Excitation System Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 125 pages | Mordor Intelligence

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Report description:

The excitation system market is expected to record a CAGR of over 4.35% during the forecast period (2022 - 2027). The COVID-19 outbreak impacted the power industry globally. Due to the current scenario, various excitation system manufacturers worldwide shut down their manufacturing facilities and services as countries like the United States, China, and India practiced partial or full lockdown to deal with the pandemic. This factor resulted in the declination of excitation system sales worldwide. The ability to ensure reliable long-term operations for synchronous machines is one of the major factors expected to drive the market's growth. Growing investments in renewable energy plans, i.e., growing demand for excitation systems in solar and wind power applications, are expected to drive the market during the forecast period. However, difficulty in maintenance due to complex design is a major factor hindering the growth of the market studied.

Key Highlights
Brushless excitation systems are expected to be the fastest-growing segment due to their advantages, including less maintenance and power loss reduction due to the absence of brushes and slip rings.
Increasing demand for synchronous machines in the HVDC network is expected to provide immense opportunities for the market in the coming years.
Asia-Pacific is expected to be the fastest-growing market during the forecast period, owing to the expansion of the industrial sector, especially in China and India.

Excitation System Market Trends

The Brushless Type Segment is Expected to Record a Faster Growth Rate

A brushless exciter is a directly coupled AC generator with its field circuit on the stator and then from circuit to motor. A solid-state rectifier rectifies the three-phase output of an AC exciter generator. The rectified output is connected directly to the field winding, thus eliminating the use of brushes and slip rings.
A brushless excitation system is always preferred with a slip ring excitation system because the losses are minimized to a large extent, and the efficiency is also increased. Hence, the brushless excitation type is preferred over the static excitation type.
Large synchronous machines like generators and motors are using brushless excitation systems. In modern power plants, large power transformation can be achieved using a brushless excitation system, which is considered a huge advantage. This factor may drive the demand for excitation systems during the forecast period.
In September 2020, Basler Electric introduced the DECS-450 brushless digital excitation control system as the newest product in its line of integrated excitation systems. The DECS-450 is built on the DECS microprocessor-based platform. It offers enhanced voltage regulation accuracy at 0.10%, five modes of excitation control, and integrated programmable logic.
In December 2020, Hitachi ABB Power Grids launched a year-long trial of the world's first hybrid solution, which combines a STATCOM (static compensator) with a synchronous condenser, a 4-pole motor with brushless excitation system, working with SP Energy Networks, the University of Strathclyde, and the Technical University of Denmark.
Therefore, based on the above-mentioned factors, the brushless type is expected to dominate the market at a faster rate during the forecast period.

Asia-Pacific to Grow at the Fastest Rate

The rising demand for generators in hydropower is expected to support the demand for excitation systems in Asia-Pacific, as hydro generators convert the mechanical energy from the turbine into electrical energy using an excitation system.
The industrial sector, which includes mining, manufacturing, agriculture, construction, data centers, and telecommunications, accounts for the largest share of energy consumption of any end-use sector. Therefore, the increasing demand for continuous and reliable power supply from these industries, especially from healthcare facilities, pharmaceutical industries, and manufacturing facilities, is expected to escalate the demand for generators.
China and India are expected to witness robust industrial growth in the coming years due to a sharp increase in manufacturing sectors, which is expected to drive the demand for generators in the industrial sector. Therefore, as the demand for the industrial sector is increasing, the demand for generators is also expected to increase, which, in turn, boosts the demand for excitation systems.
The increasing power blackouts have significantly hampered the industrial sector in Indonesia, which boosted the adoption of electric generators in the country to ensure continuous and reliable power supply. South Sumatra and Jakarta are the key contributing areas to the market's growth in Indonesia, owing to the frequent power blackouts in these areas.
In March 2020, Nidec Leroy-Somer launched TAL 0473. The TAL 0473 delivers a nominal power between 400 kVA and 660 kVA at 50 Hz (from 495 kVA to 825 kVA at 60 Hz). The alternator features a SHUNT excitation system and an R150 regulator as standard.
Moreover, in January 2020, ABB Ltd won drive orders for two different Sun Paper projects. The first order includes drives for PM1 and PM2 (PM- Paper Machine) at the Laos mill. The second order includes a synchronous motor and drive project for the pulp production line in Shandong, China.
Therefore, based on the above-mentioned factors, Asia-Pacific is expected to dominate the excitation system market during the forecast period.

Excitation System Market Competitor Analysis

The excitation system market is fragmented. Some of the major players include ABB Ltd, Andritz AG, General Electric Company, Voith Group, and Siemens AG.

Additional Benefits:

The market estimate (ME) sheet in Excel format
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