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Flexible AC Transmission System (FACTS) Market Forecasts to 2032 – Global Analysis By Compensation Type (Series Compensation, Shunt Compensation and Combined), Application (Voltage Control, Power Flow Control, Network Stability, Harmonic Suppression and Other Applications), End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Flexible AC Transmission System Market is accounted for $1.61 billion in 2025 and is expected to reach $2.44 billion by 2032 growing at a CAGR of 6.1% during the forecast period. Flexible AC Transmission Systems (FACTS) are advanced power electronics-based technologies that enhance grid stability, control, and efficiency in high-voltage alternating current transmission networks. FACTS devices improve power quality, reduce transmission losses, and increase overall system capacity. Their deployment supports renewable energy integration, smart grids, and long-distance power transfers. With rising electricity demand and grid modernization, utilities and industries are increasingly adopting FACTS solutions. The market is driven by infrastructure upgrades, decarbonization targets, and investment in reliable, flexible, and efficient energy transmission systems.

Market Dynamics:

Driver:

Rising electricity demand and grid modernization

The escalating global demand for electricity, coupled with the imperative to modernize aging power infrastructure, significantly propels the adoption of flexible ac transmission

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systems (FACTS). These systems enhance grid reliability, mitigate congestion, and facilitate the integration of renewable energy sources. Moreover, the shift towards smart grid technologies necessitates advanced solutions like FACTS to maintain voltage stability and power quality. As utilities strive to meet increasing energy demands efficiently, the deployment of FACTS becomes pivotal in ensuring a resilient and adaptable power transmission network.

Restraint:

High installation and maintenance costs

The substantial capital investment required for the installation and ongoing maintenance of FACTS devices poses a notable challenge. These systems demand significant financial resources, which can deter adoption, especially in regions with limited budgets for infrastructure upgrades. Additionally, the complexity of integrating FACTS into existing grids necessitates specialized expertise, further escalating costs. While the long-term benefits include improved grid stability and reduced transmission losses, the initial financial burden remains a critical factor influencing decision-making processes in power utilities.

Opportunity:

Growth in cross-border electricity trade

The expansion of cross-border electricity trade presents a significant opportunity for FACTS deployment. As countries seek to enhance energy security and optimize resource utilization, interconnected power grids become essential. FACTS devices facilitate the efficient transfer of electricity across borders by stabilizing voltage levels and improving power flow control. This capability is crucial in regions with varying energy demands and generation capacities. Additionally, international agreements and collaborations aimed at energy integration further bolster the demand for advanced transmission solutions like FACTS.

Threat:

Cybersecurity risks in digital power systems

The increasing digitization of power grids introduces substantial cybersecurity risks. FACTS devices, being integral components of modern transmission systems, are

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susceptible to cyberattacks that can compromise grid stability and reliability. Unauthorized access to these systems can lead to malicious activities, including data breaches and operational disruptions. As power utilities incorporate more digital technologies, ensuring robust cybersecurity measures becomes imperative to protect critical infrastructure and maintain public confidence in the safety and reliability of the electricity supply.

Covid-19 Impact:

The COVID-19 pandemic disrupted the global flexible AC transmission system market by halting construction projects and delaying infrastructure developments. Lockdowns and travel restrictions impeded the manufacturing and installation of FACTS devices, leading to project postponements. Moreover, the economic downturn resulted in reduced investments in energy infrastructure, further stalling market growth. However, as economies recover and governments prioritize energy resilience, the demand for advanced transmission solutions like FACTS is expected to rebound, driven by the need for reliable and efficient power systems.

The shunt compensation segment is expected to be the largest during the forecast period

The shunt compensation segment is expected to account for the largest market share during the forecast period. This dominance is attributed to the widespread application of shunt compensators in enhancing voltage stability and improving power factor in transmission systems. Shunt compensation devices, such as Static VAR Compensators (SVCs) and Static Synchronous Compensators (STATCOMs), play a crucial role in mitigating voltage fluctuations and supporting reactive power compensation. Their effectiveness in maintaining grid stability and accommodating renewable energy sources underscores their significant market presence.

The voltage control segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the voltage control segment is predicted to witness the highest growth rate. This surge is driven by the increasing need for precise voltage regulation in modern power grids, especially with the integration of renewable energy sources that exhibit variable output. Voltage control devices, including STATCOMs and SVCs, offer dynamic response capabilities to voltage fluctuations, ensuring consistent power quality. Their pivotal role in maintaining grid stability amidst evolving energy landscapes

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positions them for substantial growth in the coming years.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share. This dominance is driven by rapid industrialization, urbanization, and significant investments in energy infrastructure across countries like China and India. The region's emphasis on renewable energy integration and grid modernization further propels the demand for FACTS solutions. Additionally, government initiatives and policies aimed at enhancing energy efficiency and reliability contribute to the widespread adoption of advanced transmission technologies, solidifying Asia Pacific's leading position in the market.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR. The region's aggressive expansion of power transmission networks, coupled with the increasing adoption of renewable energy sources, necessitates advanced solutions like FACTS to ensure grid stability and efficiency. Moreover, supportive government policies and investments in smart grid technologies accelerate the deployment of FACTS devices. The combination of these factors positions Asia Pacific as a dynamic and rapidly growing market for flexible AC transmission systems.

Key players in the market

Some of the key players in Flexible AC Transmission System Market include Hitachi Energy, Siemens Energy, General Electric (GE), Mitsubishi Electric, Schneider Electric, Toshiba Corporation, Hyosung Heavy Industries, NR Electric Co., Ltd., Rongxin Power Electronic Co., Ltd., American Superconductor (AMSC), Eaton Corporation, S&C Electric Company, CG Power and Industrial Solutions, Fuji Electric Co., Ltd., LS Electric (LSIS), TBEA Co., Ltd., Ingeteam, Sieyuan Electric Co., Ltd., and Nexans S.A.

Key Developments:

In September 2025, Hyosung Heavy Industries became the first Korean manufacturer to enter into a long-term supply agreement for ultra-high-voltage transformers and strengthened its global position in power solutions. The company successfully localized a 200MW-class HVDC system in Korea in 2024 after investing KRW 100 billion in R&D over seven years.

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In August 2025, Hyosung broke ground on South Korea's largest HVDC transformer manufacturing plant in Changwon, investing $239 million over two years with completion targeted for July 2027. The facility will deliver a minimum 20% expansion in transformer production capacity by 2028.

In June 2025, Mitsubishi Electric signed a memorandum of understanding (MOU) with GE Vernova to strengthen cooperation on power semiconductors for HVDC transmission systems. This partnership aims to provide stable supply of IGBT power semiconductors for GE Vernova's VSC HVDC transmission systems, leveraging Mitsubishi Electric's top global market share in power semiconductors for VSC HVDC systems.

In April 2025, Hitachi Energy was selected for a massive 950-km HVDC transmission system to deliver 6 GW of renewable energy from the renewable energy zone in Bhadla, Rajasthan to Fatehpur, Uttar Pradesh. The project can power approximately 60 million households in India and is part of India's 500 GW renewable evacuation and interstate transmission system.

Compensation Types Covered:

- Series Compensation
- Shunt Compensation
- Combined Compensation

Applications Covered:

- Voltage Control
- Power Flow Control
- Network Stability
- Harmonic Suppression
- Other Applications

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End Users Covered:

- Electric Utilities & Transmission System Operators
- Renewable Power Generation
- Industrial
- Commercial & Large Data Centers

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain
  - Rest of Europe
- Asia Pacific

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- Japan
- China
- India
- Australia
- New Zealand
- South Korea
- Rest of Asia Pacific

South America

- Argentina
- Brazil
- Chile
- Rest of South America

Middle East & Africa

- Saudi Arabia
- UAE
- Qatar
- South Africa
- Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments

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- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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