

# Smart Transformer Market Size, Share, Trends, Growth, Forecast, and Regional Insights 2024–2035

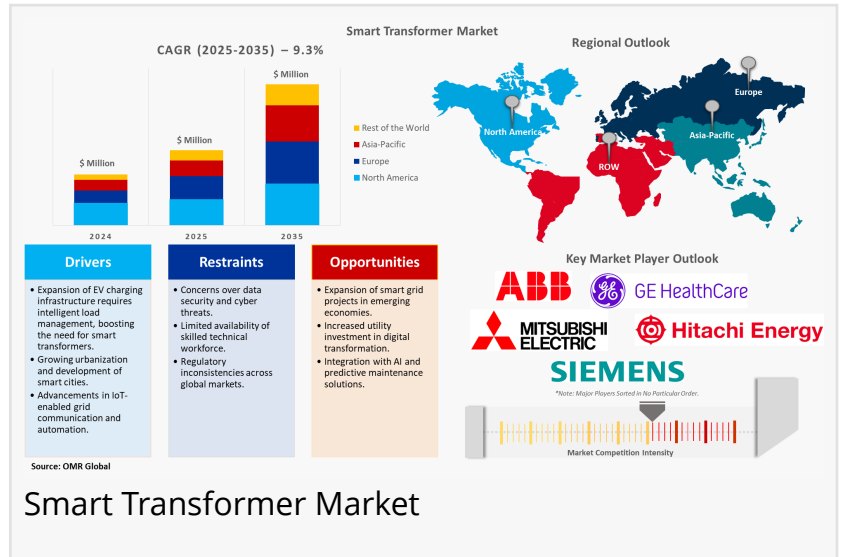
*Smart Transformer Market was valued at USD 2.7 billion in 2024 and is projected to grow at a CAGR of 9.3% during the forecast period (2025-2035).*

INDORE, INDIA, May 1, 2025

/EINPresswire.com/ -- The market growth is recognized due to the increasing adoption of smart grids. Smart transformers are constantly adjusting the voltage and minimizing energy consumption, thus lowering the cost of operation indirectly. Moreover, smart transformers minimize the

wastage of energy and provide the least fluctuations, which is desirable for high-consumption machines in industries. Owing to these benefits the end users are more inclined towards smart transformers compared to conventional transformers. In addition, the growing use of smart grid networks, supported by growing awareness about energy conservation among individuals, is expected to create significant scope for the growth of the market.

Smart grid is an electricity network that regulates and monitors the flow of power from all the generation sources to meet the different demands of end-users. Smart grid's objective is to increase system resilience, flexibility, and stability that reduces costs and environmental impacts by aligning all generator's needs and capabilities, grid operators, end-users, and stakeholders in the electricity market. Investment monitoring offers insights into levels of deployment, as most of the technologies being used have already reached maturity. As per the International Energy Agency, investment in smart grids is required to more than double by 2030, growing from around \$300 billion per year to approximately \$600 billion annually, to achieve Net Zero Emissions by 2050. Use of advanced materials and cooling technologies is another trend. Innovation in advanced materials and cooling technologies is enhancing efficiency and reliability in smart transformer. These technologies can assist in minimizing energy losses, enhancing thermal performance, and prolonging the life of transformers.



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## Market Trends

### Increasing Digitalization of Power Sector Will Fuel the Market

The power sector is poised to transition from centralized, traditional, and security risks to decentralized energy mix production and development in control systems. Digitalization plays a significant part in the power sector, ranging from industrial software, transformers, control systems, to sensors, Industrial Internet of Things (IIoT) technologies, among others. Digitalization has been combined into equipment and devices that improve the efficiency of the system such as a transformer, a major part of the smart grid that operates independently to manage the voltage and offer remote management in the system. According to Infosys, energy and utilities will generate \$1.3 trillion and \$299 billion in value as a result of digital transformation by 2025. In order to maintain the competition, the energy and utilities industries need to embark on digital transformation in operations, customer service, finance, and other functions.

This gives digitalized control and innovative features such as a digital platform to access online, Wi-Fi, Ethernet or cellular configuration, optimization of asset performance, cybersecurity, and other features that enable the transformer to perform managerial functions within the electric distribution grid. Grown digitalization in the power system that has assisted in controlling real and reactive power, increase power quality, restricting fault current, and minimizing the utilization of energy. For instance, in January 2025, Smart Wires raised \$65 million led by BP Energy Partners to advance its power-flow control technologies. Such technologies increase grid capacity by diverting electricity from loaded transmission lines to underutilized transmission lines, optimizing the usage of energy without massive infrastructure changes. Therefore, a wide range of benefits for digitalization integration in the power sector fuels the demand for smart transformers in the international market.

### Increasing Investments in Alternative Energy Smart Grids to Increase Market Growth

The increasing use of fossil fuels is a potential threat to the global and regional environment due to their emission of carbon dioxide (CO<sub>2</sub>) into the air. The Gulf Cooperation Council (GCC) nations have the highest rates of CO<sub>2</sub> emissions globally. Thus, most nations invest in alternative fuels and energy efficiency and are exploring untapped resources, particularly shale gas. Alternative fuels are cleaner and safer compared to fossil fuels and can improve the environment by minimizing air pollutants. The government around the globe is also encouraging the use of alternative fuels and implementing various policies. Hence, increasing non-linear equipment supporting the renewable energy system raises the danger of grid instability that poses a risk of electrical grid failure and a threat to the destruction of the electric equipment needed in the renewable power system. As a result, smart transformers are needed to sustain the grid frequency by controlling the voltage.

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Smart grid and smart metering technology are becoming significant for the future of the power sector. As energy innovation becomes a point of focus, there are specific areas that are being discussed within the industry. Using innovative technology to observe and regulate the flow of electricity, smart grids make energy transmission more efficient, consistent, and eco-friendly. Smart grid plays a significant role in optimizing and overseeing the consumption of power on the demand side would save energy and improve efficiency. A huge investment in utilities, governmental initiatives, and grid enhancement works by various companies. For instance, in April 2024, Mitsubishi Electric and Hitachi Industrial Equipment Systems agreed to transfer Mitsubishi Electric's Nagoya Works. The action is intended to complement Hitachi's product line of eco-friendly and energy-saving transformers and promote the development of grid edge solutions based on power distribution systems, primarily in the domestic market.

### Regional Outlook

North America holds the largest share in [Smart Transformer Market](#)

North America is dominated by a high proportion, driven by the adoption of high technology and regional pursuit of grid modernization. The US leads with strong investments in smart grid infrastructure prompted by federal initiatives and state incentives to integrate renewable energy. Government initiatives such as the Smart Grid Investment Grant (SGIG) and state laws encourage more energy optimization and environmental sustainability. The Canadian smart transformers market is also growing at a fast pace owing to initiatives meant for renewable energy and updating ageing power infrastructure. For instance, in July 2024, the Canadian government announced that it will invest around \$30 million CAD (\$21.8 million) in Hitachi Energy Canada's strategy under the Strategic Innovation Fund. As part of this plan, a Montreal-based HVDC modeling and collaboration hub as well as a new test facility for transformers will be built in Varennes, Quebec. Improving the reliability of the grid and assisting the nation in transitioning to a low-carbon economy are the objectives of these initiatives.

### Asia-Pacific Holds Significant Market Share

Asia-Pacific is the fastest growing region of the Smart Transformer market owing to increasing power demand and grid development. Asia-Pacific economies are strategically inclined towards strengthening grid stability and investing in intelligent grid initiatives. Thus, a transformer used in the smart grid enhances the grid stability and quality of power. Nations such as China, India and Japan are investing heavily in increasing their power distribution networks to meet rising electricity demand. For instance, in May 2024, the Asian Development Bank (ADB) approved a \$148.5 million loan to improve, upgrade and climate-proof Sikkim's electricity distribution. Governments in the region are actively promoting the application of smart transformers and other smart grid technologies to enhance energy efficiency and system stability. According to a

report released in August 2024 by the National Development and Reform Commission and the National Energy Administration, China will massively upgrade equipment and develop technologies in major energy sectors with a goal to boost investments by 25% by 2027 from levels achieved in 2023. Furthermore, the region's emphasis on integrating renewable energy with large-scale solar energy projects raises the demand for smart transformers.

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## Market Players Outlook

The key players in the global smart transformer market are ABB Group, General Electric Co., Hitachi Energy Ltd., Mitsubishi Electric Corp., and Siemens AG among others. The market players are looking to leverage growth by using approaches such as collaboration, partnership, and market expansion, among others.

## Recent Developments

- In February 2025, Schneider Electric Infrastructure planned to improve its transformer manufacturing capacity by investing Rs.13.6 crore (\$1.6 million), with the goal of raising the production level from 5,500 MVA to 7,000 MVA by FY26.
- In November 2024, ABB and Oktogrid launched a digitally integrated transformer sensor to improve grid performance and reliability. The innovation features real-time monitoring and instant data transmission to the cloud, which is more accessible and economical for manufacturers.
- In January 2024, Jammu and Kashmir Power Development Department (JKPDD) planned to install smart meters to more than 40,000 Distribution Transformers (DTs) in Kashmir. JKPDD Principal Secretary H Rajesh Prasad declared, 'The department will install smart meters in all over 40,000 DTs operating in the Kashmir region so that we have a complete chain from feed meter to DT meter to consumer meter'.

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Some of the Key Companies in the Smart Transformer Market Include-

- ABB Group
- ALSTOM SA
- Bharat Heavy Electricals Ltd.
- CG Power & Industrial Solutions Ltd.
- Eaton Corp.

- Emerson Electric Co.
- General Electric Co.
- Hitachi Energy Ltd.
- Huawei Technologies Co., Ltd.
- Maschinenfabrik Reinhausen GmbH
- Mitsubishi Electric Corp.
- Powerstar (EMSc (UK) Ltd.)
- PROLEC ENERGY
- PVJ Power
- Schneider Electric SE
- Siemens AG
- SPX Corp.
- VELATIA (Ormazabal)

## Smart Transformer Market Segmentation Analysis

### Global Smart Transformer Market by Type

- Power Transformer
- Distribution Transformer
- Specialty Transformer
- Instrument Transformer

### Global Smart Transformer Market by Application

- Smart Grid
- Locomotives
- Electric Vehicle Infrastructure

### Regional Analysis

- North America
  - o United States
  - o Canada
- Europe
  - o UK
  - o Germany
  - o Italy
  - o Spain
  - o France
  - o Rest of Europe
- Asia-Pacific
  - o China
  - o India
  - o Japan
  - o South Korea

- o ASEAN Economies (Singapore, Thailand, Vietnam, Indonesia, and Other)
- o Australia and New Zealand
- o Rest of Asia-Pacific
  - Rest of the World
- o Latin America
- o Middle East and Africa

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