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Microgrid and Community-Scale Energy Systems Market Forecasts to 2034 – Global Analysis By Capacity Range (50 MW), Ownership & Operation Model, Technology, Application and By Geography

https://marketpublishers.com/r/M89E12FA184DEN.html
Date: June 2026
Pages: 200
Price: US$ 4,150.00 (Single User License)
ID: M89E12FA184DEN

Abstracts

According to Stratistics MRC, the Global Microgrid and Community-Scale Energy Systems Market is accounted for $111.3 billion in 2026 and is expected to reach $391.0 billion by 2034 growing at a CAGR of 17.0% during the forecast period. Microgrid and community-level energy systems refer to localized power networks that supply electricity to specific areas such as residential communities, institutions, or rural regions. They combine various distributed energy sources including solar, wind, energy storage, and conventional generators to provide dependable and flexible energy. These systems can function autonomously or remain connected to the central grid, improving resilience during power disruptions. By promoting clean energy usage, minimizing transmission inefficiencies, and enabling efficient energy control, they play a key role in modern energy infrastructure. Growing emphasis on sustainability and reliable power is accelerating their global adoption.

According to the U.S. Department of Energy (DOE), the United States has over 10 GW of installed microgrid capacity as of 2024, supporting hundreds of operational projects across healthcare facilities, military bases, data centers, and community infrastructure.

Market Dynamics:

Driver:

Rising demand for energy resilience and reliability

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Increasing instances of power disruptions due to severe weather, outdated grid systems, and cybersecurity risks are driving the need for dependable energy systems. Microgrid and community-scale setups offer localized electricity generation and storage, maintaining power supply even during central grid failures. Their ability to function independently strengthens energy resilience, especially for essential infrastructure like healthcare facilities, data hubs, and defense establishments. With growing emphasis on disaster readiness and stable electricity supply, governments and energy providers are promoting microgrid adoption. This trend is contributing to their rapid expansion in both developed cities and underserved or remote locations globally.

Restraint:

High initial capital investment

Microgrid and community-based energy systems involve considerable upfront expenses for installing equipment such as power generation units, storage solutions, and advanced control systems. These high initial costs create obstacles for adoption, particularly in smaller or economically constrained regions. While these systems can deliver cost benefits over time, the large initial investment often deters potential users. Furthermore, obtaining funding for such projects may be difficult due to uncertainties related to returns and project complexity. This financial challenge remains a key constraint, slowing down the expansion and implementation of microgrid technologies in both developed and emerging economies worldwide.

Opportunity:

Increasing adoption of electric vehicles and charging infrastructure

The rise in electric vehicle usage and the expansion of charging networks are creating strong opportunities for microgrid technologies. Charging stations need dependable and substantial power supply, which localized energy systems, can deliver effectively. By combining renewable generation with storage solutions, microgrids enable environmentally friendly and efficient charging operations. They also help balance demand during peak usage, reducing pressure on centralized grids. Supportive government policies and investments in EV infrastructure are further encouraging this trend. As electric mobility continues to grow worldwide, microgrid and community energy systems will become increasingly important in supporting sustainable transportation and energy distribution.

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Threat:

Competition from centralized grid expansion

Ongoing investments in improving traditional power grids present a challenge for microgrid adoption. Authorities and utility providers are enhancing centralized systems to boost performance, reliability, and integration of clean energy sources. In certain cases, expanding the main grid can be more economical than installing localized energy networks. This reduces the attractiveness of microgrid solutions, particularly in developed or urban regions. Furthermore, large utility companies may continue to favor centralized models over decentralized alternatives. As a result, the expansion of conventional grid infrastructure can restrict the growth and acceptance of microgrid and community-scale energy systems in various markets.

Covid-19 Impact:

The pandemic created both challenges and opportunities for the microgrid and community energy systems market. In the early stages, disruptions in supply chains, workforce limitations, and construction restrictions caused delays in project execution. Financial uncertainties further slowed investments in new installations. Despite these setbacks, the crisis emphasized the need for dependable and resilient energy infrastructure, particularly for essential services like hospitals. This realization increased interest in decentralized energy solutions. Governments incorporated energy reliability and sustainability into recovery strategies. Consequently, the market began to recover steadily, with rising demand for microgrid systems in the period following the pandemic worldwide.

The utility-owned microgrids segment is expected to be the largest during the forecast period

The utility-owned microgrids segment is expected to account for the largest market share during the forecast period because of their access to capital, existing infrastructure, and supportive regulatory frameworks. These organizations utilize their established grid networks, technical knowledge, and customer base to implement microgrid projects effectively. Their capability to connect decentralized systems with the main grid enhances efficiency, reliability, and control. Government support and incentives for upgrading energy infrastructure further strengthen their position. Utilities can deploy solutions on a larger scale across different regions. Their credibility and long-standing presence in the power sector also contribute to the growing adoption and

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stability of utility-led microgrid systems worldwide.

The disaster recovery & resilience hubs segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the disaster recovery & resilience hubs segment is predicted to witness the highest growth rate, driven by rising concerns over extreme weather events and emergencies. These systems ensure continuous power supply for essential operations such as medical services, disaster response, and communication during outages. Authorities and organizations are increasingly investing in resilient energy infrastructure to reduce risks and maintain critical functions. Microgrids play a vital role by enabling quick power restoration and maintaining independence from the central grid. Increased focus on emergency preparedness and climate resilience is accelerating their adoption worldwide.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share owing to its well-developed infrastructure, supportive policies, and early adoption of advanced technologies. The region sees strong investment in modernizing power grids, integrating renewable sources, and deploying energy storage systems. Rising climate-related disruptions have increased the need for dependable and resilient energy solutions. Government programs and the presence of leading companies facilitate widespread implementation of microgrid projects. Furthermore, increasing emphasis on environmental sustainability and energy independence in countries like the United States and Canada continues to reinforce North America’s leading role in this market globally.

Region with highest CAGR:

Over the forecast period, the Asia-Pacific region is anticipated to exhibit the highest CAGR, driven by increasing urban development, rising electricity consumption, and strong investments in renewable energy. Several countries are prioritizing electrification in remote locations, where decentralized systems offer practical advantages. Supportive government policies and efforts toward modernizing energy infrastructure are boosting adoption. Concerns related to energy reliability and environmental impact is also encouraging the use of sustainable solutions. Rapid development in major economies like China and India is further strengthening the region’s position as a key growth driver in the global microgrid market.

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Key players in the market

Some of the key players in Microgrid and Community-Scale Energy Systems Market include ABB, Siemens AG, General Electric, Eaton Corporation, Schneider Electric, Hitachi Energy, Honeywell International, Tesla, Caterpillar, W?rtsil?, Bloom Energy, Cummins, Ameresco, S&C Electric Company, PowerSecure, Engie EPS, Leclanch? and NRG Energy.

Key Developments:

In December 2025, ABB and HDF Energy have signed a joint development agreement (JDA) to co-develop a high-power, megawatt-class hydrogen fuel cell system designed for use in marine vessels. The project targets use of the system on various vessel types, including large seagoing ships such as container feeder vessels and liquefied hydrogen carriers.

In November 2025, Schneider Electric announced a two-phase supply capacity agreement (SCA) totaling $1.9 billion in sales. The milestone deal includes prefabricated power modules and the first North American deployment of chillers. The announcement was unveiled at Schneider Electric'sInnovation Summit North America in Las Vegas, convening more than 2,500 business leaders and market innovators to accelerate practical solutions for a more resilient, affordable and intelligent energy future.

In November 2025, Eaton announced it has signed an agreement to acquire the Boyd Thermal business of Boyd Corporation from Goldman Sachs Asset Management. Boyd Thermal is a leader in thermal components, systems and ruggedized solutions for data centers, aerospace and other end markets. Under the terms of the agreement, Eaton will pay $9.5 billion, which represents 22.5 times Boyd Thermal’s estimated adjusted EBITDA for 2026*.

Capacity Ranges Covered:

- 50 MW

Ownership & Operation Models Covered:

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- Utility-Owned Microgrids
- Community Cooperatives
- Independent Power Producers (IPPs)
- Public-Private Partnerships
- Third-Party Operators & ESCOs

Technologies Covered:

- Solar PV + Storage
- Wind-based Microgrids
- Diesel & Gas Hybrid Microgrids
- Fuel Cell & Hydrogen Microgrids
- Control Systems & Software

Applications Covered:

- Remote & Off-Grid Communities
- Urban Community Energy Systems
- Industrial & Commercial Campuses
- Military Bases & Critical Infrastructure
- Disaster Recovery & Resilience Hubs

Regions Covered:

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North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

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South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

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- Qatar
- Israel
- Rest of Middle East

Africa

- South Africa
- Egypt
- Morocco
- Rest of Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

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Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) Regions are also represented in the same manner as above.

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