

Gas Insulated Switchgear Market – Global Industry Size, Share, Trends, Opportunity, and Forecast 2018-2028F. Segmented By Type (High Voltage and Medium Voltage), By Installation (Indoor, Outdoor), By Insulation Type (SF6, and SF6-Free), By End-User (Transmission & Distribution, Manufacturing, Transportation, Commercial Sites, Others), By Region

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Abstracts

Global Gas Insulated Switchgear market is expected to grow at a robust pace in the forecast period 2024-2028. With the increase in trend towards renewable energy sources and lower costs than other renewable energy sources, the development of wind farms is increasing rapidly. Wind power stations use medium voltage switchgear that is gas-insulated. Wind generators located in remote places are safeguarded by medium voltage switchgear with a maximum 35 kVA capacity. Modernizing grid networks would encourage the construction of cutting-edge electrical machinery and controls, such as substations with gas-insulated switchgear.

Gas-insulated switchgear (GIS) is a compact, metal-enclosed switchgear consisting of high-voltage components such as circuit breakers and disconnectors that can be safely operated in confined spaces. GIS is used in areas with limited space such as extensions, urban buildings, rooftops, offshore platforms, industrial plants, and hydroelectric power plants. A Gas Insulated Substation (GIS) differs from an air insulated substation. GIS does not include busbars, circuit breakers, current transformers, voltage transformers, and other substation equipment. All substation equipment are housed in SF6 modules filled with SF6 gas. SF6 gas with high dielectric properties acts as an insulating medium in high or ultra-high voltage switchgear. Gas-insulated substations (GIS) are generally indoor substations because they occupy

1/10th of the space required by traditional substations. Therefore, these Gas Insulated Substations (GIS) are best suited when the substation area is small. The main advantage of this gas-insulated switchgear is its compact size due to the high dielectric strength of SF₆ gas. Moreover, the availability and reliability of GIS substations is higher than that of air-insulated substations (probability of failure is higher in air-insulated substations or conventional substations). Therefore, GIS substations are placed where high power reliability is required, such as nuclear power plants and other critical facilities where uninterruptible power supplies are more needed.

Rising Energy Consumption and Government Initiatives Propelling the Demand For Gas Insulated Switchgear Across The Globe

There is an increase in investments which are driven by rising energy consumption and increasing capacity, especially in growing economies that need to generate electricity. China, Japan, and India are investing in grid expansion projects to improve the reliability of their distribution systems. In addition, India, China, and Indonesia are actively investing in hydropower projects. This, in turn, would increase spending in the transmission and distribution sector by connecting renewable energy sources to the grid which in turn would increase the demand for insulated switchgear.

Continuous support from governments in both developing and developed economies, strong net-zero goals set by nations responsible for 90% of the world's GDP, and increased wind and solar PV competitiveness are all factors promoting the growth of renewable energy. As a result of China's commitment to becoming carbon neutral by 2060, new short-term objectives have been set, such as achieving 1,200 GW of combined wind and solar PV capacity by 2030. The trend of renewable capacity growth from 2021 to 2026 indicates that renewable power growth in the European Union will exceed what the current National Energy and Climate Plans (NECPs) forecast for 2030. Larger auction volumes are being implemented by member nations, more renewable electricity is being purchased by businesses, and significant solar panel installations are still being made by households. Demand for renewable energy is expected to increase, thus driving the market demand for Global Gas Insulated Switchgear Market.

Increasing Installation of GIS

The increasing installation of GIS instead of traditional Air-Insulated Substations (AIS) is that they are indoor substations, and the equipment uses sulfur hexafluoride gas (an insulating medium) which is stored in the module. They require significantly less space (approximately 35% less than AIS substations), have lower maintenance costs, and

have lower failure rates. GIS breaker and disconnect switch failure rates are one-fourth those of AIS. In addition, since the GIS is housed in a metal case, it creates less noise and can be used safely. The initial cost of GIS is about 50% higher than AIS, but the total investment cost is comparable when considering the cost of land. Thus, these properties and advantages over AIS are expected to drive the market growth for Global Gas Insulated Switchgear.

Latest Projects and Investment Fueling the Global Gas Insulated Switchgear Market Growth During the Forecast Period

In February 2023, ABB India opened a new state-of-the-art plant in Nashik, doubling its production capacity for Gas Insulated Switchgear (GIS). This factory produces primary and secondary GIS. The new facility covers 78,000 square feet and features smart, lean manufacturing capabilities. Advanced robotics can be used in manufacturing to connect people, processes, and equipment and relay real-time data to improve productivity. Designed to Indian Green Building Council (IGBC) standards, this green factory building would optimize water and energy use.

In 2019, ABB signed a four-year framework agreement worth more than USD100 million with Terna, the Italian transmission system operator (TSO) responsible for securing and distributing electricity throughout Italy. Terna used ABB's advanced technology to strengthen Italy's power grid. The contract includes the supply of ABB's Gas Insulated Switchgear (GIS). This is expected to be a solution that can significantly reduce the equipment footprint to just one-tenth that of air-insulated switchgear.

In 2022, GE Renewable Energy's Grid Solutions (NYSE-GE) unveiled the world's first prototype 420 kV, 63 kA g² circuit breaker for gas-insulated substations (GIS). GE's 420kV fully gas insulated G3 substation (GIS) incorporating G3 circuit breakers is expected to be commercial in 2023. This new circuit breaker is based on GE's gas isolation and switching technology. G3 technology allows GE to build electrical appliances with the same high performance and compact size as traditional SF6 products with a 99% reduction in carbon footprint. GE's development of the 420 kV circuit breaker G3 is a historic milestone for the energy industry as it will enable utilities to accelerate the decarbonization of the power grid.

In 2021, National Grid signed a six-year project worth around USD1 billion to

rewire South London through 20 miles of deep underground tunnels. To connect underground cables to the power and distribution grids, Linxon designed, supplied, installed, and commissioned connection panels at two sites at National Grid's existing substations, and retrofitted at two other sites. Insulated switchgear seven-bay upright (GIS) substation on Bengeworth Road to facilitate power supply to Southeast London. As a major contributor to the London Power Tunnel 2 (LPT2) project, Linxon would join National Grid's Project 13 Enterprise. This business model aims to increase safety and productivity at deployment, improve outcomes throughout the life of the asset, and support a more sustainable, innovative, and highly skilled industry.

In March 2023, Siemens announced investment of around USD30 million in the expansion of its switchgear plant in Frankfurt-Fechenheim. A smart, fully automated high-speed warehouse and 1,200-square-meter extension of the existing hall is being built on a 160,000-square-meter site. Additionally, the production area is expected to support 1/3 of the switchgear assembly line which shall strengthen the site and create new jobs in the area. The factory shall expand production of environmentally friendly medium voltage switchgear and two new buildings shall have a roof with a solar power system. Construction of a smart, fully automated high-speed warehouse is planned to be completed by Spring 2024. This warehouse supplies pre-picked materials to production lines just-in-time, making production even more efficient. In addition, a new hall will be built to increase the production capacity of environmentally friendly high voltage switchgear. The Frankfurt-Fechenheim plant has been manufacturing such gas-insulated switchgear since 2018.

Market Segmentation

The Global Gas Insulated Switchgear Market is segmented based on type, installation, insulation type, end-user, and region. Based on type, the market is bifurcated into high voltage and medium voltage. Based on installation, the market is further bifurcated into indoor and outdoor. Based on insulation type, the market is bifurcated into SF6, and SF6-Free. Based on end-user, the market is further bifurcated into transmission & distribution, manufacturing, transportation, commercial sites, and others. Based on region, the market is further bifurcated into North America, Asia-Pacific, Europe, South America, and Middle East & Africa.

Market players

The main market players in the Global Gas Insulated Switchgear Market are ABB Group, Siemens AG, Hyosung Corporation, CG Power and Industrial Solutions Limited (Avantha Group), Fuji Electric Co. Ltd., Hitachi Ltd., Tenaga Switchgear Sdn. Bhd., Mitsubishi Electric Corporation, Schneider Electric Se, Toshiba Corporation.

Report Scope:

In this report, Global Gas Insulated Switchgear Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Gas Insulated Switchgear Market, By Type:

High Voltage

Medium Voltage

Gas Insulated Switchgear Market, By Installation:

Indoor

Outdoor

Gas Insulated Switchgear Market, By Insulation Type:

SF6

SF6-Free

Gas Insulated Switchgear Market, By End-User:

Transmission & Distribution

Manufacturing

Transportation

Commercial Sites

Others

Gas Insulated Switchgear Market, By Installation:

Indoor

Outdoor

Gas Insulated Switchgear Market, By Region:

North America

United States

Canada

Mexico

Asia-Pacific

India

Japan

South Korea

Australia

China

Europe

Germany

United Kingdom

France

Italy

Spain

South America

Brazil

Argentina

Colombia

Middle East

Saudi Arabia

South Africa

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Gas Insulated Switchgear Market.

Available Customizations:

Global Gas Insulated Switchgear Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to ten).

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