

The new energy equation: Gas-backed reliability, renewable growth & the digital infrastructure boom



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Key takeaways

- Renewables are growing fast, but natural gas remains critical
- Commercial and industrial solar's strong growth fundamentals are racing against federal tax credit deadlines and persistent development bottlenecks, creating a need for flexible financing
- Financing the energy digitalization supply chain may offer better risk-adjusted return potential than lending directly to data centers
- The Strait of Hormuz blockade has caused a supply/demand imbalance that may not easily be rectified even after its potential re-opening
- The Iran conflict has exposed a historic fracture in OPEC

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Powering America forward: Balancing renewable growth with energy security^{1,2}

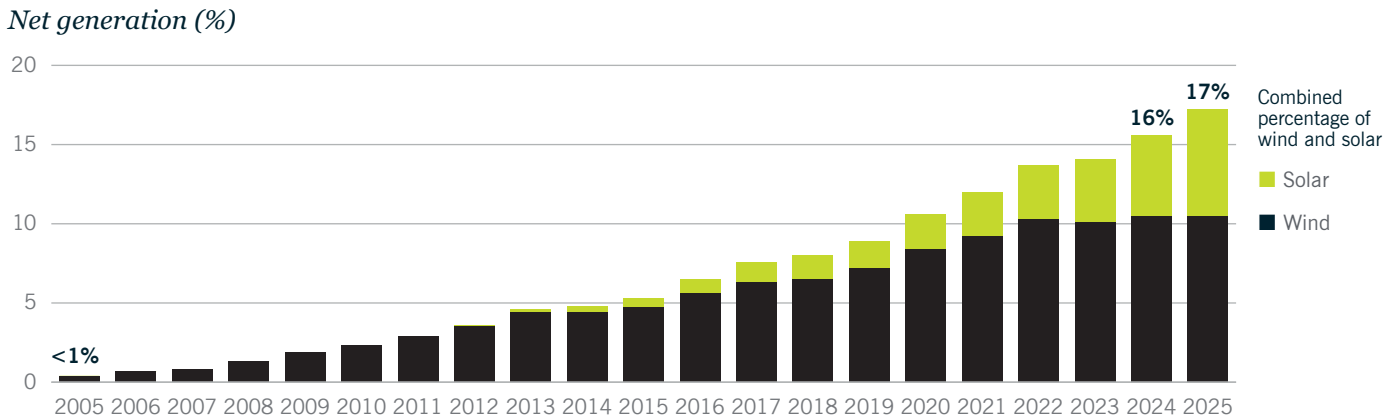
The U.S. energy landscape in 2025 gave rise to a compelling two-part story -- remarkable renewable power generation growth and the enduring importance of reliable energy supply.

On the sustainable infrastructure front, primarily led by solar's growth over the past five years, solar and wind achieved a historic milestone, generating a record 17% of all U.S. utility-scale electricity — up from just over 10% in 2020. Utility-scale solar surged 34% year-over-year while wind grew 3%, combining for 760,000 GWh of generation.

Yet energy security remained equally critical. Natural gas consumption hit a record annual average of 92.0 Bcf/d in 2025, with January alone setting an all-time monthly record of 126.6 Bcf/d driven by intense winter cold. Residential and commercial consumption rose 11% and 9% respectively, underscoring how important natural gas remains during extreme weather.

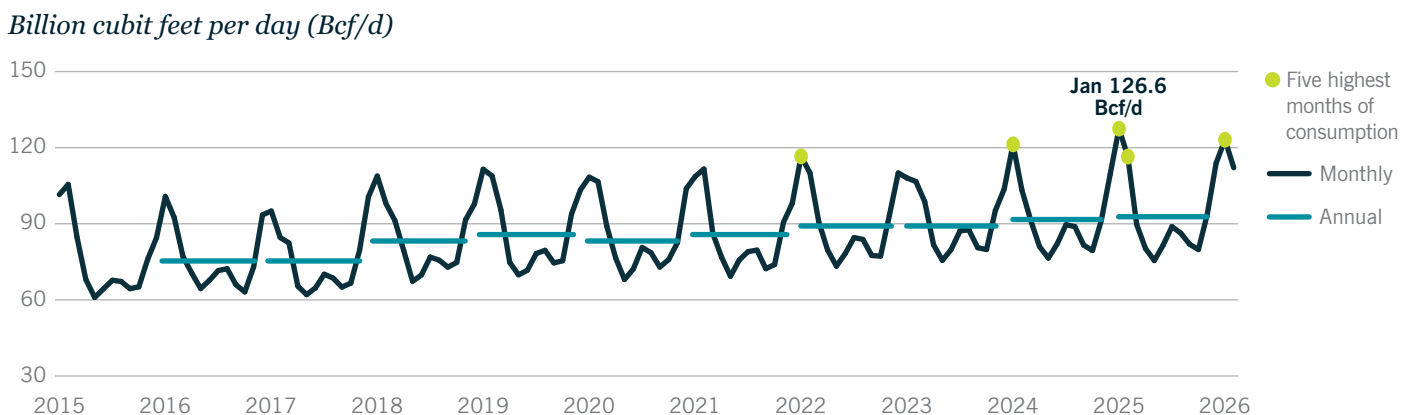
These trends intersect in important ways. Solar and battery additions modestly reduced natural gas use in terms of electric power generation during 2025, demonstrating that renewables can support energy security by moderating peak demand. At the same time, natural gas — still the largest source of power generation in the U.S. — continues to serve as the backbone that keeps the grid stable when wind and sun resources are unavailable. The path forward requires advancing all sources of energy to meet demand growth as well as provide baseload capacity.

Figure 1: Annual percentage of U.S. utility-scale electricity net generation from wind and solar (2005-2025)



Source: EIA: Electricity Data Browser, <https://www.eia.gov/electricity/data/browser/>

Figure 2: U.S. natural gas consumption averages (Jan 2016–Dec 2025)



Source: http://www.eia.gov/dnav/ng/ng_cons_sum_dcu_nus_m.htm

Decarbonizing power generation³

US commercial solar growth creates flexible financing opportunity amid timeline delays

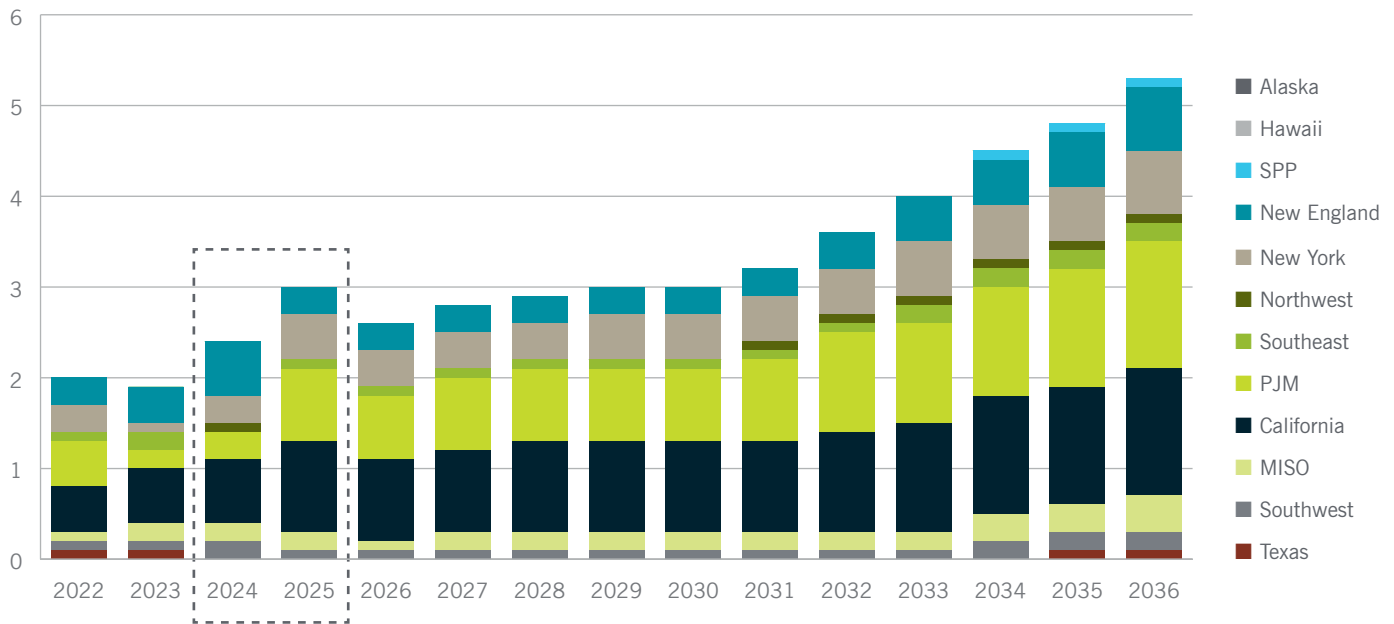
US commercial and industrial (C&I) solar grew 27% year over year in 2025, adding 3.1 gigawatts, but extended development timelines are constraining the pipeline. In addition to increasing revenues (\$/kWh) for distributed generation, the requirement for projects to be operational by end of 2027 to retain federal tax credit eligibility is also spurring nearly 15 GW of new projected C&I capacity from 2026 to 2030.

Growth is concentrated in a few favorable markets. California, New York, and PJM accounted for 74% of 2025

installations, each driven by different mechanisms: high retail prices and building mandates in California, direct per-watt subsidies in New York, and solar renewable energy credit markets in PJM states. Policy changes however pose some risk, as the recent actions in Maine to retroactively eliminate some of the favorable policies for distributed generation.

Commercial solar’s strong growth fundamentals — rising electricity costs, supportive state policies, and a large projected buildout — make it an attractive segment for flexible capital deployment. Yet the multi-year timeline delays and late-stage bottlenecks mean developers face extended gaps between committing capital and reaching commercial operation, all while racing against tax credit deadlines. Financing solutions that can accommodate prolonged development horizons, bridge safe-harbor periods, and adjust to shifting regulatory timelines are well positioned to fill a critical gap, providing the adaptable capital developers need to convert this growing pipeline into operational projects efficiently.

Figure 3: Annual U.S. commercial and industrial PV capacity additions (GW)



BloombergNEF (23 Apr 2026): Longer Timelines Squeeze US Commercial Solar Pipeline

Infrastructure supply chain and energy digitalization^{4,5,6}

The “Picks & Shovels” of energy digitalization: An infrastructure supply chain opportunity

AI-driven data center expansion is straining the US power equipment supply chain. Energy digitalization — the power solutions needed to connect and sustain data centers — is growing faster than manufacturers can keep up. US data center capacity could hit 110 gigawatts by 2030, and spending on power-generation equipment for these facilities may jump from \$2.6 billion in 2025 to \$65 billion by decade’s end. Data centers made up less than 2% of the power-equipment market in 2020 but are projected to drive 68% of US load growth through 2030.

The supply chain is visibly strained. Distribution transformer backlogs run a year or more — about double the historical norm. President Trump invoked the Defense Production Act to boost domestic manufacturing of transformers, high-voltage transmission components, advanced conductors, substations, and other critical equipment, calling US production capacity “dangerously limited”. The National Electrical Manufacturers Association called this “a step in the right direction.”

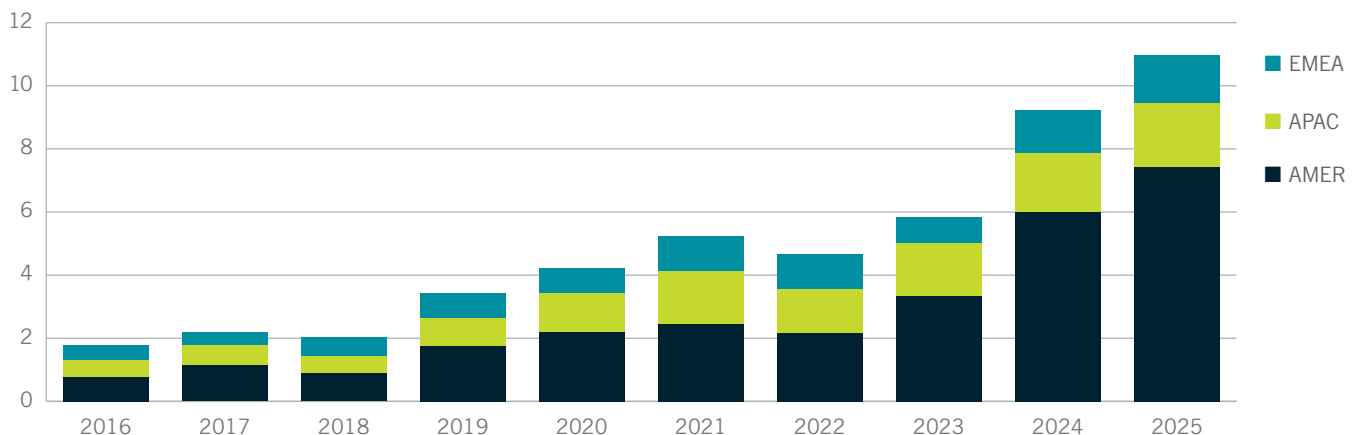
Data center operators continue to increase capital commitments. The 14 largest publicly owned firms are

expected to invest nearly \$750 billion in 2026, up from roughly \$450 billion in 2025. Moreover, analyst estimates for their FY2027 capex jumped 56% between August 2025 and February 2026. Over 23 gigawatts of data center IT capacity was under construction globally as of Q3 2025, about three-quarters of it in the US. Large data center developers accounted for 72% of corporate clean power procurement in the Americas in 2025.

For investors, financing the infrastructure supply chain — the “picks & shovels” of energy digitalization — may offer a better risk-return profile than lending directly to data centers. Data center operators carry concentrated business risk (useful life of GPUs, shift in preferred chip architecture), evolving AI economics (adjusted gross margins at major AI labs are currently 30–40%), with revenue models often tied to short-term leases. Neocloud companies, for example, rely on hyperscaler contracts that are “for much shorter periods than total asset life, which exposes the neoclouds to risk if long-term demand for AI compute is lower than expected” (“AI Data Center Build Advances,” March 24, 2026). The infrastructure supply chain, by contrast, benefits from demand that is largely agnostic to which hyperscaler, neocloud, or AI model wins. Transformers, switchgear, substations, and generation equipment are needed regardless of whether any single data center tenant succeeds — and today’s shortage conditions give manufacturers strong pricing power and backlog visibility. Financing these essential physical infrastructure assets offers exposure to a secular growth theme with broader counterparty diversification, tangible collateral, and demand durability that extends well beyond any individual end-user or technology cycle.

Figure 4: Data center construction goes into overdrive (GW)

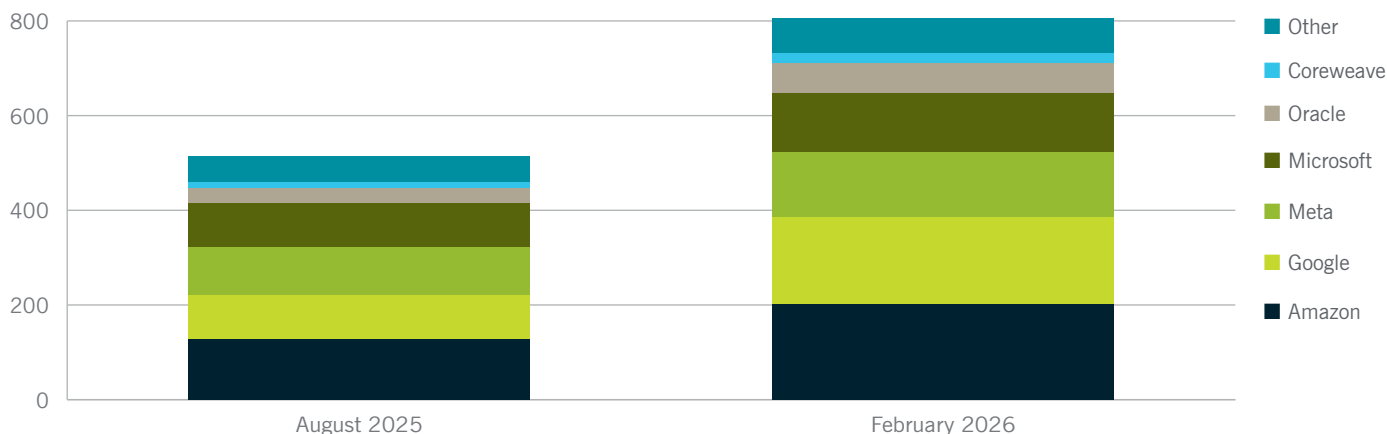
*Data center quarterly construction starts, by IT capacity**



*IT capacity refers to power draw of server equipment, and is lower than overall power draw. Construction starts are generally lower in H2 due to seasonality in the northern hemisphere. Source: BloombergNEW, DC Byte.

Figure 5: Analyst projections of capex of largest data centers jump

*Change in consensus view of *FY2027 capital expenditure of 14 largest publicly owned data center operators (\$B)*



Source: BloombergNEF, Bloomberg terminal.

Iran conflict shakes oil markets: short-term crisis, long-term realignment^{7,8,9,10,11,12,13,14}

Four months into the Iran conflict, oil markets face both an immediate supply shock and a deeper structural shift.

Despite losing roughly 12 million barrels per day due to the closure of the Strait of Hormuz — the worst supply disruption since the 1970s — a barrel of Brent crude did not reach \$160 as some feared. Two main buffers have kept prices in check: rising US oil exports and falling Chinese imports, as China draws down its stored oil rather than buying from the market.

With the recent news of an agreement between the United States and Iran, getting Gulf oil fields back online is mostly a matter of waiting for the strait to reopen rather than repairing field damage. Most fields could restart within days to two weeks once shipping resumes, though Iraq’s giant Rumaila field — with over 1,000 wells — will take longer. A reopening in late June could restore full supply by August; a mid-July reopening pushes that to September.

US production fell to 13.53 million barrels per day early in 2026 when prices were low, but the conflict-driven price surge is now prompting some producers to drill more. Independent companies like Diamondback Energy and Continental Resources — whose owner Harold Hamm said he does not expect prices to return to pre-conflict levels — are adding rigs and raising spending. Industry-wide, listed shale producers have increased their 2026 spending plans by \$490 million. The EIA expects US output to hit a record 14.21 million barrels per day by end of 2027.

Even so, this expansion will not fill the gap left by the Hormuz closure. The big integrated companies — ExxonMobil and Chevron — have refused to change their drilling plans despite the crisis, focusing instead on returning cash to shareholders. ExxonMobil reported a 46% drop in profits, partly due to its heavy exposure to UAE and Qatar operations. Chevron’s profits fell 37% but were cushioned by its Hess acquisition and Permian growth. A further constraint is the dwindling supply of prime drilling locations in the Permian Basin. As industry veteran Scott Sheffield put it, “people are running out of inventory” — meaning that drilling faster now simply depletes the Tier I wells sooner.

The biggest structural shift came on April 28, when the UAE announced it was leaving OPEC and OPEC+ after nearly 60 years. The UAE have borne the heaviest military

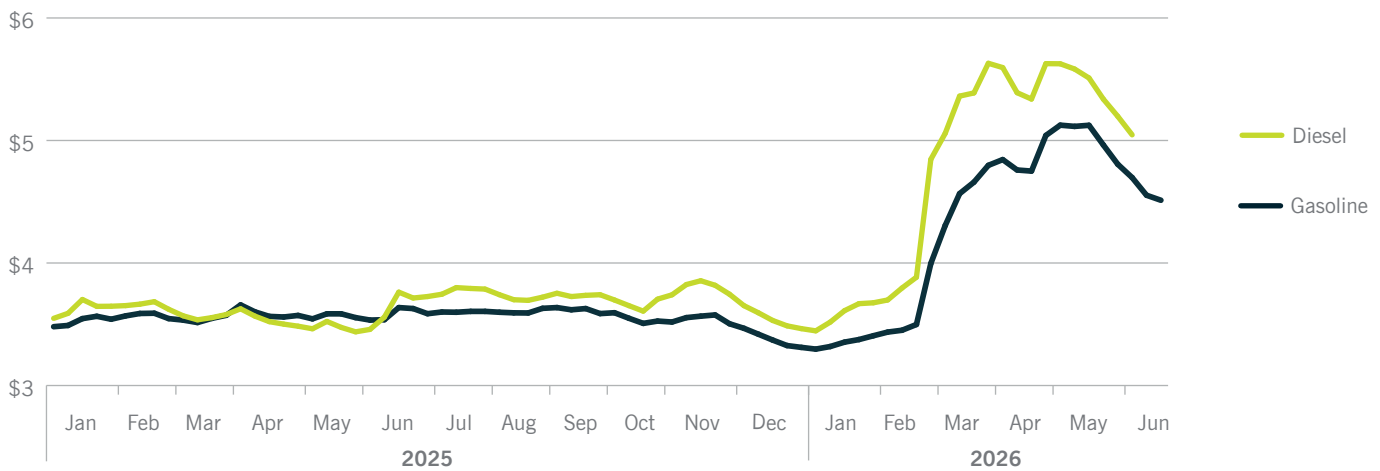
attacks of any Gulf country during the conflict — more than 2,000 missiles and drones — and had long chafed under production quotas it felt were unfair. Its departure removes about 3.4 million barrels per day, or 12% of OPEC’s total output, from the group’s control. With the UAE departing, Saudi Arabia is essentially the only member left with significant spare production capacity, leaving OPEC with far less ability to manage global supply. The split also reflects growing rivalry between the UAE and Saudi Arabia

over trade, investment, and regional influence. Once the Strait reopens, the UAE will likely pump as much oil as it can, which could push prices lower over the medium term.

The oil market is therefore facing two challenges at once: a severe near-term supply disruption and a lasting break in the producer alliance that has shaped global oil supply for decades. The real question is not just to what extent the Strait of Hormuz reopens — but what the oil market looks like once it does.

Figure 6: U.S. average retail fuel prices

\$ per gallon



Source: BloombergNEF, Intercontinental Exchange, New York Mercantile Exchange.

For more information about investing in Energy Infrastructure Credit, please visit nuveen.com/EIC.

Endnotes

Sources

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