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Smart Grid Market by Component (Software, Hardware, Services), Application (Generation, Transmission, Distribution, Consumption), Communication Technology (Wireline, Wireless), & Region(North America, Europe, APAC, ROW) - Global Forecast to 2029

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Abstracts

The smart grid market is estimated to grow from USD 185.0 billion by 2029 from an estimated USD 71.8 billion in 2024, at a CAGR of 20.8% during the forecast period. Innovation in technology and a rise in smart grid installations are two main drivers of the smart grid industry's expansion. These days, smart grid are more and more common in the grid market because of their reliability, and efficient outage response. The smart grid market is expected to grow because of the focus on modernization of aging grid infrastructure .

“Software segment is the largest segment of the smart grid market, by component”

Based on component, the smart grid market has been split into three types: software, hardware, and services. The increase in intelligent utility grids installations and the world's transition to reduce unplanned downtime and production cost are driving growth in the smart grid market's software segment. Grid Operators are encouraged to invest in smart grid systems by government ensure effective management of smart grid operations, improve process efficiency, and reduce energy production costs.

“Transmission is expected to emerge as the fastest-growing segment based on application segment”

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Based on application, the smart grid market has been segmented into generation,transmission, Distribution and consumption . The smart grid market's transmission segment is expanding at the fastest pace because it is in line with the changing energy landscape. An efficient automated transmission network can carry energy from bulk generation facilities to power distribution systems when required. Transmission of power from the generating station to the distribution system has appropriate communication interfaces with the effective participation of the system operator.

“Europe is expected to emerge as the Second largest region based on Smart grid market”

By region, the smart grid market has been segmented into Asia Pacific, North America, South America, Europe, and Middle East & Africa. In the region, the smart grid market is expanding in Europe because of the region's rapid economic expansion, growing industrialization, and strong emphasis on the efficient energy utilization. With their aggressive clean energy goals, nations like UK, Germany, and France are driving the market and creating demand for Smart grid for their grid projects. The region's supremacy is a result of rapid urbanization, rising electrification, and government measures encouraging sustainable technologies. Demand for smart grid installations is also fueled by Europe's expanding energy class. The region is positioned as a key player in the global smart grid market thanks to its aggressive dedication to energy solutions.

“Wireline is expected to be the largest segment based on communication technology”

The wireline is the largest segment in the market as it is comparatively cost efficient and this type of transmission is less prone to third-party intrusions and interruptions. Wireline communication, encompassing fiber optic, Ethernet, and powerline carriers, dominates smart grid communication technology due to its high performance, reliability, and extensive coverage. Fiber optic technology, favored for distribution automation and substation use, supports high bandwidth and speeds up to 10 Gbps with single wavelength and up to 1,600 Gbps using WDM, making it the largest segment in the market.

Breakdown of Primaries:

In-depth interviews have been conducted with various key industry participants, subject-matter experts, C-level executives of key market players, and industry consultants,

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among other experts, to obtain and verify critical qualitative and quantitative information, as well as to assess future market prospects. The distribution of primary interviews is as follows:

By Company Type: Tier 1- 45%, Tier 2- 30%, and Tier 3- 25%

By Designation: C-Level- 35%, Director Levels- 25%, and Others- 40%

By Region: North America- 27%, Europe- 20%, Asia Pacific- 33%, the Middle East & Africa- 12%, and South America- 8%

Note: Others include product engineers, product specialists, and engineering leads.

Note: The tiers of the companies are defined on the basis of their total revenues as of 2021. Tier 1: > USD 1 billion, Tier 2: From USD 500 million to USD 1 billion, and Tier 3: The smart grid market is dominated by a few major players that have a wide regional presence. The leading players in the smart grid market are General Electric Company (US), ABB (Switzerland), Siemens (Germany), Schneider Electric (France), and Itron (US)

Research Coverage:

The report defines, describes, and forecasts the smart grid market, by component, application, communication technology, and region. It also offers a detailed qualitative and quantitative analysis of the market. The report provides a comprehensive review of the major market drivers, restraints, opportunities, and challenges. It also covers various important aspects of the market. These include an analysis of the competitive landscape, market dynamics, market estimates, in terms of value, and future trends in the smart grid market.

Key Benefits of Buying the Report

Increasing investments in smart energy sector and rising number of Improved grid reliability and efficient outage response attributed.

Product Development/ Innovation: The trends such as ERT Meter Reading, Power Line Carrier (PLC) Migration and real time monitoring.

Market Development: The global scenario of smart grid has developed due to a

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global shift towards sustainable energy solutions, increased adoption of renewable sources like solar and wind power, technological advancements enhancing efficiency, and the growing demand for electric vehicles. These factors collectively propel innovation, creating a dynamic landscape for inverter technologies to meet evolving energy demands.

Market Diversification: Market diversification in the smart grid market is a response to varied energy needs across industries and regions. As renewable energy adoption expands, diverse applications emerge, from power station to utility-scale projects. Smart grid manufacturers diversify their product offerings to cater to the specific requirements of different sectors, fostering market growth and resilience.

Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players like General Electric Company (US), ABB (Switzerland), Siemens (Germany), Schneider Electric (France), and Itron (US)among others in the Inverter market.

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