

Smart Grid Expansion Drives Power Substation Market to \$124.5B in 2024, Projected 4.1% CAGR Growth Through 2035

Power substation market is driven by the global push for renewable energy integration and the transformation of aging grid infrastructure.

INDORE, INDIA, July 15, 2025

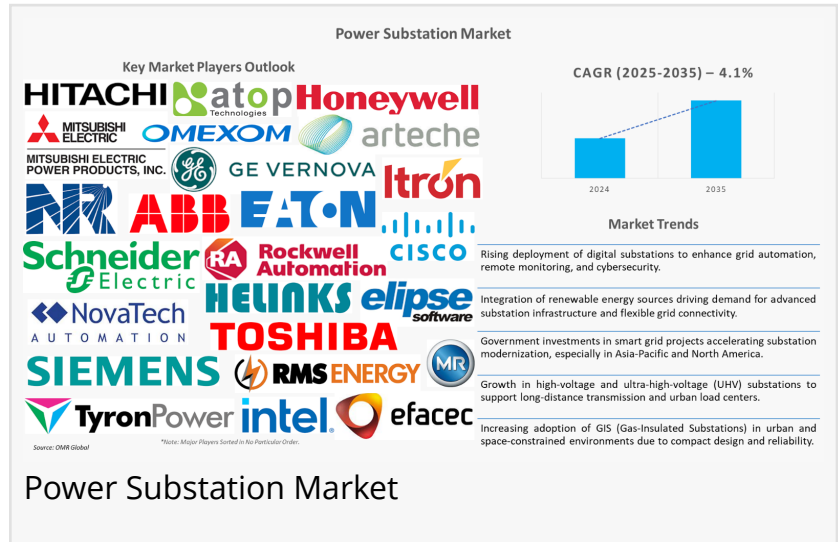
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[substation market](#) size was valued at \$124.5 billion in 2024 and is projected to reach \$127.8 billion in 2035, growing at a CAGR of 4.1% during the forecast period (2025-2035). Growing demand for strong transmission infrastructure, grid modernization efforts, and renewable energy source integration are key drivers of this expansion. As global energy demand growing particularly from industrial, residential, and data center sources utilities are heavily investing in substations for efficient and reliable power delivery.

Substations are the nerve center of power networks by stepping up or down voltage and efficiently distributing electricity. Digital control, real-time data analysis, and automatic grid functions are giving way to smart substations that are revolutionizing traditional networks to create intelligent networks. As per the International Energy Agency (IEA), in February 2025, reports that global electricity demand is forecast to rise by 4% per annum through 2027, underscoring the necessity for upgraded substation infrastructure.

Additionally, the global transition towards decarbonization has triggered massive investments in transmission and distribution (T&D) networks, particularly in nations seeking net-zero emissions by 2050. For instance, the U.S. Department of Energy revealed \$14.5 billion in 2024 for the upgradation and enlargement of the grid, with a significant portion going towards substation automation and resistance against climate disruption.

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Market Segmentation and Growth Areas

Distribution Application Segment is estimated to represent a Substantial Market Share

The distribution segment is anticipated to occupy a significant share in the application segment of power substations. It is largely driven by increasing quantities of residential energy distribution needs, energy network decentralization, and increasing focus on creating a stable energy supply. Distribution power substations are critical for offering routine energy to residential and commercial demands, thus making them a part of the entire energy ecosystem. For instance, in September 2024, Tata Power Delhi Distribution Limited (Tata Power-DDL) entered into a partnership with Japan-based Nissin Electric to introduce India's first micro-substation for remote power supply.

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Residential Segment to Exponentially Grow Market Share

The residential segment is expected to expand its presence, primarily due to fast urbanization, several government initiatives in emerging economies to build advanced residential energy supply ecosystems, and the innovation of residential energy infrastructure. Moreover, the power substation network is a facilitator of steady and stable energy supply to the entire global residential sector, which is projected to grow in the next few years with developments and advancements being planned by the various state-owned entities tasked with fulfilling future energy demand targets. For instance, as reported by the International Energy Agency, the world is expected to experience a spectacular development in electricity consumption over the next three years at an average annual rate of 3.4% through 2026.

Regional Outlook

Asia-Pacific is the Region of Fastest Growth in the Global Power Substation Market

The Asia-Pacific region is likely to register the highest growth in the global power substation market supported by the fast urban population and industrial base growth in the region, continually rising energy demand, regional emphasis towards shifting focus to renewable power sources, and heavy investment by state-owned entities towards energy infrastructure upgrade. Compared to other regions, Asia-Pacific is home to most of the emerging and rapidly growing economies that are constantly pressuring the regional state-owned entity to focus on expansion and development of existing energy infrastructure to cater to future industrial and urban needs through a range of projects, & investments. For instance, in January 2024, R.K. Singh, the Union Power Minister of India said that India invested \$204 billion in the power sector during the last nine years, and another \$210 billion is in progress. Major accomplishments involved installing

29.52 GW of capacity (220.10 GW renewables) into a circuit of 193,000 km of transmission lines. Additionally, 3,000 new substations and 4,000 upgrades for the added supply to rural power availability up to 21 hours a day, while in the urban areas, nearly 24/7 non-fossil sources provide 44% capacity.

Market Players Outlook

The key players in the power substation market are ABB Group, GE Vernova Group, Hitachi Energy Co. Ltd., Schneider Electric, and Siemens AG., among others. The market participants are constantly emphasizing business growth and product development through implementing strategies like collaborations, mergers, and acquisitions in order to be competitive in the market.

Recent Developments

- In May 2025, Hitachi Energy revealed it will supply the world's first SF6-free 550 kV gas-insulated switchgear (GIS) to the Central China Branch of the State Grid Corporation of China (SGCC). This groundbreaking milestone represents an important milestone in the decarbonization of the power grid and towards China's goal of becoming carbon-neutral by 2060. EconiQ SF6-free 550 kV gas-insulated switchgear reflects the pioneering spirit of Hitachi Energy in creating environmentally efficient technologies for the highest voltage substations.
- In August 2024, Hitachi Energy, a global technology leader, introduced new technology that will solve sulfur hexafluoride (SF₆) emissions that make up 80% of power sector emissions. The equipment will replace SF₆ switchgear globally, including in China, which emits 57% of the world's SF₆ emissions. Every new 550 kV GIS substation with EconiQ replaces the carbon equivalent of 170 fully loaded jumbo jets flying from Paris to New York without diminishing the size, performance, and reliability levels of traditional switchgear.

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Some of the Key Companies in the Power Substation Market include-

- ABB Group
- ARTECHE
- ATOP Technologies, Inc.
- Cisco Systems, Inc.
- Eaton Corp.
- EFACEC
- Elipse Software
- GE Vernova Group
- Helinks GmbH
- Hitachi Energy Ltd.

- Honeywell International Inc.
- Intel Corp.
- Itron Inc.
- Maschinenfabrik Reinhausen GmbH
- Mitsubishi Electric Power Products, Inc.
- NovaTech, LLC
- Omexom
- RMS Energy Co., LLC
- NR Electric Co., Ltd.
- Rockwell Automation Inc.
- Schneider Electric
- Siemens AG
- Toshiba Energy Systems & Solutions Corp.
- Tyron Power Services

Power Substation Market Segmentation Analysis

Global Power Substation Market by Offerings

- Hardware
- Software & Services

Global Power Substation Market by Voltage

- High Voltage
- Medium Voltage
- Low Voltage

Global Power Substation Market by Application

- Transmission
- Distribution

Global Power Substation Market by End-User

- Residential
- Commercial
- Industrial
- Others (Education & Research, Healthcare, Robotics & Automation, and Retail & E-Commerce)

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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