of products and services, establishing a strong presence in established and emerging markets. The study provides a comprehensive competitive analysis of these key players in the microgrid market, presenting their company profiles, recent developments, and key market strategies.

Research Coverage

This report offers detailed insights into the microgrid market based on Connectivity (Grid Connected, Off-grid connected), Offering (Hardware, Software, Services), Type (AC Microgrids, DC Microgrids, Hybrid), Pattern (Urban/Metropolitan, Semiurban, Rural Areas/ Islands), Power Source (Natural Gas, Solar PV, Combined Heat and Power, Diesel, Fuel Cell, and Others), Power Rating (Less Than 1 MW, 1 MW To 5 MW, >5 MW To 10 MW, and Above 10 MW), End User (Commercial & Industrial Buildings, Remote Areas, Institutes & Campuses, Government Buildings, Utilities, Military facilities, and Healthcare facilities), and region (Americas, Europe, Asia Pacific, and Rest of the World which includes the Middle East and Africa (MEA)) and Africa.

The report also comprehensively reviews the microgrid market drivers, restraints,

opportunities, and challenges. The report also covers qualitative aspects in addition to the quantitative aspects of these markets.

Reasons to buy the report:

The report will help the leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall market and the sub-segments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies. The report also helps stakeholders understand the microgrid market's pulse and provides information on key market drivers, restraints, challenges, and opportunities.

The report provides insights on the following pointers:

Analysis of key drivers (Increasing emphasis on decarbonization, Growing need for reliable, uninterrupted power supply; Surging deployment of microgrids for rural electrification, Growing instances of cyberattacks on energy infrastructure; Rising demand for EV charging infrastructure; Increasing need for demand response and load management capabilities, Economics and environmental advantage due to adoption of microgrids), restraints (High installation and maintenance costs of microgrids; Complexities in grid interconnections, Limited economies of scale), opportunities (Increasing number of microgrid projects across different industries; Surging energy demand and adoption of renewable energy in the Asia Pacific; Growing interest of investors in EaaS business model to minimize costs; Rising government support for microgrid projects; Digitalization and smart grid integration, Artificial intelligence (AI) enabled microgrid optimization) and challenges (Lack of standardization and regulatory frameworks related to microgrid operations; Technical challenges of microgrids operating in island mode; Complexities in standardizing the scalability of microgrids, Complexities in planning and design of large-sized microgrids).

Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product launches in the microgrid market

Market Development: Comprehensive information about lucrative markets – the report analyses the microgrid market across varied regions

Market Diversification: Exhaustive information about new products, untapped geographies, recent developments, and investments in the microgrid market

Competitive Assessment: In-depth assessment of market shares, growth strategies, and product offerings of leading players like Schneider Electric (France), General Electric (US), Siemens (Germany), Eaton (Ireland), ABB (Switzerland), Hitachi Energy Ltd. (Switzerland), Honeywell International Inc. (US), HOMER Energy (US), S&C Electric Company (US), Power Analytics Global Corporation (US) among others.

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