



Guidehouse
INSIGHTS

Research Report

Executive Summary:

[Market Data: Energy as a Service Microgrids](#)

Market Segments and Regional Application Trends: 2021-2030

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Section 1

Executive Summary

1.1 Energy as a Service and Future Microgrid Markets

The business models used to deploy microgrids have achieved increased attention as microgrids gain traction and potential investors figure out their role in these markets, which are gaining significant momentum in North America and Asia Pacific especially. Advances in hardware and software technologies have been driving the microgrid market. The commoditization of solar PV and battery storage is making it more cost-effective to deploy microgrids. Integration with smart inverters and other controls—often used with optimization algorithms in the cloud—is also hastening a march toward more modularity.

This trend away from complexity and intense customization for every microgrid enables more standardized financing because portfolios of similar-scale microgrids address the perceived risks inherent in one-off projects. This standardization enables a more attractive value proposition to the financial community looking for scale, albeit in a different form than utility-scale solar or wind farms. In the case of microgrids, scale often translates into a portfolio of similar projects for a single company or within a single regulatory jurisdiction.

These trends set the stage for new energy as a service (EaaS) offerings in the microgrid space. Compared with 2010 when grid-tied microgrids predominantly served single customer campuses and military base microgrid applications, the collection of technologies composing a microgrid have matured. In the past, microgrids were too nascent for vendors to take on the performance risk embedded in a full-fledged EaaS offering. The fact that large vendors such as Schneider Electric and Siemens have created strategic partnerships with financial institutions for EaaS product offerings speaks to the growing mainstreaming of the microgrid market.

The combination of the commoditization of vital hardware components, especially batteries, and incorporation of AI and other sophisticated optimization techniques for controls makes microgrids ripe for market expansion. The missing piece is less fragmented financing and dependence upon government subsidies for microgrids serving critical facilities, communities, and utilities. The primary innovation with EaaS offerings as of early 2021 is focused on commercial and industrial (C&I) customers. Even though these customers typically have available capital, they are risk averse. They do not necessarily want to take on the risk of project performance and ongoing management of microgrids. In addition, larger firms often own portfolios of similar-sized building sites. Each of these factors make C&I customers appealing customers for initial launches of EaaS products.

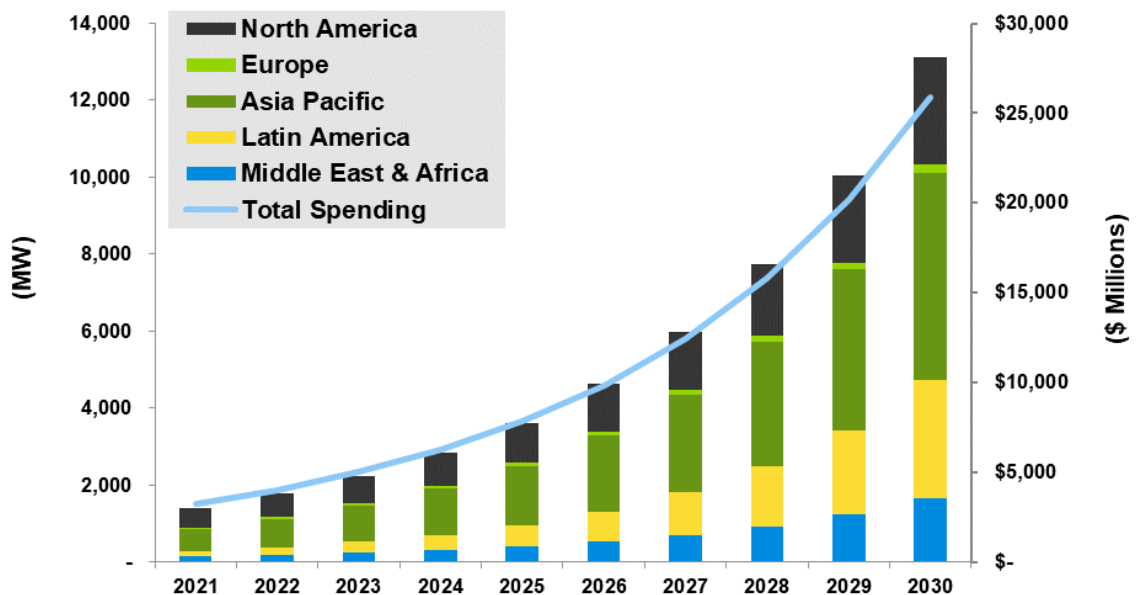
Nevertheless, the leading market for EaaS innovation has been the remote microgrid segment. These pioneering systems can only be viable with some form of EaaS without a full direct government subsidy or traditional rate-basing. Many remote microgrids rely upon grants from NGOs or governments for initial development. To keep operating, they rely upon pay as you go (PAYG) business models that mimic utility-customer relationships or mobile phone cards.

1.2 EaaS Microgrid Application Market Segments

Guidehouse Insights has been tracking business models used to deploy microgrids since 2018. Although any single project might use multiple financing approaches, an overriding model usually drives the anticipated outcome. The primary EaaS market segments included in this report’s market forecasts include: PAYG; power purchase agreements (PPAs); and advanced EaaS and energy savings performance contracts (ESPCs)/enhanced use leases.

The microgrid EaaS market represents a \$3.3 billion market in 2021. By 2030, annual spending is expected to reach \$25.9 billion annually. Cumulative spending is an astounding \$110.5 billion globally by 2030, with Asia Pacific emerging as the clear market leader.

Chart 1-1. Microgrid EaaS Capacity and Spending by Region, World Markets: 2021-2030



(Source: Guidehouse Insights)

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Scope of Study

Guidehouse Insights has prepared this *Market Data* report to provide participants in the microgrid market with forecasts for the portion of the market financed under the EaaS model. This report segments this overall market into four primary segments: PAYG, PPA, advanced EaaS, and ESPC/leasing. These business models are driving the market toward maturity, reflecting advances in software. More modular microgrids are also accelerating interest in EaaS across all major microgrid segments: institutional, C&I, community, remote, utility distribution, and tactical modular military systems.

All major global regions are included (North America, Europe, Asia Pacific, Latin America, and the Middle East & Africa), and the report examines a 10-year forecast period through 2030. Although the market forecast is shaped by updates to Guidehouse Insights' *Microgrid Deployment Tracker*, it undergoes a deep dive into projects identified as EaaS projects. This report draws on original Guidehouse Insights interviews and secondary research to make market forecast projections.

Sources and Methodology

Guidehouse Insights' industry analysts use a variety of research sources in preparing Research Reports. The key component of Guidehouse Insights' analysis is primary research gained from phone and in-person interviews with industry leaders including executives, engineers, and marketing professionals. Analysts are diligent in ensuring that they speak with representatives from every part of the value chain, including but not limited to technology companies, utilities and other service providers, industry associations, government agencies, and the investment community.

Additional analysis includes secondary research conducted by Guidehouse Insights' analysts and its staff of research assistants. Where applicable, all secondary research sources are appropriately cited within this report.

These primary and secondary research sources, combined with the analyst's industry expertise, are synthesized into the qualitative and quantitative analysis presented in Guidehouse Insights' reports. Great care is taken in making sure that all analysis is well-supported by facts, but where the facts are unknown and assumptions must be made, analysts document their assumptions and are prepared to explain their methodology, both within the body of a report and in direct conversations with clients.

Guidehouse Insights is a market research group whose goal is to present an objective, unbiased view of market opportunities within its coverage areas. Guidehouse Insights is not beholden to any special interests and is thus able to offer clear, actionable advice to help clients succeed in the industry, unfettered by technology hype, political agendas, or emotional factors that are inherent in cleantech markets.

Notes

CAGR refers to compound average annual growth rate, using the formula:

$$\text{CAGR} = (\text{End Year Value} \div \text{Start Year Value})^{(1/\text{steps})} - 1.$$

CAGRs presented in the tables are for the entire timeframe in the title. Where data for fewer years are given, the CAGR is for the range presented. Where relevant, CAGRs for shorter timeframes may be given as well.

Figures are based on the best estimates available at the time of calculation. Annual revenue, shipments, and sales are based on end-of-year figures unless otherwise noted. All values are expressed in year 2021 US dollars unless otherwise noted. Percentages may not add up to 100 due to rounding.

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