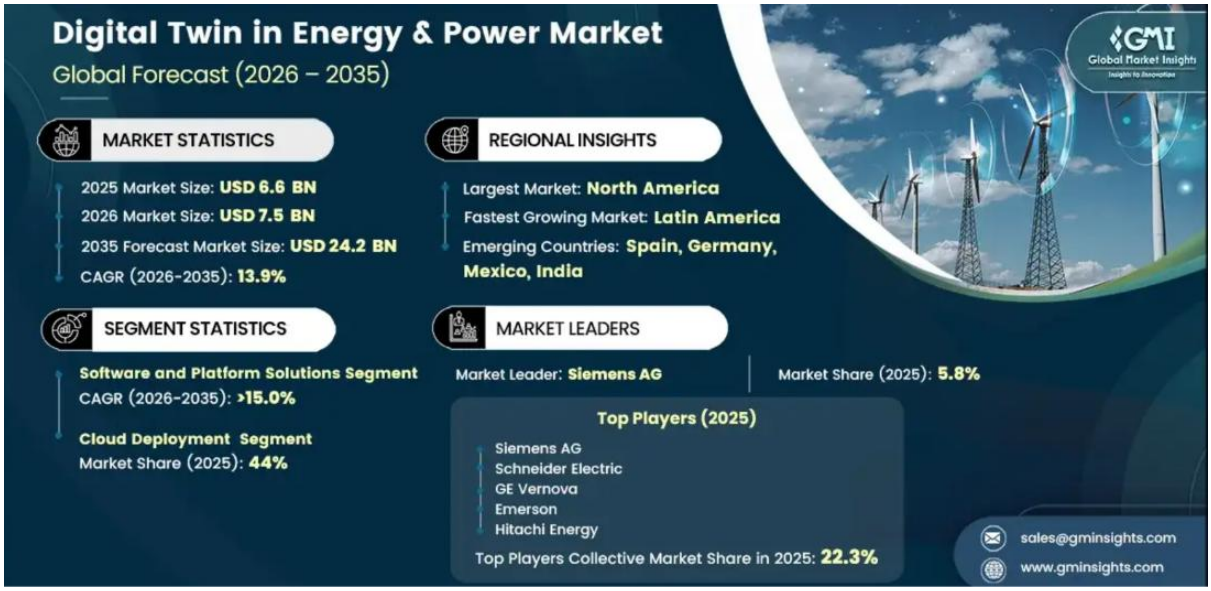
Digital Twin in Energy & Power Market: Growth Opportunities, Regional Insights and Forecast 2035

The digital twin in energy and power market was valued at USD 6.6 billion in 2025 and is projected to reach USD 7.5 billion in 2026. The market is expected to expand at a CAGR of 13.9% from 2026 to 2035, reaching USD 24.2 billion by 2035. North America held the largest share in 2025, while Asia Pacific is projected to be the fastest-growing region during the forecast period.

The market is expanding as utilities, grid operators, power generators, renewable-energy companies, and industrial energy users deploy digital twins to improve asset reliability, predictive maintenance, grid planning, renewable integration, and operational efficiency. Rising grid-reliability requirements, renewable-power integration, demand for cost-efficient operations, and advancements in IoT sensors are strengthening adoption. At the same time, high implementation costs, cybersecurity obligations, data privacy requirements, and shortages of specialized workforce are creating deployment challenges.



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By component, software and platforms represented 56% of market revenue in 2025 and are projected to expand at a 15% CAGR through 2035. Hardware accounted for 19% of revenue in 2025 and is expected to grow at a 9.6% CAGR, supported by demand for IoT sensors, industrial gateways, edge-computing nodes, synchronized phasor-measurement units, and field instrumentation. Services held a 25% share in 2025 and are projected to grow at the overall market CAGR of 13.9%, driven by integration, consulting, training, and managed operations.

By deployment, cloud solutions held a 44% share in 2025 and are forecast to grow at a 17.4% CAGR through 2035. Cloud deployment is gaining traction because it supports real-time data processing from dispersed assets, predictive-model training, and large-scale scenario simulations. On-premises deployment accounted for 37% of revenue in 2025 and is expected to grow at a 7.5% CAGR, while hybrid deployment held a 19% share and is projected to expand at a 13.9% CAGR.

By twin type, asset twins are widely used for turbines, transformers, cables, power electronics, and HVDC links, where condition monitoring directly supports maintenance decisions. Process and

system twins coordinate operational sequences and energy flows, while plant and facility twins support generation sites, substations, refineries, and nuclear facilities. Grid and network twins are gaining strategic importance because they simulate topology, congestion, faults, demand, and renewable variability.

By application, asset performance management and predictive maintenance represent the most commercially validated use cases. Other applications include grid optimization and monitoring, process optimization, energy management, remote monitoring and diagnostics, simulation and scenario planning, safety management, risk management, and regulatory compliance. Utilities and grid operators remain the central end-user group, while power generators, renewable-energy operators, oil and gas companies, and industrial energy users are increasing adoption.

North America held a 38% share of the digital twin in energy and power market in 2025 and is projected to grow at a 12.6% CAGR through 2035. Europe accounted for 28% of revenue in 2025 and is expected to expand at an 11.1% CAGR. Asia Pacific held a 22% share in 2025 and is forecast to record the highest regional CAGR of 16.6%, supported by grid modernization, smart-meter deployment, renewable-energy expansion, and infrastructure investment. Latin America and the Middle East & Africa remain emerging markets where adoption is linked to grid expansion, renewable development, and industrial-energy optimization.

Siemens AG led the market with over 5.8% share in 2025. Its position is supported by Gridscale X, Siemens Energy's Noedra platform, and Siemens Insights Hub, which address distribution-grid modeling, real-time grid-health monitoring, and industrial asset intelligence. Siemens AG, Schneider Electric, GE Vernova, Emerson, and Hitachi Energy collectively held 22.3% of the market in 2025.

Some of the major players in this market are Schneider Electric, GE Vernova, Emerson, Hitachi Energy, Honeywell International, ABB, Accenture, ANSYS Inc., Bentley Systems, Cognite AS, Dassault Systèmes, ETAP, Hexagon AB, IBM Corporation, Kongsberg Digital, Microsoft Corporation, PTC Inc., Siemens Energy, and Yokogawa Electric.

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