

# **Power Network Digital Assurance Market Forecasts to 2032 - Global Analysis By Solution Type (Network Monitoring Platforms, Grid Validation Solutions, Anomaly Detection Systems and Compliance Assurance Tools), Component, Network Type, Technology, Application, End User, and By Geography**

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## **Abstracts**

According to Statistics MRC, the Global Power Network Digital Assurance Market is accounted for \$5.7 billion in 2025 and is expected to reach \$12.9 billion by 2032 growing at a CAGR of 12.3% during the forecast period. Power Network Digital Assurance encompasses the methodologies and technologies that safeguard the reliability, security, and performance of digital systems within modern power grids. It integrates cybersecurity protocols, software validation, data integrity checks, and compliance frameworks to protect against failures and cyber threats. By supporting smart meters, IoT devices, and automated controls, digital assurance ensures seamless operation of increasingly complex energy networks. It enables utilities to maintain trust, resilience, and efficiency while integrating renewable energy sources, distributed generation, and advanced grid automation technologies into critical infrastructure.

### **Market Dynamics:**

Driver:

Rising need for network reliability

The rising need for network reliability significantly accelerated adoption of power

network digital assurance solutions. Increasing electrification, distributed energy integration, and rising power demand placed greater stress on grid infrastructure. Utilities prioritized continuous visibility, fault detection, and performance assurance to maintain uninterrupted power delivery. Digital assurance platforms enabled proactive monitoring and rapid issue resolution, reducing downtime risks. As reliability became a core performance metric for modern power networks, demand for advanced assurance solutions strengthened steadily.

#### Restraint:

##### Integration complexity with legacy infrastructure

Integration complexity with legacy power infrastructure influenced implementation strategies across utilities. Older grid architectures required careful alignment with modern digital assurance platforms to ensure seamless data flow and operational continuity. This complexity encouraged phased deployment approaches and modular solution designs. Vendors increasingly offered interoperable and scalable architectures, enabling gradual modernization. Over time, these integration initiatives supported broader adoption, allowing utilities to enhance network visibility while preserving existing infrastructure investments.

#### Opportunity:

##### Digital twin adoption in power networks

Digital twin adoption created substantial growth opportunities within the power network digital assurance market. Virtual replicas of power networks enabled real-time performance simulation, predictive maintenance, and scenario-based planning. Utilities leveraged digital twins to anticipate failures, optimize asset utilization, and improve decision-making accuracy. Integration with advanced analytics and AI further enhanced predictive capabilities. As power networks grew more complex, digital twins emerged as a critical tool for comprehensive network assurance and optimization.

#### Threat:

##### Escalating cyberattack sophistication levels

Escalating cyberattack sophistication reinforced the importance of robust digital assurance solutions in power networks. As grids became more digitized, utilities

prioritized continuous security monitoring and anomaly detection. Advanced assurance platforms integrated cybersecurity intelligence with network performance data to enhance situational awareness. Rather than constraining growth, evolving cyber threats accelerated investment in resilient digital assurance systems, positioning them as essential components of secure and reliable power infrastructure.

### **Covid-19 Impact:**

The COVID-19 pandemic highlighted the importance of remote monitoring and digital oversight of power networks. Workforce constraints and operational disruptions increased reliance on automated assurance platforms. Utilities accelerated digital transformation initiatives to ensure service continuity and grid resilience. Post-pandemic strategies emphasized enhanced visibility, predictive maintenance, and secure remote operations, reinforcing sustained demand for power network digital assurance solutions across global markets.

The network monitoring platforms segment is expected to be the largest during the forecast period

The network monitoring platforms segment is expected to account for the largest market share during the forecast period, driven by its foundational role in ensuring grid performance and reliability. These platforms provided real-time visibility into network conditions, enabling rapid fault detection and performance optimization. Widespread deployment across transmission and distribution networks reinforced their critical importance. Strong demand for continuous monitoring capabilities supported the segment's leading market share.

The software platforms segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the software platforms segment is predicted to witness the highest growth rate, propelled by the shift toward software-defined grid management. Advanced software solutions enabled analytics-driven assurance, automated reporting, and seamless integration with digital twins. Utilities increasingly favored flexible, upgradeable software platforms over hardware-intensive solutions. This transition accelerated adoption and positioned software platforms as the fastest-growing segment within the market.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share, attributed to rapid grid expansion, urbanization, and large-scale power infrastructure investments. Countries such as China and India emphasized digital grid modernization to support growing electricity demand. Government-backed smart grid initiatives and technology adoption further strengthened regional leadership in the power network digital assurance market.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR associated with advanced grid digitalization, strong regulatory focus on reliability, and heightened cybersecurity awareness. Utilities across the region invested heavily in digital assurance platforms to enhance resilience against outages and cyber risks. Innovation-driven ecosystems and advanced analytics adoption further accelerated market growth across North America.

Key players in the market

Some of the key players in Power Network Digital Assurance Market include Siemens Energy, ABB Ltd., Schneider Electric SE, GE Vernova, Hitachi Energy, Emerson Electric, Rockwell Automation, OSIsoft (AVEVA), Cisco Systems, Palo Alto Networks, Fortinet Inc., Honeywell International, IBM Corporation, Oracle Corporation, Tenable Inc., Nozomi Networks and Dragos Inc.

### **Key Developments:**

In Jan 2026, Siemens Energy launched its next-generation digital assurance platform integrating AI-driven monitoring and predictive analytics, enabling real-time operational visibility and proactive maintenance across complex power networks.

In Dec 2025, ABB Ltd. unveiled its GridX Digital Assurance Suite, combining IoT-enabled sensors with advanced analytics to enhance cybersecurity, reliability, and predictive performance for distributed power systems.

In Nov 2025, Schneider Electric SE introduced its EcoStruxure Power Network Digital Twin solution, providing end-to-end monitoring and simulation capabilities to optimize energy management, asset performance, and operational resilience.

### Solution Types Covered:

Network Monitoring Platforms

Grid Validation Solutions

Anomaly Detection Systems

Compliance Assurance Tools

### Components Covered:

Software Platforms

Sensors & Monitoring Devices

Data Management Systems

Communication Infrastructure

### Network Types Covered:

Smart Grids

Microgrids

Traditional Grids

Virtual Power Plants

### Technologies Covered:

Digital Twin Technology

AI-Based Analytics

Cloud-Based Assurance Platforms

Cyber-Physical Security Systems

Applications Covered:

Transmission Networks

Distribution Networks

Renewable Energy Integration

Substation Automation

End Users Covered:

Utilities

Grid Operators

Energy Service Providers

Industrial Power Consumers

Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & 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 2024, 2025, 2026, 2028, and 2032
- 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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