

# **Excitation Systems Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Type (Static, Brushless), By Application (Synchronous Generator, Synchronous Motors), By Region, By Competition, 2020-2030F**

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## **Abstracts**

### **Market Overview**

The Global Excitation Systems Market was valued at USD 3.3 billion in 2024 and is anticipated to reach USD 4.8 billion by 2030, growing at a CAGR of 6.2% during the forecast period. The market is driven by the increasing need for reliable and uninterrupted power supply in industrial and utility sectors, where excitation systems ensure the stable performance of synchronous generators. Modernization of power grids across both developed and emerging economies is further boosting demand for advanced excitation solutions that enhance voltage stability and system efficiency. The growing integration of renewable energy sources, such as hydro, solar, and wind, is adding complexity to grid operations, thereby increasing reliance on excitation systems for stable integration. Technological advancements like digital control features, SCADA compatibility, and real-time monitoring are improving system performance and encouraging adoption. Additionally, rapid industrialization in countries like India and China, along with the growing use of synchronous machines in power and industrial applications, is fueling sustained growth in the market.

### **Key Market Drivers**

Rising Demand for Reliable and Uninterrupted Power Supply Across Industrial and Utility Sectors

The global excitation systems market is being significantly driven by the escalating need for a dependable and consistent power supply across industrial, commercial, and utility applications. With ongoing urbanization and industrial expansion, the reliance on electricity has surged across sectors such as oil & gas, data centers, manufacturing, and healthcare. These industries demand highly stable power systems to avoid downtime, operational disruptions, and costly equipment damage. Excitation systems are essential in maintaining such system stability and reliability. For instance, the State Grid Corporation of China announced a USD 250 billion investment plan over five years aimed at upgrading electric power infrastructure, allocating USD 45 billion specifically to smart grid technologies. Such investments are expected to strengthen grid stability and support the growth of excitation systems.

## **Key Market Challenges**

### **High Initial Capital Costs and Complex Integration with Existing Infrastructure**

A major constraint for the global excitation systems market is the substantial upfront investment required for modern systems, particularly static or digital variants. These systems not only involve high equipment costs but also incur expenses related to engineering, testing, installation, and commissioning. This can pose significant financial hurdles for small to medium-scale power facilities and budget-constrained utilities. Additionally, older infrastructure may not be compatible with new excitation technologies, requiring costly retrofits or custom engineering. Integration often involves downtime, complex technical adjustments, and the need for skilled labor, all of which further escalate costs. In cost-sensitive regions or regulated markets, where ROI is a critical consideration, operators may be reluctant to replace legacy systems, opting instead to maintain less efficient manual or brushless setups.

## **Key Market Trends**

### **Shift Toward Digital and Fully Automated Excitation Systems**

The transition toward digital and automated excitation systems is a defining trend in the global market. These systems are gaining traction due to their ability to deliver real-time control, improve operational reliability, and enable remote management. As modern power grids become increasingly complex—integrating renewable energy and distributed sources—the need for smart, adaptive excitation solutions is rising. Digital systems offer precise voltage control, fast response to disturbances, and advanced safety features like auto-tuning and diagnostic functions. Additionally, modern excitation systems

incorporate microprocessor-based controllers and support communication standards like IEC 61850 and Modbus, making them compatible with SCADA systems and smart grid platforms. This enhances operational visibility and remote accessibility. Integration with asset management tools also enables predictive maintenance and lifecycle optimization, improving system reliability and return on investment.

## **Key Market Players**

ABB Ltd

Siemens AG

General Electric Company

Andritz AG

Voith Group

Amtech Power Ltd

Basler Electric Co.

TENEL SRO

## **Report Scope:**

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

Excitation Systems Market, By Type:

Static

Brushless

Excitation Systems Market, By Application:

Synchronous Generator

Synchronous Motors

Excitation Systems Market, By Region:

North America

United States

Canada

Mexico

Europe

Germany

France

United Kingdom

Italy

Spain

Asia Pacific

China

India

Japan

South Korea

Australia

South America

Brazil

Colombia

Argentina

Middle East & Africa

Saudi Arabia

UAE

South Africa

## **Competitive Landscape**

Company Profiles: Detailed analysis of the major companies present in the Global Excitation Systems Market.

## **Available Customizations:**

Global Excitation Systems 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 five).

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