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Substation Automation Market Research Report - Forecast to 2030

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Description:

Global Substation Automation Market Overview

Substation Automation Market Size was valued at USD 27.29 Billion in 2022. The Substation Automation industry is projected to grow from USD 30.94 Billion in 2023 to USD 60.15 Billion by 2030, exhibiting a compound annual growth rate (CAGR) of 8.66% during the forecast period (2023 - 2030). Substation Automation refers to the integration of digital technologies into substations in the electrical power transmission and distribution system. The goal of substation automation is to improve the reliability, efficiency, and safety of the power grid. This is achieved through the use of advanced control systems, communication networks, and sensors, which allow for real-time monitoring and control of the substation equipment. The data collected from these systems is analyzed to identify potential issues and prevent problems from occurring. Additionally, substation automation systems allow for remote monitoring and control of the substation, reducing the need for manual inspection and maintenance. The use of substation automation technologies can lead to improved system performance, reduced downtime, and reduced maintenance costs, making it an important component of modern electrical power grids.

Substation Automation Market Overview

Source: Secondary Research, Primary Research, MRFR Database, and Analyst Review

Substation Automation Market Trends

- Increasing investment by the government to boost the market growth

Governments around the world are investing in the development and modernization of their electrical power grids, to meet the increasing electricity demand and improve the reliability of the power supply. This investment includes the development of advanced technologies such as substation automation, which is seen as an important step in achieving these goals. By investing in substation automation, governments can improve the efficiency, safety, and reliability of their power grids, and also reduce their dependence on manual inspection and maintenance processes. The increasing government investment in substation automation is expected to drive the growth of the market.

Substation Automation Market Segment Insights

Substation Automation Component Insights

The market segmentation, based on Component, includes Load tap controller, Smart meter, Capacitor bank controller, Recloser controller, and Others. The Smart meter segment held the majority share in 2022, contributing to the global Substation Automation revenue. Smart meters are advanced metering devices that allow for real-time monitoring and control of electricity usage. They provide two-way communication between the meter and the substation, allowing for remote monitoring and control of the power supply.

Substation Automation Communication Insights

Based on Communication, the market segmentation includes Optical fiber communication channels, Power line communication channels, Copper wire communication channels, Ethernet, and Others. The Ethernet segment dominated the market in 2022. Ethernet is a widely used communication technology that is playing an increasingly important role in the market. Ethernet provides a fast and reliable communication network that enables the exchange of data between different components of the substation automation system.

Substation Automation Module Insights

Based on the Module, the market segmentation includes Communication networks, Intelligent electronic devices, SCADA, and Others. The Communication networks segment dominated the market in 2022. Communication networks are used to connect different devices, such as sensors, actuators, and control systems, and provide real-time information about the state of the substation. They are also used to transfer control signals, allowing operators to control the substation remotely. The widespread adoption of communication networks in substations is a result of their ability to improve the efficiency, reliability, and safety of the electrical power grid.

Substation Automation End-User Insights

Based on End-User, the market segmentation includes the Steel industry, Mining industry, Transportation industry, Utility industry, and Others. The Utility industry segment is projected to be the faster-growing segment during the forecast period, 2023-2030. The utility industry includes the generation, transmission, and distribution of electrical power, and is responsible for maintaining the electrical power grid. The increasing electricity demand, combined with the need to improve the efficiency, reliability, and safety of the power supply, is driving the growth of the utility industry and the market.

Figure 2: Substation Automation Market, by Module, 2022 & 2030 (USD Million)
Substation Automation Market, by Module, 2022 & 2030
Source: Secondary Research, Primary Research, MRFR Database, and Analyst Review

Substation Automation Regional Insights

By region, the study provides market insights into North America, Europe, Asia-Pacific, and the Rest of the World. North America is one of the leading regions in the market and is expected to continue to dominate the market in the coming years. The North American region is home to some of the world's largest electric utilities and energy companies, as well as many advanced technology companies that specialize in substation automation. The region has a highly developed electrical power grid and a long history of investment in advanced technologies, making it a prime market for substation automation. Additionally, the North American market is characterized by a strong focus on innovation and a commitment to improving the efficiency, reliability, and safety of the power supply. As a result, North America is expected to continue to play a leading role in the growth of the market.

Figure 3: SUBSTATION AUTOMATION MARKET SHARE BY REGION 2022 (%)
SUBSTATION AUTOMATION MARKET SHARE BY REGION 2022
Source: Secondary Research, Primary Research, MRFR Database, and Analyst Review

Substation Automation Key Market Players & Competitive Insights

Major market players are spending a lot of money on R&D to increase their product lines, which will help the Substation Automation market grow even more. Market participants are also taking various strategic initiatives to grow their worldwide footprint, with key market developments such as new product launches, contractual agreements, mergers and acquisitions, increased investments, and collaboration with other organizations. Competitors in the Substation Automation industry must offer cost-effective items to expand and survive in an increasingly competitive and rising market environment.

Manufacturing locally to cut operating costs is one of the main business tactics manufacturers use in the global Substation Automation industry to benefit customers and expand the market sector. Major market players, including Toshiba Corporation, Texas Instruments, Larsen & Toubro Limited, Encore Networks, EATON Corp, and others, are attempting to increase market demand by funding R&D initiatives.

Texas Instruments Incorporated (TI) is an American technology company that designs and manufactures semiconductors and other electronic components. The company supplies a wide range of products, including microcontrollers, analog integrated circuits, and embedded processors. These products are used in a variety of applications, including consumer electronics, automotive systems, industrial control systems, and medical devices. In addition to its focus on semiconductors, TI is also involved in the development and manufacture of other electronic components, including power management products, data converters, and interface products. The company is known for its innovation and is constantly working to develop new and improved products.

Larsen & Toubro Limited (L&T) is an Indian multinational conglomerate headquartered in Mumbai, India. It was founded in 1938 and has since grown into one of the largest engineering and construction companies in India. The company operates in several different industries, including engineering, construction, information technology, and financial services. In the engineering and construction sector, L&T is involved in the design, construction, and commissioning of a wide range of projects, including power plants, oil and gas facilities, infrastructure projects, and industrial facilities. The company is known for its high-quality work and innovative approach to project management and has a strong reputation for delivering projects on time and within budget. In addition to its engineering and construction activities, L&T is also involved in a range of other businesses, including information technology, financial services, and manufacturing.

Key Companies in the Substation Automation market include

- SAE IT-Systems GmbH & Co
- Toshiba Corporation
- Texas Instruments
- Larsen & Toubro Limited
- Encore Networks
- EATON Corp
- General Electric
- ABB Group
- Siemens
- Schneider Electric

Substation Automation Industry Developments

January 2021 SEL announced the launch of the new SEL-3350 Automation Controller designed for applications that require midlevel I/O and computation. SEL-3350 can withstand harsh environments in utility substations, industrial control systems, and automation systems.

December 2020 Hitachi ABB Power Grids announced the launch of the new Remote Terminal Unit (RTU) 530 which extends the life of existing power distribution networks and supports the migration to modern technologies with enhanced security features, including secure communication, encryption, and security logging.

Substation Automation Market Segmentation

Substation Automation Component Outlook

- Load tap controller
- Smart meter
- Capacitor bank controller
- Recloser controller
- Others

Substation Automation Communication Outlook

- Optical fiber communication channel
- Power line communication channel
- Copper wire communication channel
- Ethernet
- Others

Substation Automation Module Outlook

- Communication networks
- Intelligent electronic devices
- SCADA
- Others

Substation Automation End-User Outlook

- Steel industry
- Mining industry

- Transportation industry
- Utility industry
- Others

Substation Automation Regional Outlook

- North America
    - US
    - Canada
- Europe
    - Germany
    - France
    - UK
    - Italy
    - Spain
    - Rest of Europe
- Asia-Pacific
    - China
    - Japan
    - India
    - Australia
    - South Korea
    - Australia
    - Rest of Asia-Pacific
- Rest of the World
    - Middle East
    - Africa
    - Latin America

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