



GRID MODERNIZATION AND THE LNG EXPORT BOOM

Transform the US Energy Landscape

MARCH 2026



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Executive Summary



The US energy industry is undergoing a period of structural transformation, driven by rising electricity demand, accelerating technology adoption, and large-scale capital investment across generation, infrastructure, and digital systems. Strong domestic production, expanding clean energy deployment, and growing energy exports continue to reinforce the country's global energy leadership while supporting long-term market growth.

The US energy market is projected to reach \$0.6 trillion by 2026, expanding at a 10.1% CAGR between 2026 and 2034, reflecting sustained investment in power generation, grid modernization, and energy infrastructure. Utilities and developers are increasing capital spending to upgrade aging transmission and distribution networks while adding renewable capacity, battery storage, and firm generation to meet rising power demand.

Demand growth is being driven by the electrification of transportation, buildings, and industrial processes, as well as the rapid expansion of energy-intensive data centers supporting AI and cloud computing. At the same time, the US continues to strengthen its position in global energy markets through large-scale LNG exports and sustained hydrocarbon production.

Digital transformation is also reshaping energy operations. More than 40% of North American utilities have fully integrated AI, data analytics, and grid-edge intelligence by late 2025, enabling improved forecasting, operational efficiency, and grid management. Together, expanding infrastructure investment, strong export performance, and rapid technology adoption are positioning the US energy industry for sustained growth and operational transformation.

\$0.6 Trillion

is the projected market size of the US energy market by 2026, growing at a CAGR of 10.1% between 2026 and 2034, as per Market Data Forecast Analysis

>40%

of North American utilities had fully integrated AI, data analytics, and grid-edge intelligence by late 2025, as per the Itron 2025 Resourcefulness Report

Market Overview

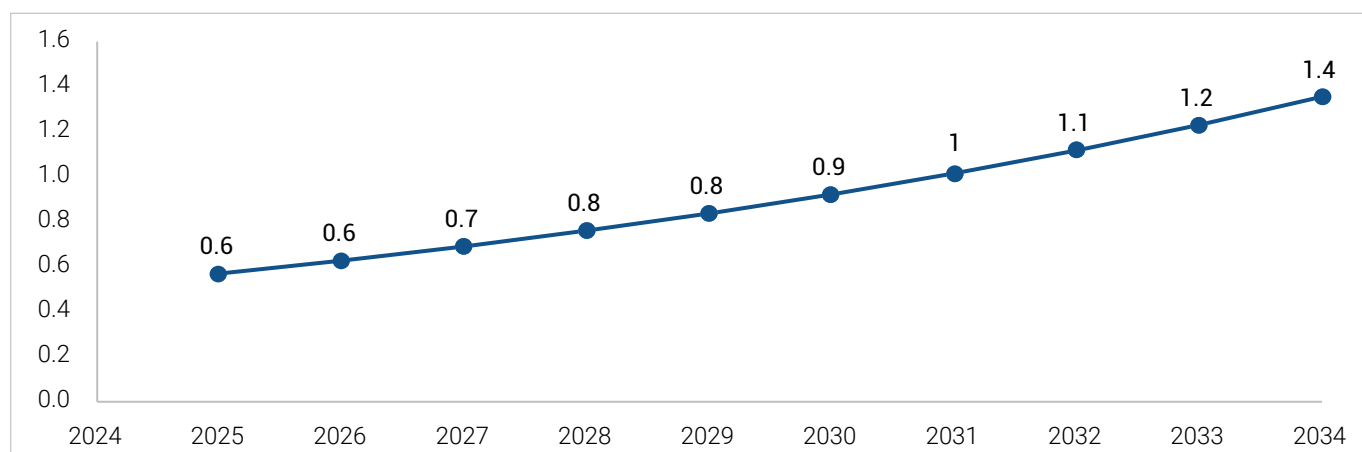


The US energy industry operates at a historic scale, marked by record production and strong capital deployment. The industry's market size reached \$0.6 trillion in 2025 and is projected to grow at a CAGR of 10.1% from 2026 to 2034, as per Market Data Forecast Analysis. Clean energy investment climbed to \$378 billion, reflecting spending on generation, storage, and grid modernization. Moreover, crude oil output averaged 13.6 million barrels per day, and dry natural gas production reached about 107.7 Bcf/d, both record levels, as per EIA. Moreover, electricity generation increased 3% YoY to roughly 4,528 TWh, reflecting demand from data centers, industrial activity, and electrification.

Power-sector composition continued shifting toward renewables, which accounted for 25.7% of total generation, while solar added 27.7 GW of new capacity. Natural gas remained the largest generation source at roughly 40% of the power mix. The US strengthened its global energy leadership by exporting 111 million metric tons of LNG, the first country to exceed 100 MMT in a year, and accounting for about one-quarter of global LNG trade. M&A activity remained strong, with US energy deal value reaching about \$205 billion in 2025, highlighting continued consolidation across the US energy sector.

The US energy sector expanded significantly, supported by robust production, increased clean energy investment, and record utility capital spending. Renewables continued to gain momentum while natural gas remained central to generation. Strong export performance and sustained M&A activity reinforced the nation's global energy leadership and investor confidence.

Figure 1: US Energy Market Size (in \$Trillions)



Source: Market Data Forecast Analysis

Macro Drivers



Demand Growth and Electrification Lift Baseline Power Consumption

US electricity use grew approximately 2–3% annually in 2024–2025 after years of stagnation and is forecast to keep rising through 2026 by 1% and 3% in 2027, while energy-intensive data centers and electrification of buildings, transport, and industry reset utilities' long-term demand and investment planning assumptions.



Policy Frameworks Anchor Long-Term Decarbonization Investment

Federal targets call for 50–52% greenhouse-gas reductions by 2030 and a 61–66% by 2035, reinforcing long-term decarbonization across the power sector and sustaining demand for renewable energy and storage despite near-term policy uncertainty.



Capital Allocation and Industrial Policy Reconfigure the Value Chain

Tens of billions of dollars have flowed into US clean energy manufacturing, supporting over 200 announced factory and component projects, while higher-for-longer interest rates accelerate consolidation and capital discipline alongside selective investment in renewables, batteries, and low-cost scale.



Cost-Competitive Renewables and Storage Dominate New Capacity

Utility-scale solar costs have fallen by over 80% between 2010 and 2024, and solar and wind account for 90% of new US generation capacity in the first seven months of 2025.



Exports And Energy Security Reshape Hydrocarbon Investment

US natural-gas demand growth in 2025–2026 is expected to be led by exports, especially LNG, while the country's position as the world's largest LNG exporter and a major crude and petroleum product exporter keeps geopolitics and global demand central to upstream and midstream investment decisions.

Emerging US Energy Trends



Grid Modernization and the Trillion-Dollar Utility Investment Cycle

The US power sector has entered one of the largest investment cycles in its history, driven by aging infrastructure, rising electricity demand, and electrification. According to S&P Global, capital spending for 47 investor-owned utilities is expected to reach about \$215 billion in 2025, with total spending over 2025–2029 approaching \$1.2 trillion, levels not seen since the postwar buildout of the US grid. Much of this capital is directed toward transmission and distribution systems, many of which are over 25 years old.

Investment in generation is also rising, including renewable energy and firm capacity such as gas, nuclear, and battery storage, as utilities prepare for higher peak demand. Southern Co. illustrates this trend. In July 2025, it raised its five-year base capital plan from \$63 billion to \$76 billion, reflecting investments in grid modernization, generation capacity, and infrastructure to support rising load from commercial users such as data centers.

Demand growth has become the central pressure point. US electricity use is projected to rise from 4,195 billion kWh in 2025 to 4,372 billion kWh in 2027, as per EIA. Data centers supporting AI workloads are expected to account for a large share of near-term demand growth, with grid operators such as ERCOT, PJM, SPP, and MISO seeing rising load requests. However, this investment cycle also brings affordability and execution risks. Utility rate increase requests reached record levels in 2025, while supply chain constraints, labor shortages, and permitting delays add pressure. The key challenge will be modernizing the grid while maintaining reliability and keeping electricity affordable.

4,372 Billion kWh

is the projected US electricity use by 2027, rising from record levels in 2025, as per EIA

\$215 Billion

was the estimated capital spending by 47 US investor-owned utilities in 2025, as per S&P Global

The US LNG Export Boom and Natural Gas as a Backbone Fuel

The US is reshaping the global natural gas market through rapid LNG export expansion and a stronger role for gas in its domestic energy system. In 2025, the US became the first country to export more than 100 million metric tons of LNG in a single year, shipping about 111 MMT and accounting for roughly 25% of global LNG trade. LNG exports averaged around 15 Bcf/d in 2025 and are expected to rise to about 16.4 Bcf/d in 2026 as new facilities ramp up. Key projects such as Plaquemines LNG, Corpus Christi Stage 3, and Golden Pass LNG are adding capacity and pushing exports to new records. Developers also approved final investment decisions on six LNG export projects in 2025, helping drive global LNG project financing to a record \$72 billion.

Natural gas remains a backbone fuel for the US energy system, supplying about 40% of electricity generation, as per EIA. Rising power demand from data centers and AI computing is strengthening the case for gas-fired generation alongside renewables. Upstream production continues to expand, led by Appalachia, the Permian, and the Haynesville. After averaging just over \$2/MMBtu in 2024, Henry Hub prices rose in 2025 and are expected to approach \$4/MMBtu in 2026–2027, improving producer economics while raising costs for utilities and consumers.

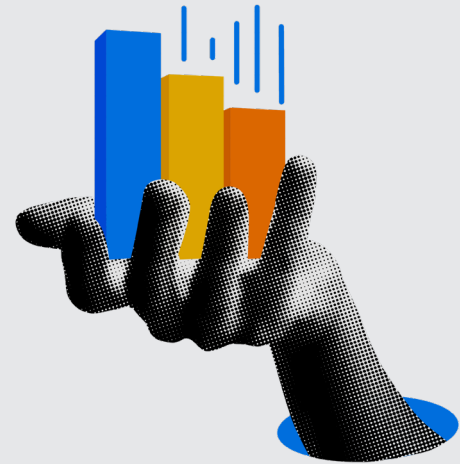
Nuclear Momentum Builds as SMRs Enter the Construction Phase

US nuclear power development has entered a new phase in 2025–2026, shifting from policy ambition toward early execution. Multiple small modular reactors (SMRs) and advanced reactor projects are now in licensing review and receiving federal funding, marking progress beyond concept studies. Federal policy support is central to this momentum. Congress redirected about \$3.1 billion toward advanced reactor deployment and SMR programs, while the Department of Energy reissued a \$900 million funding initiative to support first-mover and follow-on projects and reduce first-of-a-kind project risk.

Regulatory progress is also advancing. In 2025, the Nuclear Regulatory Commission approved NuScale's updated SMR design and accepted construction permit applications for projects led by the Tennessee Valley Authority, TerraPower, and the Dow/X-energy consortium. Kairos Power's Hermes test reactor in Tennessee illustrates that advanced reactor projects are reaching the construction stage. Two projects anchor the near-term US SMR deployment pathway. The Department of Energy selected Holtec's SMR-300 project at the Palisades site and TVA's BWRX-300 project at Clinch River as first-mover initiatives, awarding each up to \$400 million. Both projects target commercial operation in the early 2030s. Amazon's long-term agreement for up to 1.9 GW of nuclear power from Talen Energy's Susquehanna plant cements the role of corporate demand in driving new nuclear investment.

40%

of US power generation comes from natural gas, with record demand driven by data centers and AI growth, as per EIA



\$3.1 billion

is the federal funding Congress has redirected toward advanced reactor and SMR deployment programs



Operationalizing AI in the US Energy Industry



AI Scales Across the US Energy Value Chain

Across the US energy industry, AI is moving from experimentation to operational scale in 2025–2026, with three use cases delivering the most measurable value: predictive maintenance, production optimization, and grid operations. Predictive maintenance and asset monitoring have become the most impactful applications. Utilities, midstream operators, and industrial facilities are using machine learning (ML), sensor data, and digital twins to detect failures and optimize maintenance cycles. According to GlobalData, these systems can reduce maintenance costs by up to 30% and improve equipment availability by about 20%.

In the midstream sector, operators apply digital-twin models to pipelines and critical equipment to reduce unplanned shutdowns and improve safety. In power generation and transmission, vendors such as GE Vernova, Siemens, and Schneider Electric are embedding AI into asset-performance platforms used by utilities. The second major use case is production optimization in upstream oil and gas. US producers are applying ML to drilling and field operations to reduce non-productive time and improve well performance. Companies such as ConocoPhillips and ExxonMobil are expanding AI and ML tools across drilling programs and operations to improve efficiency and reduce costs.

AI is also becoming important in grid operations and demand forecasting as utilities face rapid load growth from data centers and electrification. By late 2025, more than 40% of North American utilities reported integrated AI and data analytics systems, with AI-based forecasting improving accuracy by up to 20%, as per the Itron 2025 Resourcefulness Report. Together, these applications show AI becoming a core operational capability across the US energy system.

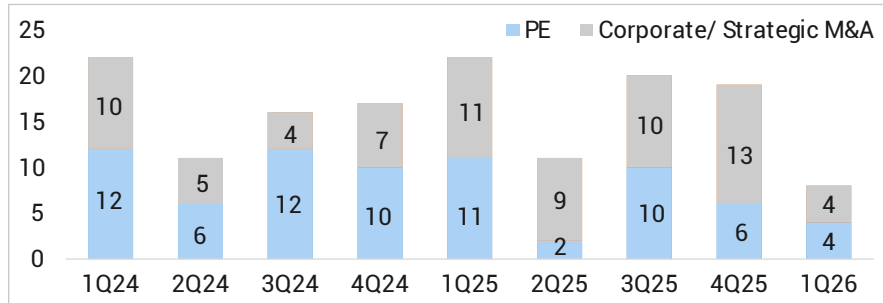
Up to 20%

improvement in accuracy is achieved through AI-powered demand forecasting, as per the Itron 2025 Resourcefulness Report

AI is becoming integral to US energy operations, advancing from pilots to large-scale deployment. Utilities and operators use AI for predictive maintenance, production optimization, and grid management, reducing downtime and improving efficiency. Leading energy and technology firms are embedding ML and digital twins to enhance reliability, performance, and forecasting accuracy.

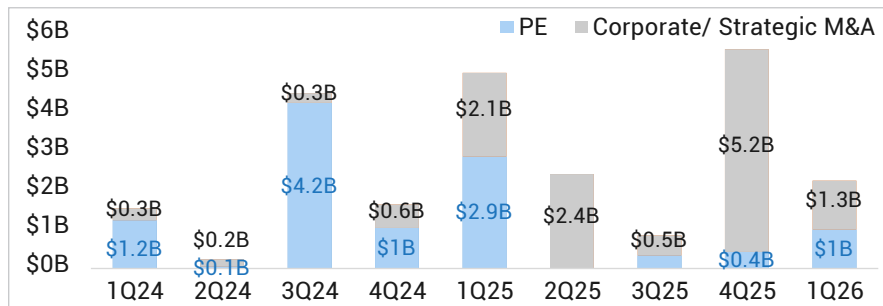
Key US Energy Deals

Figure 2: Energy Lower Middle Market and Middle Market Deal Count



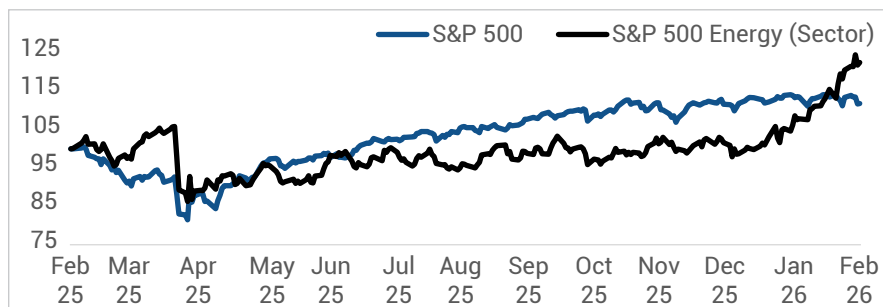
Source: PitchBook, data as of February 17, 2026

Figure 3: Energy Lower Middle Market and Middle Market Capital Raised



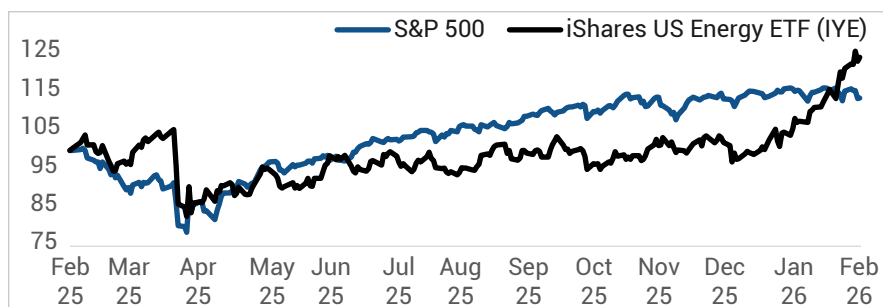
Source: PitchBook, data as of February 17, 2026

Figure 4: S&P 500 Energy (Sector) YTD Performance



Source: S&P Global, data as of February 13, 2026

Figure 5: iShares US Energy ETF (IYE) YTD Performance



Source: Investing.com, data as of February 13, 2026

US Energy Lower Middle Market and Middle Market Deal Summary

142
Companies

162
Deals

170
Investors

91
Exits

\$4.7B
Largest Deal




\$23.5B
Capital Invested

\$118.3m
Med Post Valuation

Key Private Equity Deals Tombstones

<p>February 6, 2026</p> <hr/>  <p>to Acquire (Majority Stake)</p>  <p>a manufacturer of energy and telecom infrastructure products, for approximately \$3.5 Billion</p>	<p>September 30, 2025</p> <hr/>  <p>A TIAA Company</p> <p>Acquires (Majority Stake)</p>  <p>a provider of energy solutions to commercial and industrial customers, for an undisclosed amount</p>	<p>August 6, 2025</p> <hr/> <p>Blackstone</p> <p>to Acquire</p>  <p>a provider of a data analytics energy intelligence platform, for approximately \$6.5 Billion</p>
<p>June 16, 2025</p> <hr/>  <p>to Acquire</p>  <p>an independent power producer, for approximately \$1.1 Billion</p>	<p>May 15, 2025</p> <hr/>  <p>to Acquire (Majority Stake)</p>  <p>a fuel retailer in Germany and Austria, for approximately \$2.8 Billion</p>	<p>March 19, 2025</p> <hr/> <p>J.C. FLOWERS & Co.</p> <p>Acquires</p>  <p>a provider of a data analytics energy intelligence platform, for approximately \$1 Billion</p>

Energy Upcoming Events

		
<p>World Conference on Climate Action and Green Energy Transitions (WCCAGET)</p>	<p>March 23, 2026</p>	<p>New York, NY</p>
<p>International Conference on Smart Grid and Renewable Energy (ICSGRE)</p>	<p>March 24, 2026</p>	<p>Los Angeles, California</p>
<p>International Conference on Environmental Science and Green Energy (ICESGE)</p>	<p>March 28, 2026</p>	<p>Las Vegas, Nevada</p>



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