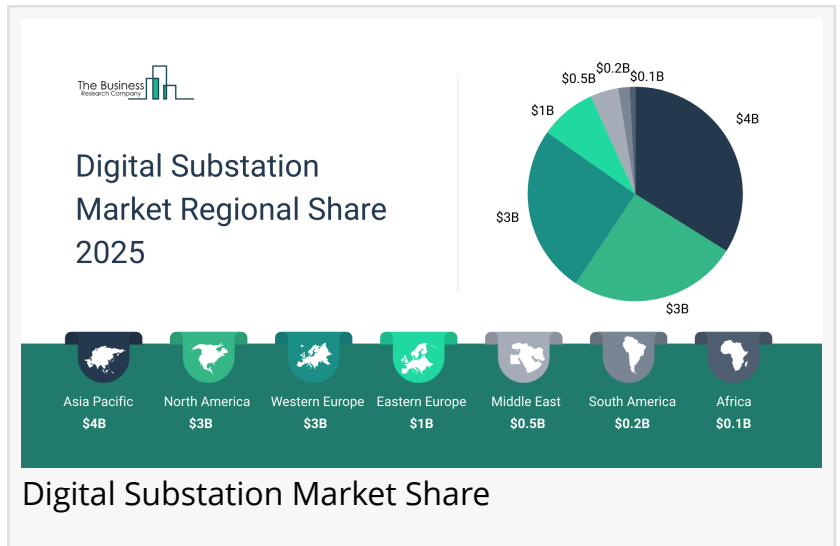


Digital Substation Market In 2029

The Business Research Company's Digital Substation Global Market Report 2025 - Market Size, Trends, And Global Forecast 2025-2034

LONDON, GREATER LONDON, UNITED KINGDOM, December 2, 2025

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Digital Substation Market to Surpass \$12 billion in 2029. In comparison, the communications hardware market, which is considered as its parent market, is expected to be approximately \$953 billion by 2029, with digital substation to represent around 1.3% of the parent market.



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The Business Research Company

Within the broader Information Technology industry, which is expected to be \$13 trillion by 2029, the digital substation market is estimated to account for nearly 0.1% of the total market value.

Which Will Be the Biggest Region in [the Digital Substation Market in 2029?](#)

Asia Pacific will be the largest region in the digital substation market in 2029, valued at \$4,487 million. The market is expected to grow from \$2,752 million in 2024 at a compound annual growth rate (CAGR) of 10%. The rapid growth can be attributed to the massive investments in

grid infrastructure in China, India, and Southeast Asia (Indonesia) to support urbanization and industrial growth

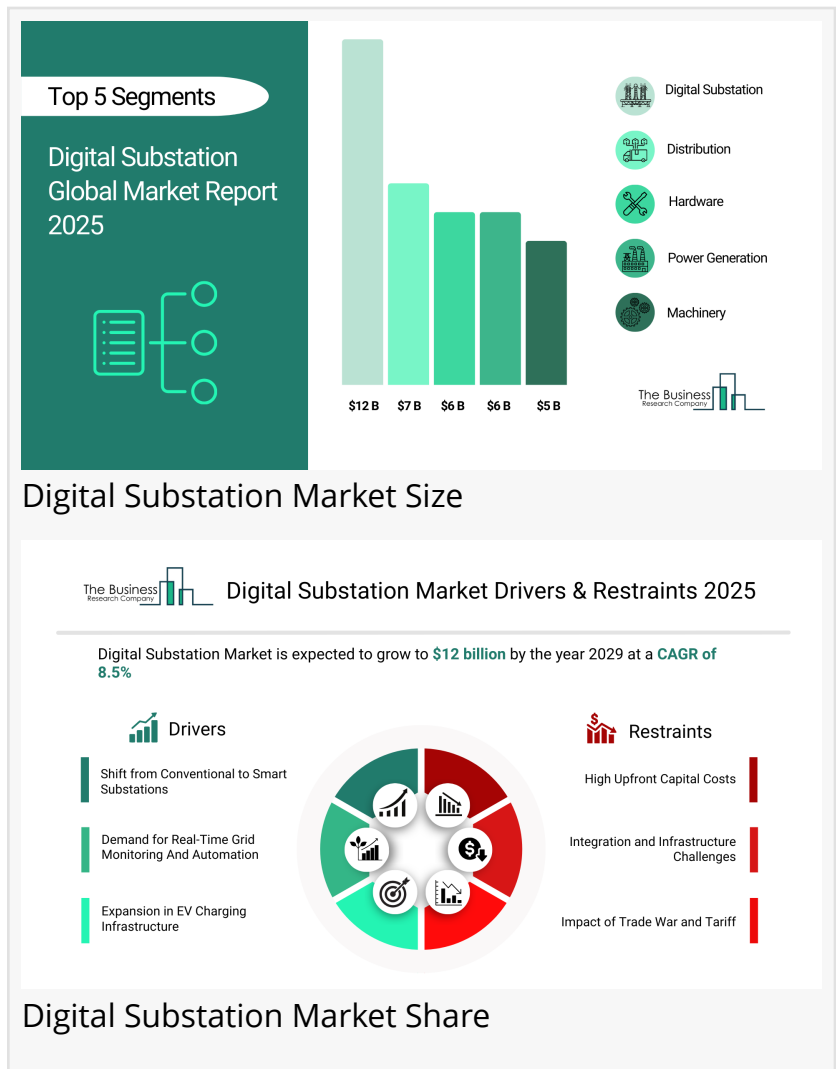
Which Will Be The Largest Country In The Global Digital Substation Market In 2029?

The USA will be the largest country in the digital substation market in 2029, valued at \$2,379 million. The market is expected to grow from \$1,641 million in 2024 at a compound annual growth rate (CAGR) of 8%. The strong growth can be attributed to the expanding EV (electric vehicles) charging infrastructure and shifting from conventional to smart substations.

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https://www.thebusinessresearchcompany.com/sample_request?id=5982&type=smp

What will be Largest Segment in the Digital Substation Market in 2029?

The digital substation market is segmented by voltage level into low voltage, medium voltage and high voltage. The medium voltage market will be the largest segment of the digital substation market segmented by voltage level, accounting for 45% or \$5,304 million of the total in 2029. The medium voltage market will be supported by increasing demand for reliable and efficient power distribution, rapid urbanization and industrialization driving higher electricity loads, government initiatives and regulatory mandates for grid modernization, integration with renewable energy sources such as solar and wind, advancements in digital protection and control technologies, adoption of IoT and real-time monitoring systems for



The digital substation market is segmented by type into transmission and distribution. The distribution market will be the largest segment of the digital substation market segmented by type, accounting for 63% or \$7,421 million of the total in 2029. The distribution market will be supported by increasing demand for reliable and efficient electricity delivery, rising integration of renewable energy sources into the distribution network, growing need for real-time monitoring and automated fault detection, government initiatives and regulatory mandates to modernize grid infrastructure, advancements in IoT (internet of things), AI (artificial intelligence) and automation technologies for predictive maintenance and energy optimization, rising urbanization and industrialization driving higher electricity consumption, increasing focus on grid resilience against extreme weather events and the adoption of smart grid technologies to enhance operational efficiency and reduce transmission and distribution losses.

The digital substation market is segmented by module into fiber optics communication network, supervisory control and data acquisition and hardware. The hardware market will be the largest segment of the digital substation market segmented by module, accounting for 53% or \$6,232

million of the total in 2029. The hardware market will be supported by growing investments in substation modernization, rising demand for reliable and durable electrical equipment, integration with digital substations and intelligent electronic devices (IEDs), the need for robust transformers, circuit breakers and protection relays to ensure grid stability, advancements in smart and compact hardware technologies, regulatory standards mandating high-performance equipment, increasing adoption of IoT-enabled sensors and communication devices and the critical role of hardware in enabling automation, real-time monitoring and efficient energy management across power networks.

The digital substation market is segmented by industry vertical into power generation, metal and mining, oil and gas, transportation and logistics, defense and aerospace, process and manufacturing and other industry verticals. The power generation market will be the largest segment of the digital substation market segmented by industry vertical, accounting for 48% or \$5,646 million of the total in 2029. The power generation market will be supported by the increasing demand for reliable and efficient electricity supply, the integration of renewable energy sources such as solar, wind and hydro, growing investments in grid modernization and smart infrastructure, the need for real-time monitoring and control of generation assets, adoption of digital substations for improved operational efficiency and reduced downtime, regulatory mandates for cleaner and more efficient power generation, advancements in automation and intelligent electronic devices (IEDs) and the rising focus on optimizing energy output while minimizing carbon emissions and operational costs.

The digital substation market is segmented by equipment type into intelligent electronic devices (IEDs), digital relays, merging units (MUs), phasor measurement units (PMUs), SCADA systems, remote terminal units (RTUs), communication systems and other equipment types. The intelligent electronic devices (IEDs) market will be the largest segment of the digital substation market segmented by equipment type, accounting for 30% or \$3,555 million of the total in 2029. The intelligent electronic devices (IEDs) market will be supported by growing demand for advanced protection, control and automation of power systems, increasing adoption of digital substations for real-time monitoring and fault detection, integration with smart grid technologies to enhance operational efficiency, regulatory mandates for grid reliability and safety, advancements in IoT and communication-enabled intelligent electronic devices for seamless data exchange, rising investments in modernizing substations and the critical role of intelligent electronic devices in enabling predictive maintenance, minimizing downtime and improving overall energy management across power networks.

What is the expected CAGR for the Digital Substation Market leading up to 2029?

The expected CAGR for the digital substation market leading up to 2029 is 8%.

What Will Be The Growth Driving Factors In The Global Digital Substation Market In The Forecast Period?

The rapid [growth of the global digital substation market](#) leading up to 2029 will be driven by the following key factors that are expected to reshape industrial quality assurance and

manufacturing processes worldwide.

Shift From Conventional To Smart Substations - The shift from conventional to smart substations will become a key driver of growth in the digital substation market by 2029. Smart substations offer advanced automation, real-time monitoring and communication capabilities that improve grid reliability, operational efficiency and fault detection. Unlike traditional substations, which rely on analog systems and manual operations, smart substations can manage complex power flows, integrate renewable energy and respond rapidly to system disturbances. Moreover, their standardized digital architecture supports scalable and flexible grid expansion, enabling utilities to meet increasing electricity demand while maintaining stability. As a result, the shift from conventional to smart substations is anticipated to contributing to a 1.5% annual growth in the market.

Demand For Real-Time Grid Monitoring And Automation - The demand for real-time grid monitoring and automation will emerge as a major factor driving the expansion of the market by 2029. As the electrical grid becomes more complex with the integration of distributed energy resources (DERs), electric vehicles (EVs) and renewable energy sources, there is an increasing need for advanced systems that can provide real-time data analysis, fault detection and automated responses to grid disturbances. Digital substations equipped with advanced sensors, communication networks and control systems enable utilities to monitor grid conditions in real-time, optimize power flow and enhance system reliability and resilience. These capabilities are essential for maintaining grid stability and ensuring the efficient delivery of electricity to consumers. The digital substation market is set to experience significant growth during this period, driven by the increasing demand for real-time grid monitoring and automation to support the modernization of the electric grid. Consequently, the demand for real-time grid monitoring and automation is projected to contributing to a 1.0% annual growth in the market.

Expansion Of Electric Vehicle (EV) Charging Infrastructure - The expansion of electric vehicle (EV) charging infrastructure will serve as a key growth catalyst for the market by 2029. As the adoption of electric vehicles increases, the demand for a robust and efficient charging network becomes paramount. Digital substations, with their advanced monitoring, automation and communication technologies, play a crucial role in integrating and managing the increased load from EV charging stations. They enable real-time data acquisition, fault detection and predictive maintenance, ensuring the stability and reliability of the power grid amidst the growing number of charging points. Moreover, digital substations facilitate the seamless integration of renewable energy sources into the grid, supporting the sustainable growth of the EV ecosystem. Therefore, this expansion of electric vehicle (EV) charging infrastructure is projected to supporting to a 0.8% annual growth in the market.

Increasing Cross-Border Energy Trade - The increasing cross-border energy trade will become a significant driver contributing to the growth of the market by 2029. Cross-border electricity exchanges require robust, reliable and efficient grid infrastructure to ensure seamless power transmission between countries. Digital substations, with their advanced monitoring,

automation and communication technologies, enable real-time management of electricity flows, reduce transmission losses and enhance grid stability across interconnected networks. Moreover, digital substations facilitate the integration of diverse energy sources, including renewables and support standardized protocols for regional energy cooperation. As countries increasingly engage in cross-border energy trade to optimize resource utilization, improve energy security and meet growing electricity demand, especially in regions like Europe, Asia and Africa, the need for advanced, resilient and intelligent substation solutions significantly increases. Consequently, the increasing cross-border energy trade is projected to contributing to a 0.5% annual growth in the market.

Access the detailed Digital Substation Market report here:

<https://www.thebusinessresearchcompany.com/report/digital-substation-global-market-report>

What Are The Key Growth Opportunities In The Digital Substation Market in 2029?

The most significant growth opportunities are anticipated in the medium voltage digital substation market, digital substation distribution market, digital substation hardware market, digital substation for power generation market and intelligent electronic devices (IEDs) for digital substation market. Collectively, these segments are projected to contribute over \$9 billion in market value by 2029, driven by rapid deployment of smart-grid projects and renewables integration, migration from copper to fiber/IEC 61850-based digital communications, increasing adoption of IEDs and virtualized protection, and rising investment in cybersecurity and edge-level automation to support real-time monitoring and remote operation. This surge reflects the regulatory and utility spending on grid resiliency, electrification (transport and industry), and standardization efforts that reduce integration risk.

The digital substation distribution market by \$2,420 million, the digital substation for power generation market by \$2,013 million, the digital substation hardware market by at \$1,964 million, the medium voltage digital substation market is projected to grow by \$1,831 million and the intelligent electronic devices (IEDs) for digital substation market by \$1,204 million over the next five years from 2024 to 2029.

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