

Transmission and Distribution Network Automation Market Forecasts to 2034 – Global Analysis By Component (Hardware, Software and Services), Communication Infrastructure, Technology, Application, End User and By Geography

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Abstracts

According to Statistics MRC, the Global Transmission and Distribution Network Automation Market is accounted for \$7.0 billion in 2026 and is expected to reach \$19.8 billion by 2034 growing at a CAGR of 14.0% during the forecast period. Network automation in transmission and distribution systems involves deploying smart technologies, automated controls, and connected devices across electrical grids to improve performance and visibility. It supports continuous monitoring, faster response to faults, and data-driven maintenance planning, enhancing grid reliability. Intelligent substations, sensors, and advanced metering infrastructure enable efficient power flow management and reduced operational losses. Utilities adopt these solutions to optimize assets, integrate renewable sources, and strengthen system resilience. With rising energy needs, automation plays a critical role in creating flexible, scalable, and sustainable electricity networks for future demand and stability worldwide while maintaining high service quality for consumers everywhere.

According to the U.S. Department of Energy (DOE), in 2023 it allocated up to USD 3.5 billion to fund 58 projects across 44 states aimed at enhancing electric grid reliability and resilience, directly supporting transmission and distribution automation initiatives.

Market Dynamics:

Driver:

Rising demand for reliable and uninterrupted power supply

The rising reliance on electricity in homes, businesses, and industries is pushing the demand for dependable and continuous power systems. Automation in transmission and distribution networks enables quick fault identification, faster restoration, and reduced service interruptions. Rapid urban growth, digital transformation, and expansion of essential infrastructure like healthcare facilities and data centers further intensify this need. Automated systems provide real-time monitoring and improved grid control, ensuring steady electricity delivery. As power disruptions become more costly and unacceptable, utilities are increasingly adopting automation solutions to enhance reliability and meet evolving consumer expectations efficiently.

Restraint:

High initial investment and implementation costs

Implementing automation in transmission and distribution networks involves high initial spending on modern technologies, communication systems, and digital platforms. Utilities must invest heavily in devices such as smart meters, intelligent sensors, and automated substations. Integrating these solutions with older infrastructure further raises costs and technical challenges. Smaller energy providers, especially in emerging economies, may struggle with limited financial resources. Ongoing expenses related to system maintenance, upgrades, and staff's training also contribute to the burden. These high costs act as a key barrier, slowing the adoption of automation solutions across global power distribution systems.

Opportunity:

Growth of smart urban development and intelligent infrastructure

The increasing focus on smart city initiatives offers strong growth potential for transmission and distribution automation. Cities are adopting digital systems to improve energy efficiency and infrastructure performance. Automated grids help manage power demand, monitor systems in real time, and quickly address faults. Public sector investments in modern infrastructure are driving demand for automation technologies. With expanding urban populations and rising energy needs, there is a greater requirement for reliable and flexible power systems. This makes network automation an essential solution for supporting advanced urban development and efficient energy management in modern cities globally.

Threat:

Rising risks of cyber attacks and system security breaches

As power networks become increasingly digital, they face higher exposure to cyber risks and system vulnerabilities. Automated grids depend on connected technologies that can be exploited by cybercriminals. Such attacks may interrupt electricity supply, damage infrastructure, and lead to data breaches. Utilities must continuously strengthen their security frameworks to combat evolving threats. Inadequate protection can lead to economic losses, legal consequences, and reduced consumer trust. These growing cybersecurity concerns pose a significant threat to the expansion and reliability of transmission and distribution network automation systems worldwide.

Covid-19 Impact:

The pandemic caused both setbacks and growth opportunities for the transmission and distribution automation market. Early impacts included supply chain disruptions, project delays, and reduced workforce capacity due to lockdown measures. These challenges slowed the implementation of automation technologies. However, the situation emphasized the need for digital solutions, remote grid management, and operational resilience. Utilities began adopting advanced automation tools to maintain stable electricity supply with minimal human intervention. As recovery progressed, investments in modernizing power infrastructure increased, positioning network automation as an essential component for enhancing efficiency, reliability, and adaptability in evolving energy systems worldwide.

The hardware segment is expected to be the largest during the forecast period

The hardware segment is expected to account for the largest market share during the forecast period because of its critical importance in establishing the physical infrastructure of automated power systems. Components like smart meters, sensors, and intelligent devices enable real-time data collection, system monitoring, and efficient grid control. Utilities focus heavily on deploying these devices to upgrade existing networks and enhance reliability. The continuous need for installing and maintaining field equipment supports strong demand for hardware solutions. As the fundamental building blocks of automation systems, hardware components account for the largest share in the market, supporting overall grid modernization efforts.

The advanced metering infrastructure (AMI) segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the advanced metering infrastructure (AMI) segment is predicted to witness the highest growth rate, driven by the rising need for intelligent energy management and real-time data access. It facilitates communication between utilities and users, improving billing accuracy and enabling efficient demand-side management. Increased deployment of smart meters by governments and energy providers is boosting its expansion. The emphasis on digital transformation, smart grid development, and energy efficiency further contributes to its rapid growth. With its strong role in enhancing grid transparency and supporting analytics-based decisions, AMI stands out as the segment with the highest growth rate.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share, supported by its well-developed energy infrastructure and rapid adoption of advanced grid technologies. Utilities actively focus on modernizing outdated systems through automation to enhance performance and reduce outages. Favourable government policies, investment programs, and regulatory support encourage widespread implementation of smart grid solutions. The region also benefits from the presence of major industry players and strong technological capabilities. Growing emphasis on grid security, reliability, and efficient energy management further reinforces North America's position as the leading market for transmission and distribution automation systems.

Region with highest CAGR:

Over the forecast period, the Asia-Pacific region is anticipated to exhibit the highest CAGR, driven by strong economic development and increasing energy consumption. Rapid urban expansion and industrial growth are pushing governments to invest in modernizing power infrastructure and implementing smart grid technologies. The adoption of renewable energy and smart city developments is also boosting demand for automation solutions. Utilities aim to enhance operational efficiency, minimize energy losses, and provide stable electricity services. With favourable government policies and increasing digital transformation, Asia-Pacific continues to emerge as the region with the highest growth rate in this market.

Key players in the market

Some of the key players in Transmission and Distribution Network Automation Market include ABB Ltd., Siemens AG, Schneider Electric SE, Eaton Corporation plc, GE Vernova, Hitachi Energy Ltd., Mitsubishi Electric Corporation, Toshiba Corporation, CG Power and Industrial Solutions Limited, Bharat Heavy Electricals Limited, Schweitzer Engineering Laboratories, S&C Electric Company, Itron Inc., Landis+Gyr, Honeywell International, Emerson Electric Company, Alstom Grid and Rockwell Automation.

Key Developments:

In November 2025, Eaton announced it has signed an agreement to acquire the Boyd Thermal business of Boyd Corporation from Goldman Sachs Asset Management. Boyd Thermal is a leader in thermal components, systems and ruggedized solutions for data centers, aerospace and other end markets. Under the terms of the agreement, Eaton will pay \$9.5 billion, which represents 22.5 times Boyd Thermal's estimated adjusted EBITDA for 2026*.

In November 2025, Siemens Energy has signed a contract to design and deliver the power conversion system for Oklo's Aurora powerhouse reactors. The contract will see Siemens Energy conduct detailed engineering and layout activities for a condensing SST-600 steam turbine, an SGen-100A industrial generator, and associated auxiliaries to support Oklo's first advanced reactor, the Aurora powerhouse at Idaho National Laboratory.

In November 2025, Schneider Electric announced a two-phase supply capacity agreement (SCA) totaling \$1.9 billion in sales. The milestone deal includes prefabricated power modules and the first North American deployment of chillers. The announcement was unveiled at Schneider Electric's Innovation Summit North America in Las Vegas, convening more than 2,500 business leaders and market innovators to accelerate practical solutions for a more resilient, affordable and intelligent energy future.

Components Covered:

Hardware

Software

Services

Communication Infrastructures Covered:

Wired

Wireless

Technologies Covered:

Supervisory Control and Data Acquisition (SCADA)

Advanced Metering Infrastructure (AMI)

Distribution Management Systems (DMS)

Outage Management Systems (OMS)

Applications Covered:

Transmission Automation

Distribution Automation

Substation Automation

Feeder Automation

Voltage & Reactive Power Control

Fault Detection, Isolation & Restoration (FDIR)

End Users Covered:

Utilities

Industrial

Commercial

Residential

Regions Covered:

North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- 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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