

eBook

RESILIENT ENERGY DECISIONS

In a Shifting Market





BUILD STABILITY AMID MARKET VOLATILITY AND UNCERTAINTY

Against a backdrop of rapid demand growth, policy uncertainty, and rising volatility, businesses face mounting pressures when making critical energy strategy decisions. In this environment, resilience requires balancing cost certainty with long-term sustainable value.

Renewable energy is uniquely positioned to deliver on these priorities.

This eBook examines the market forces reshaping today's energy landscape and shows how renewables can be harnessed to secure stability, hedge risk, and strengthen competitiveness. Readers will gain practical insights to make informed energy decisions that increase reliability today and ensure long-term success for tomorrow.

THE CURRENT ENERGY LANDSCAPE

Electricity demand is climbing at a pace not seen in two decades.

The largest driver is data center expansion, fueled by the computational intensity of generative AI, which consumes far more power than conventional workloads. Broader electrification and industrial load growth compound this trend, and now broad consensus suggests that this demand surge is real and enduring.

Supply growth, however, is lagging. Without significant new generation capacity, demand will quickly outstrip available resources. Evidence of this is already appearing in regional energy markets, reflected in surging capacity prices.

Adding capacity is not a simple fix. Most new supply expected to come online will carry higher costs—shaped by tariffs, policy shifts, and supply-demand imbalances—setting the stage for higher prices and greater volatility.

Traditional generation faces steep obstacles. Natural gas, while cost-competitive in some regions, is limited by turbine equipment backlogs, siting challenges, and insufficient pipeline capacity. Nuclear offers carbon-free baseload generation but requires immense capital and very long lead times. It also has a history of costly overruns and delays, as illustrated by Georgia's Plant Vogtle project, which was completed seven years late and at a cost of more than \$20 billion over budget. Coal could be reintroduced by reactivating retired plants, but only at high economic and environmental cost and with human health risks.

Meeting escalating energy needs urgently requires capacity investments that can be deployed quickly and reliably.



RENEWABLE ENERGY'S COMPETITIVE EDGE

With traditional generation constrained, renewable energy stands out as the most pragmatic option.

Even as federal incentives phase down, unsubsidized renewables remain among the most cost-competitive sources of new capacity—well positioned to meet near-term demand and reduce exposure to volatility.

Cost stability is a defining advantage. Capital costs have declined sharply, driven by economies of scale and stimulus from the Inflation Reduction Act, which helped bolster supply chains and productive capacity.

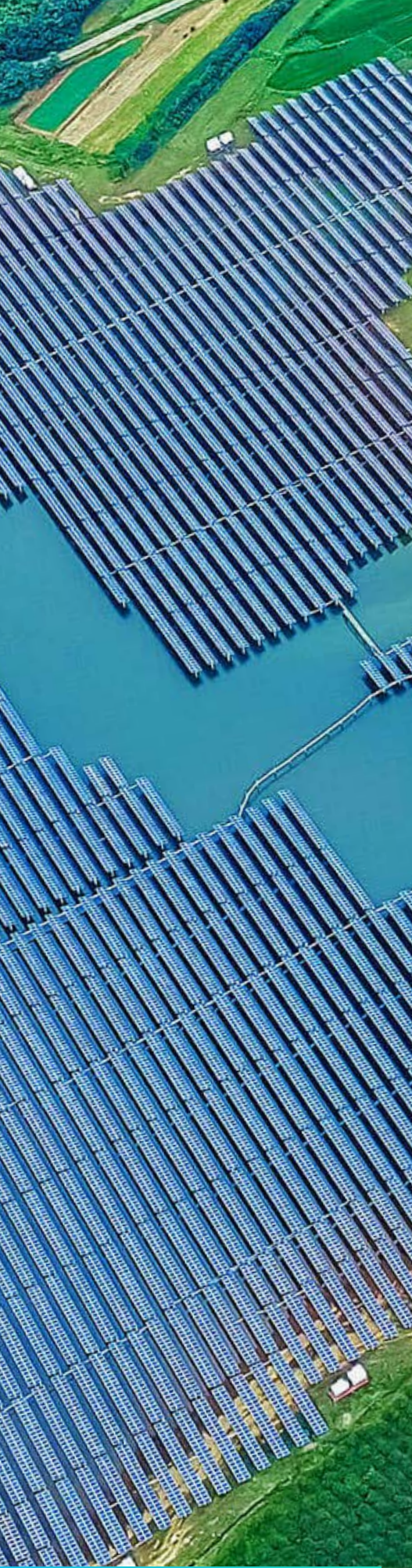
Unlike fossil fuels, renewables carry no ongoing fuel costs, shielding them from fuel price volatility.

While operations and maintenance expenses exist, they are relatively small in the context of total project value. Together, the predictable cost structures of renewables allow organizations to forecast and manage budgets with greater certainty.

Renewables also provide speed and flexibility. Using modular designs that support distributed generation and allow asset sites to be located near demand centers, projects can be deployed faster than other forms of generation. A decentralized model further enhances resilience by reducing dependence on vulnerable centralized grids. A recent Texas Reliability Entity report underscored this advantage and highlighted how the growth of renewables has improved reliability and margins in ERCOT during peak demand hours.

Advances in battery storage and grid management technologies are strengthening the value of renewables by providing intermittency support, reinforcing them as a reliable, scalable option for long-term energy growth.





STRATEGIC ENERGY CHOICES

Businesses now have more renewable procurement strategies than ever before.

Growth in renewables has expanded the toolkit beyond traditional supply contracts, offering multiple ways to supplement existing energy portfolios and tailor solutions to specific needs. The options—on-site solar, utility-scale power purchase agreements (PPAs), virtual PPAs, and community solar—provide unique pathways to control risk, achieve sustainability goals, and right-size portfolios.

As energy markets evolve, these approaches provide flexibility to manage exposure, secure budgetary certainty, capture long-term savings, and reduce vulnerability to market swings.



ON-SITE SOLAR

On-site solar offers significant benefits when market conditions and facility characteristics are favorable. Sites with high utility rates, strong solar exposure, and supportive incentives are best positioned to capture value. In these cases, businesses can lower reliance on grid power while achieving operational cost savings.

Pairing solar with storage strengthens the economics and may provide protection against grid disruptions. Yet success is highly market-dependent as incentives, energy rates, and facility suitability vary widely across portfolios. Where conditions align, on-site solar becomes a practical tool for boosting resilience and reducing long-term costs and volatility.



UTILITY-SCALE PPAS

Utility-scale PPAs enable organizations to secure renewable energy from large off-site installations at predetermined, competitive rates. They work as a hedge against future price volatility while providing budget stability. Contract structures are flexible, allowing terms to align with varying risk tolerances.

Over the past several years, PPAs have often been priced at or below utility rates. Yet, conditions are shifting. Rising development costs, federal policy changes, and declining prime development sites are driving PPA rates higher. A window remains to secure favorable terms, but it is narrowing—as developers move to less optimal sites and face the prospect of increased equipment prices, future projects may carry higher costs. Acting soon enables organizations to lock in favorable rates and long-term stability.



VIRTUAL PPAS

Virtual power purchase agreements (VPPAs) are financial contracts that allow organizations to purchase renewable energy certificates (RECs) tied to generation from an off-site project without receiving physical delivery of power. They offer a means to claim renewable energy usage and emissions reductions while providing cost predictability and protecting against market volatility.

Because they are not geographically bound, VPPAs are ideal for companies operating in regions where direct renewable energy procurement is constrained or impractical. Successful execution, however, requires expertise in energy markets and market-based risk management strategies.



COMMUNITY SOLAR

Community solar offers a subscription-based method to participate in renewable energy without upfront capital or operational complexity. By purchasing shares in smaller-scale projects, businesses receive bill credits that typically lower utility costs by 5 to 10 percent, and sometimes up to 15 percent, delivering guaranteed energy cost savings.

Access depends heavily on state and local policies and available capacity. Only states with authorized programs make community solar available, and opportunities to participate are diminishing due to strong demand, policy changes, and rising development costs that slow new projects.

Taken together, these procurement strategies provide organizations with the flexibility to balance cost, risk, and operational priorities. The most resilient energy portfolios often combine multiple approaches to yield optimal results. With expert guidance, businesses can cut through market complexity, align procurement strategies with broader goals, and position themselves for sustained success.

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CHARTING A STABLE PATH FORWARD

Renewable energy represents more than a sustainable alternative—it is a key component of resilience. In a market defined by uncertainty, cost pressures, and volatility, renewables provide a proven way to manage risk and strengthen long-term cost stability. Acting now positions businesses ahead of the curve and prepares them to address future challenges with confidence.

The path forward requires expertise.

ENGIE Impact partners with organizations to navigate market complexity and design the right mix of solutions tailored to each unique portfolio—turning renewable energy strategies into lasting results.



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