Guidehouse

2026 Trends Guide

ENERGY PROVIDERS

Strategic insights to
power the year ahead

TRENDS AT A GLANCE

UNPRECEDENTED. It's a word that gets used a lot by energy-industry leaders today to describe the pace and intensity of change that's affecting their operations, strategy, and bottom line. The term is hardly unwarranted: an AI-driven demand surge, extreme weather, seismic funding shifts—these and other drivers are spurring business-model and operating-model change on a scale not seen in more than a generation.

The 2026 Trends Guide for Energy Providers offers utilities and other stakeholders a way to make sense of this change, harness it, and act on it. Through our extensive work with leading energy providers globally and with the governments and oversight bodies that regulate them, we've identified four emergent trends:

- Load growth creates a moonshot moment
- Maintaining affordability becomes a holy grail
- Resilience challenges accelerate tech adoption
- The energy transition undergoes a paradigm shift

For each trend, we suggest two immediate, concrete actions that industry leaders can take to respond to the changes described, and we offer a closer look at one pivotal area of innovation that's helping to drive the trend, such as small modular reactors or digital twins.

These trends are not crystal-ball predictions. Rather, each is a deeply informed snapshot of the state of play in one critical area of the energy ecosystem in 2026. Each is meant to help leaders give shape and clarity to what can seem like a chaotic swirl of intersecting forces buffeting their organization.

Unprecedented change calls for bold action guided by a clear strategy. ***The 2026 Trends Guide*** aims to give energy providers the insights they need to achieve both.

TREND 01

Load growth creates a moonshot moment

According to Guidehouse analysis, data centers in the United States will triple their load by 2035, potentially consuming up to 13% of electricity generated nationally. Already, hyperscalers such as Microsoft and Google consume more electricity than some countries. This meteoric growth is outpacing permitting processes and planning models and driving some large tech customers to seek behind-the-meter, co-located generation. In short, today's utilities face an existential choice: Adapt fast or get left behind.

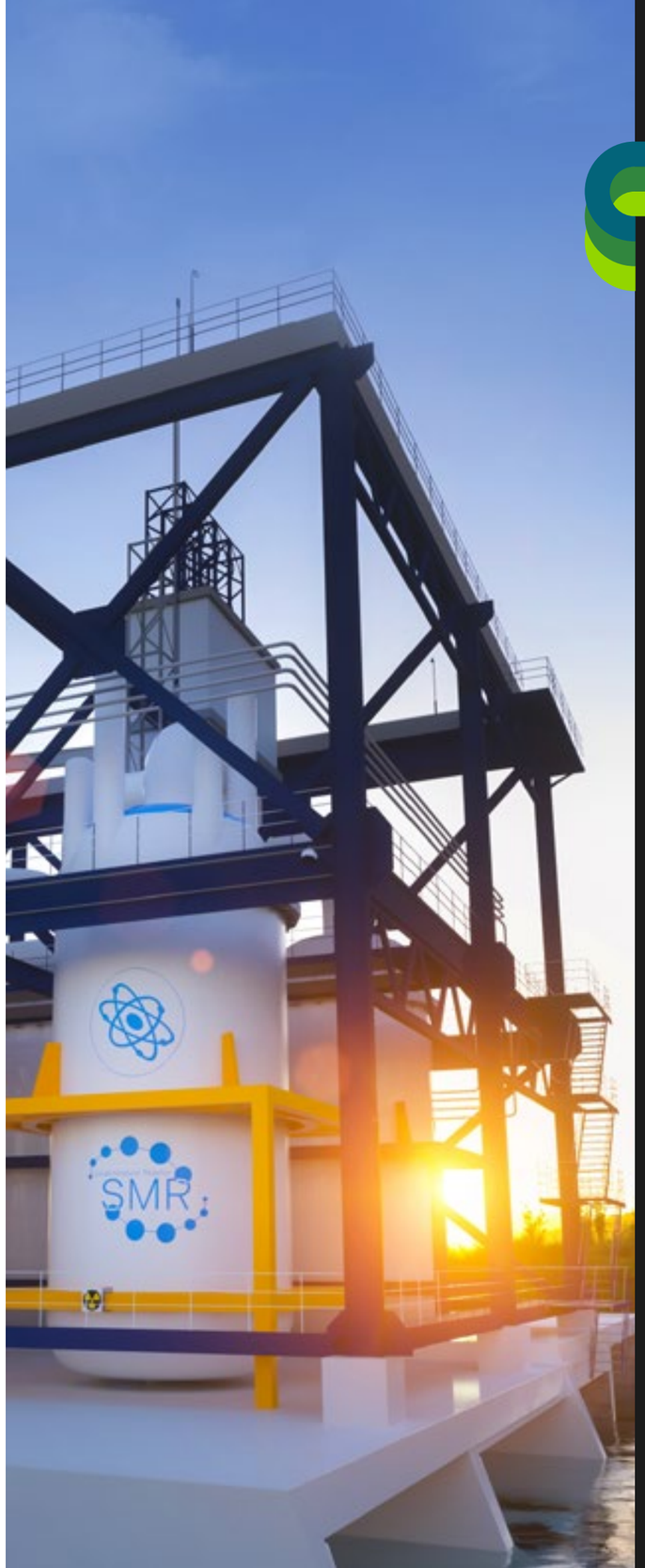
How will that transformation play out in 2026? With a historic surge in innovation that will extend across a multiyear horizon: new business models, new grid enhancing technologies, new rate and regulatory models, cross-sector partnerships, new land-use strategies, and more. Our work with energy providers points specifically to a few areas of action.

For one thing, utilities will need to evolve beyond capacity expansion and drive an accelerated grid-integration model that is smarter, faster, and more resilient by design. They can accomplish this with the help of cross-boundary collaboration—across organizations and jurisdictions—and resilient power delivery models that help avoid grid bottlenecks and delayed connections. To that end, AI-enabled interconnection planning becomes essential for managing connection queues, while better resource planning is needed to manage the constraints imposed by natural-gas availability.

Still, capacity remains a pressing long-term challenge. To meet it, utilities are developing generation and transmission capabilities at an accelerated pace using a wider range of assets, including nuclear—not just building small modular reactors but also extending the life of existing assets. But with multi-year build-outs and significant costs, nuclear solutions will need to be just one part of a balanced energy mix.

Actions to take

- **Maximize existing assets:** Targeted upgrades, better asset-lifecycle management, and AI-enabled predictive maintenance can extend the life of infrastructure, while advanced conductors and power-flow control devices can increase the capacity of existing lines.
- **Establish collaborative outsourcing models:** In the face of labor and supply-chain constraints, energy providers can use procurement as a lever for solidifying mutually beneficial vendor partnerships powered by shared data and operational intelligence.



A **CLOSER** LOOK

Small modular reactors

These advanced nuclear systems—which, as their name suggests, are made from factory-fabricated components and occupy a smaller footprint than traditional reactors—can produce up to 300 MW per unit, roughly a third of the capacity of a conventional nuclear plant.

They promise flexible siting (including in remote locations), scalability, and zero-carbon baseload power—critical assets at a moment when load growth is running up against capacity and interconnection constraints.

High upfront costs, complex licensing processes, supply chain bottlenecks, and public concerns about safety pose challenges. But growing SMR investment—including more than $3 billion in equity funding over the past eight years—suggests a strong will to overcome them.

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TREND 02

Maintaining affordability becomes a holy grail

Unlike one-time capital expenditures, which typically lead to savings in the long run, the massive investments required to manage load growth (see Trend No. 1) will entail an overall higher cost structure. This presents energy providers with a huge challenge: How to pay for transformation while keeping electricity affordable and accessible, especially for the most vulnerable customers.

Innovative financing—including revenue-sharing agreements and concession models that can recover costs and keep rates stable—will be key to meeting the challenge. So will streamlining funding flows and leveraging private capital to accelerate project delivery, improve service quality, and reduce long-term public expenditure.

Data sharing and interoperability—with large-load customers and across utility territories—are also critical, enabling real-time forecasting and surge updates that reduce outages and the associated costs to customers.

Efficiency and optimization are pillars of any affordability strategy. This includes not only AI-driven operational gains, but also workforce upskilling and business process reengineering. Demand-side actions also need to be part of the equation—especially in the face of subsidy rollbacks—including measures that incentivize upgrades to energy-intensive assets for commercial and industrial customers and, for residential ones, moves like weatherization.

Optimizing generation, transmission, and distribution will increasingly depend on collaboration with large C&I customers. By engaging them in integrated system planning across service areas and territories, utilities can secure capacity commitments, create dedicated solutions for mega-loads, develop tariff innovations, and lock in other agreements that can recover costs and more equitably distribute them.

Energy bills will rise in 2026. The question is whether customers will experience the change as chaos or a managed, justifiable trade-off.

A **CLOSER** LOOK

Customer program innovation

Customer engagement is emerging as a critical tool for improving demand flexibility, which can defer costly infrastructure upgrades that drive up rates. Some customer programs are encouraging the adoption of solar, battery storage, and other distributed energy resources (DER). Others provide financial incentives for curtailing consumption or offer ways to streamline the integration of smart devices and EVs to enable automated load control.

At the same time, user-friendly portals, personalized insights, and community partnerships are building trust and boosting participation, as are approaches like equity-focused design and low-income bill assistance.

Actions to take

- **Prioritize climate-resilience investments:** Resilience investments are an effective hedge against future costs, showing potential to return between $4 and $10 in avoided future expenditures for every $1 spent—creating a strong business case for investors.
- **Adapt tariffs and rate classes:** Dedicated large-load tariffs and rate structures help ensure “fair pain”—requiring large customers such as data centers to pay for the infrastructure they need while protecting other customers from subsidizing those costs.

TREND 03

Resilience challenges accelerate tech adoption

Extreme weather and enhanced cyber threats, compounded by the need to increase capacity, are putting enormous pressure on utilities' existing physical assets—even as new infrastructure and a more distributed energy system increase risk exposure. To meet the moment, energy providers are leveraging new and emerging technologies, including AI- and IoT-enabled fault and threat detection, predictive analytics, and advanced data solutions.

Among other promising applications, AI is poised to revolutionize wildfire management, enabling utilities to analyze satellite and on-the-ground camera imagery to locate encroachment risks, conduct predictive modeling, and scan for heat signatures, wind changes, and visual anomalies, isolating real threats and triggering alerts within seconds.

Better interoperability and communications technologies—including plug-and-play architectures that integrate multiple systems for unified visibility—are connecting remote substations and helping to eliminate grid blind spots.

More broadly, AI is bolstering cyber-defense and improving overall reliability by enabling predictive maintenance and enhancing fault detection. Integrating data from IoT sensors with existing architectures, like supervisory control and data acquisition (SCADA), utilities are gaining real-time situational awareness that allows them to address infrastructure threats without having to roll trucks.

Overall, resilience and cyber-defense measures will move from being a checked box to becoming a priced risk that gets reflected in tariffs, service-level agreements, and investment decisions. Energy providers are also recognizing that technology alone won't make the needed impact. Tech adoption and upgrades need to be paired with an integrated resource plan and enterprise strategy that clearly articulate resilience objectives.

Actions to take

- **Deploy AI-assisted anomaly detection against cyber threats:** Advanced tools, combined with robust threat intelligence and zero-trust models, can bolster defenses against novel AI-enabled threats.
- **Embed resilience planning into operations:** Resilience priorities and actions need to be factored into decisions about procurement, technology upgrades, workforce upskilling, and every other major aspect of day-to-day operations.

A **CLOSER** LOOK

Digital twins

Energy providers are beginning to tap into the power of these dynamic, data-rich virtual systems to conduct highly detailed predictive risk analyses. By integrating real-world sensor data and AI analytics, digital twins can simulate extreme weather events, cyber-attacks, equipment failures, and DER integration impacts in a risk-free digital environment. This allows operators to evaluate cascading effects, identify vulnerabilities, and optimize response strategies.

Among other capabilities, digital twins can give utilities a granular picture of overall asset health, forecasting equipment wear and tear and failure points so that teams can shift from reactive maintenance and reduce downtime.

TREND 04

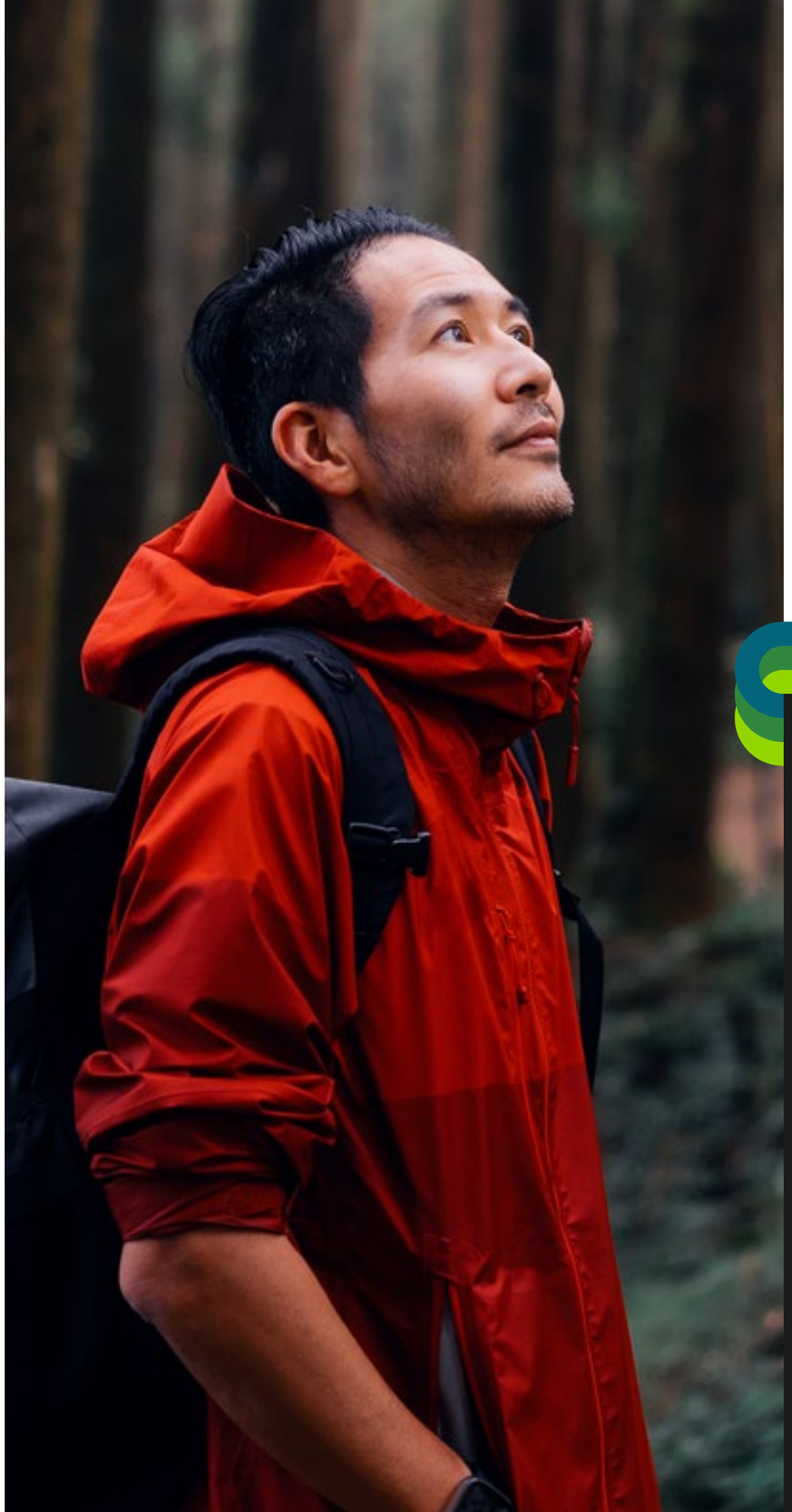
The energy transition undergoes a paradigm shift

Amid a federal pullback on clean-energy priorities in the U.S. and renewed debate over the pace of decarbonization globally, energy leaders are starting to view the transition through a new lens: long-term competitiveness. This is affecting the way utilities attract capital—namely, by framing climate finance as a strategic investment, one that can build long-term resilience and breathe new life into legacy industries. At the same time, energy providers in the U.S. continue their efforts to meet individual states' sustainability standards and disclosure laws.

As demand surges, utilities are increasingly embracing renewables as just one asset in an all-of-the-above energy mix that includes nuclear, which is poised in coming years to become a critical supplier of the kind of zero-carbon baseload power that many data centers and other large-load customers want. Many EPs are securing that clean power with microgrids that supply localized generation and storage.

Attracting private investment in decarbonization and resilience projects requires reducing perceived risk, and a number of energy providers are doing so through mechanisms such as blended finance, guarantees, and first-loss facilities. They're also retooling their messaging around the transition, positioning investment as a driver of resilience, competitiveness, and market access.

Just as important, they're emphasizing that public-private collaboration on clean energy is not zero-sum: Governments gain fiscal flexibility, industry gains growth opportunities, and everyone builds insulation from future climate shocks.



Actions to take

- **Frame the transition as a pocketbook issue:** Solar and wind are increasingly cheap energy sources, and shifting to renewables reduces price volatility and, ultimately, brings down operating costs, generating savings that get passed on to customers.

- **Advocate for regulatory reforms:** Smarter rules and practices—including a "first ready, first served" approach, standardized digital portals, and harmonized technical requirements—can speed up interconnection for renewables.

A **CLOSER** LOOK

Public-private financing initiatives

Globally, leaders in the energy sector are recognizing that financing the transition will require long-term partnerships and alliances across the public-private divide.

In the UK, Great British Energy (GBE) serves as a catalyst for channeling public ambition into private-sector action. As a state-owned company with a commercial mandate, GBE accelerates clean energy deployment by investing directly in renewables and storage, taking early-stage risk, and creating bankable projects that attract institutional capital. Its portfolio approach—combining income-generating assets with reinvestment into new capacity—provides clarity and confidence for investors.

Equally critical is engagement: GBE offers a single front door for co-investment opportunities, while its partnerships with industry and communities ensure alignment with national transition priorities.

METHODOLOGY

The 2026 Trends Guide was developed through in-depth interviews with Guidehouse leaders and advisors across our global network. These experts brought forward real-world insights grounded in their direct work with government and commercial clients across industries.

Discover how Guidehouse helps **energy providers** build resilience, leverage emerging technologies, and navigate rapid change.

"Today's utilities face an existential choice: Adapt fast or **get left behind**."

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