Transformer - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2026 - 2031)

Market Report | 2026-02-09 | 125 pages | Mordor Intelligence

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Report description:

Transformer Market Analysis

The Transformer market is expected to grow from USD 64.96 billion in 2025 to USD 69.66 billion in 2026 and is forecast to reach USD 98.84 billion by 2031 at 7.24% CAGR over 2026-2031.

Demand escalation stems from global grid modernization programs, surging renewable energy interconnections, and the electrification of transportation that together stretch existing infrastructure. Asia-Pacific leads with strong public-sector spending on transmission and distribution networks, while North America and Europe prioritize replacing equipment that entered service before 2000. Supply-chain constraints, particularly in grain-oriented electrical steel and copper, lengthen delivery cycles and compel utilities to place orders well in advance of project start dates. Competitive pressure centers on capacity expansions, digitalization, and sustainable materials as manufacturers strive to shorten lead times and integrate smart functionality into standard models in the transformer market.

Global Transformer Market Trends and Insights

Grid Modernization Programs Drive Infrastructure Renewal

Investment packages such as the USD 13 billion U.S. Grid Resilience and Innovation Partnerships program and the European Union's REPowerEU initiative accelerate the replacement of transformers that entered service before 2000 in the transformer

market. Utilities prioritize units with higher temperature classes, low-loss cores, and embedded sensors that transmit real-time loading and thermal data to control centers. Specifications are increasingly requiring interoperability with advanced distribution-management systems that can accommodate high levels of renewable penetration. Ordering patterns favor framework agreements that guarantee minimum production slots, insulating utilities from two-year standard lead times now common in North America. The premium placed on reliability and extreme-weather resilience pushes demand toward higher-rated oil-cooled models with forced-air cooling enhancements.

Renewable Energy Integration Accelerates Transmission Upgrades

Global photovoltaic additions expanded to 239 GW in 2022 and continue climbing, generating a need for step-up transformers equipped with on-load tap changers capable of rapid voltage adjustments. Wind developers specify high-impedance designs that mitigate fault currents while maintaining voltage stability across widely dispersed turbines. Middle East markets typify the trend; Saudi Arabia's 130 GW renewable goal and the UAE's USD 54 billion investment plan propel orders for desert-rated transformers that withstand 55 C ambient temperatures and airborne dust shaping the transformer market. Global procurement teams increasingly bundle transformers with STATCOMs and synchronous condensers to deliver turnkey interconnection packages that satisfy stringent grid-code requirements.

CRGO Steel Shortage Creates Manufacturing Bottlenecks

A limited global supply of grain-oriented electrical steel constrains core production, forcing manufacturers to quote delivery schedules of up to four years for large power transformers. U.S. utilities face a single domestic producer and are subject to tariffs on imported grades, which compounds cost and schedule risk. Factory throughput remains hard-capped because complex winding and core stacking for extra-high-voltage units cannot be fully automated. Firms announce multi-billion-dollar capacity additions, yet equipment lead times for new rolling mills and annealing lines exceed 30 months, delaying relief.

Other drivers and restraints analyzed in the detailed report include:

Transport Electrification Creates Distributed Infrastructure DemandHyperscale Data-Center Expansion Drives High-Density Power RequirementsCopper Price Volatility Pressures Manufacturing Economics

For complete list of drivers and restraints, kindly check the Table Of Contents.

Segment Analysis

Small units, up to 10 MVA, dominated revenue with 41.92% in 2025, and they are expected to outpace all other classes at an 8.06% CAGR through 2031. Rooftop solar, community battery systems, and neighborhood-scale microgrids proliferate in both emerging and developed economies. These applications reward compact footprints, low acoustic emissions, and high overload tolerance for fluctuating renewable inputs. Modular designs enable utilities to stock standardized spares that service multiple feeder voltages, thereby reducing warehouse inventory and decreasing mean-time-to-repair.

Medium transformers, ranging from 10 MVA to 100 MVA, retain strong traction in industrial estates and utility-scale renewable plants, where developers combine multiple 5 MW wind turbines into a single collector circuit. Although large power transformers above 100 MVA account for fewer shipments, each unit commands multi-million-dollar contract values that sustain specialized workshops and proprietary insulation technologies. Supply constraints for these custom giants remain the tightest, motivating utilities to maintain strategic spares even as energy-transition policies refocus budgets on distributed assets.

Oil-cooled technology accounted for 72.05% of global revenue in 2025 and is expected to maintain a 7.64% CAGR through 2031,

driven by its superior thermal conductivity and dielectric strength. Mineral oil remains the mainstream medium; however, utilities in Europe, Japan, and select U.S. states are increasingly specifying natural ester or synthetic fluids to meet environmental regulations and fire-safety codes. Ester fluids support higher temperature classes, enabling compact core-coil stacks that cut weight and shipping cost.

Air-cooled units retain a niche appeal in commercial buildings, underground substations, and renewable energy inverters, where leakage risks outweigh power density requirements. Continuous improvement in fin design, forced-air circulation, and aluminum-wound coils expands their feasible rating range; however, they still sacrifice efficiency headroom compared to oil-filled counterparts in high-load duty cycles.

The Transformer Market Report is Segmented by Power Rating (Large, Medium, Small), Cooling Type (Air-Cooled and Oil-Cooled), Phase (Single-Phase and Three-Phase), Transformer Type (Power and Distribution), End-User (Power Utilities, Industrial, Commercial, and Residential), and Geography (North America, Europe, Asia-Pacific, South America, and More). The Market Sizes and Forecasts are Provided in Terms of Value (USD).

Geography Analysis

Asia-Pacific led revenue with 52.88% share in 2025 and exhibits the highest 8.23% CAGR outlook. China continues to expand ultra-high-voltage corridors that ferry renewable power from western provinces to coastal load centers, while India channels federal incentives into interstate transmission lines and city distribution upgrades. Southeast Asian nations allocate multibillion-dollar budgets to electrification, prompting joint ventures between local fabricators and global specialists for medium-voltage units. Technology contributions from Japan and South Korea introduce advanced amorphous-core geometries and digital monitoring packages that spread across regional supply chains, raising baseline efficiency expectations.

North America represents a replacement-driven environment where two-decade-old assets are near the end of their life. Lead times ballooned to 60-70 weeks for standard distribution units, prompting federal initiatives to bolster domestic manufacturing. Utilities direct capital toward hardened substation transformers capable of withstanding wildfire and hurricane exposures, incorporating forced-oil/air cooling and higher short-circuit withstand ratings. Canada emphasizes low-loss standards aligned with CSA C802, pushing suppliers to adopt amorphous cores as the default on new bids.

Europe maintains steady demand through the integration of renewable energy and cross-border interconnector projects under the REPowerEU banner. Utilities retrofit high-voltage nodes with online dissolved-gas monitors and bushings rated for higher current densities, preparing networks for 1,236 GW of targeted renewable capacity by 2030. Stringent eco-design rules elevate minimum efficiency and favor ester-filled medium-voltage units in densely populated zones. Eastern European markets attract foreign direct investment in automotive and data-center developments, further boosting orders for medium KVA classes.

The Middle East and Africa are combining utility-scale solar, green-hydrogen pilots, and grid-hardening programs to open new procurement channels. Saudi Arabia's renewable roadmap and the UAE's USD 54 billion commitment generate bulk orders for desert-rated, natural-ester-filled transformers with aluminum windings to manage weight on remote-site roads. South American demand centers on Brazil, where industrial expansion in mining and metals sparks upgrades to 230 kV substations and drives domestic manufacturing expansions, such as WEG's R$2.6 billion investment to expand transformer output.

List of Companies Covered in this Report:

ABB Ltd Siemens Energy AG Hitachi Energy Ltd General Electric Co. Schneider Electric SE Mitsubishi Electric Corp. Toshiba Corp. Hyosung Heavy Industries Hyundai Electric & Energy Systems CG Power & Industrial Solutions Bharat Heavy Electricals Ltd LS Electric Co. Eaton Corporation plc Fuji Electric Co. TBEA Co. Ltd SPX Transformer Solutions SGB-SMIT Group Voltamp Transformers

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Additional Benefits:

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