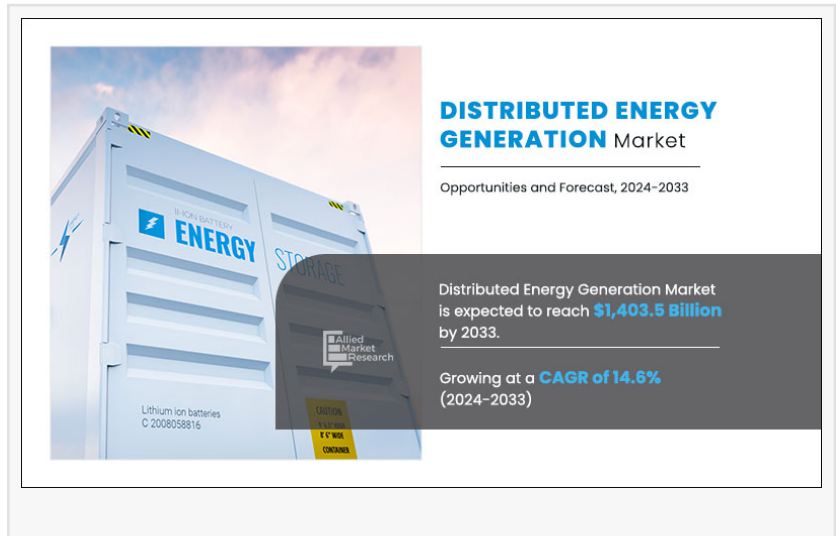


Emerging Trends in the Distributed Energy Generation Market: Decentralization and Smart Grids

Distributed Energy Generation Market projected to exceed \$1,403.5 billion by 2033

WILMINGTON, DE, UNITED STATES,
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According to a new published report by Allied Market Research, the global [distributed energy generation market](#) size was valued at \$360.4 billion in 2023 and is projected to reach \$1,403.5 billion by 2033, growing at a CAGR of 14.6% from 2024 to 2033.



Distributed energy generation (DEG) systems are used near solar power plants and power plants, which use combustion turbines to generate electricity. Distributed energy generation can power a single structure, such as a home or company, or it can be part of a microgrid system, such as at a big industrial complex, military base, or university campus.



Increased environment awareness, government policies, and green house gas emission reduction targets are the key factors boosting the Distributed Energy Generation Market growth.”

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Asia-Pacific region accounted for the largest share of the market in 2023 as well as was the fastest-growing region. The Asia-Pacific region dominated the distributed energy generation market in 2023 due to its rapid

industrialization, growth in population, and increase in energy demand.

Favorable government policies promoting renewable energy adoption also contributed,

alongside advancements in technology and infrastructure development, driving the region's DEG market growth.

The [distributed energy generation industry report](#) is consolidated in nature with a few players, such as Siemens, General Electric, Mitsubishi Electric Corporation, Schneider Electric, Caterpillar Power Plants, Doosan Corporation, Vestas Wind Systems A/S, Rolls-Royce Power Systems AG, Toyota Turbine and Systems Inc. and Capstone Turbine Corporation, which holds a significant share of the market.

An increase in government regulations and targets for reducing greenhouse gas (GHG) emissions boosts the growth of the distributed energy generation market during the forecast period.

Several states and municipal governments are developing policies to encourage increased deployment of renewable technology due to the obvious benefits of renewable technologies, such as energy security, resiliency, and carbon reductions.

Increased R&D initiatives for the development of new technologies are also expected to drive market growth.

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Traditional power generation techniques are expensive when compared with DEG systems. As a result, the demand for a clean source of energy, combined with the cheap cost of the products, is expected to boost market expansion during the forecast period.

Advances in digitalization and Internet of Things (IoT) technologies offer new avenues for optimizing energy efficiency and enhancing grid management.

The increasing focus on sustainability and carbon reduction goals drives demand for clean energy solutions, creating a favorable environment for distributed generation technologies.

Collaborations between utilities, technology providers, and energy consumers pave the way for innovative business models and grid modernization initiatives.

The rise of prosumers and community-based energy projects foster a decentralized energy ecosystem, empowering local communities and driving the transition towards a more resilient and sustainable energy landscape.

Regulatory barriers and policy uncertainties create obstacles for market expansion and investment in decentralized energy projects. Limited access to financing and high upfront costs hinders the widespread adoption of distributed generation technologies, especially in emerging markets.

Grid integration issues and inadequate infrastructure pose technical challenges for seamless integration of [decentralized energy sources](#) into existing systems.

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Additionally, concerns regarding cybersecurity and data privacy present significant risks for the deployment of smart grid solutions, impeding the full potential of distributed energy generation.

By technology, the distributed energy generation market is segmented into micro-turbines, combustion turbines, micro-hydropower, reciprocating engines, fuel cells, wind turbines, solar PV, and others.

The fuel cells segment accounted for the largest share in 2023, while the solar PV segment is projected to grow at the highest CAGR of 17.6%.

Fuel cells are expected to dominate due to their versatile applications across industries, offering clean and efficient energy solutions. Furthermore, solar PV's rapid growth stems from declining costs, government incentives, and increase in environmental consciousness, driving substantial investments and adoption of renewable energy projects.

By end-use industry, the market is divided into residential, commercial, and industrial.

The industrial segment accounted for the largest distributed energy generation market share in 2023, while the commercial segment is projected to be the fastest-growing segment at a CAGR of 16.3%.

The industrial segment holds the largest share in the distributed energy generation market due to its substantial energy demands and the need for reliable, cost-effective power sources.

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The commercial sector is experiencing the fastest growth as businesses increasingly adopt distributed generation to enhance energy efficiency and sustainability, driven by regulatory incentives and technological advancements.

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Pawan Kumar, the CEO of Allied Market Research, is leading the organization toward providing high-quality data and insights. We are in professional corporate relations with various companies and this helps us in digging out market data that helps us generate accurate research data tables and confirms utmost accuracy in our market forecasting. Each and every data presented in the reports published by us is extracted through primary interviews with top officials from leading companies of domain concerned. Our secondary data procurement methodology includes deep online and offline research and discussion with knowledgeable professionals and analysts in the industry.

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