Strengthening supply chains in energy

Growing Global

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Introduction

Energy companies are operating in an increasingly complex and uncertain environment. Geopolitical tensions, trade disruption and conflict are reshaping global supply chains at the same time as the sector navigates the transition from fossil fuels to renewable energy. Across key markets, this transition is proving more fragmented than anticipated. In the U.S., the pace of renewables deployment has slowed while in Europe, climate policy is being recalibrated in response to concerns over energy costs and industrial competitiveness.

Recent tensions affecting strategic energy corridors, including the Strait of Hormuz, have reinforced how quickly geopolitical risk can translate into supply disruption, price volatility and renewed questions about energy security. At the same time, grid constraints, permitting delays, community opposition and limited industrial capacity are creating significant barriers to project delivery. Energy transition projects are particularly exposed to these constraints because they rely on extended project timelines, specialised equipment, critical materials and complex cross-border supply chains.

Cost pressures are also intensifying. The price of critical components is increasing, with material and labour costs frequently resulting in project budgets increasing by up to 20% compared with initial estimates. These pressures are compounded by supply constraints linked to raw materials, processing capacity and specialised components, which are often sourced through concentrated global supply chains. Procurement cycles are lengthening, and delays in one part of the supply chain can have cascading effects across entire projects. Sustainability requirements are also becoming inseparable from supply chain performance. The ability to demonstrate that projects meet environmental and social standards is now a prerequisite for investment, approval and market acceptance, placing new demands on traceability and supplier transparency.

As a result, confidence across the industry is under strain. According to our most recent C-suite barometer, only 35% of energy & infrastructure executives report being very confident in their organisation's ability to manage tariff-related cost pressures, compared with a global average of 41%. Strategic priorities are shifting accordingly, with international expansion dropping 14% on top strategic priorities in the past 2 years, with greater focus placed on restructuring, cost control and operational resilience. However, this does not signal a retreat from international activity. More than four in five energy & infrastructure companies still plan to expand across borders. The change supports a more complex and selective approach to expansion, which is now more dependent on the ability to navigate regulatory uncertainty, secure supply and manage execution risk.

The challenge is not limited to one material, country or technology. It reflects a broader shift in which some supply chains have become highly concentrated in specific regions, particularly across parts of APAC. China's role in solar panel manufacturing, for example, illustrates how renewable energy deployment can become dependent on a small number of dominant production hubs. Batteries are not yet concentrated to the same degree as solar panels, but they present a similar strategic risk as capacity continues to scale.

In this context, supply chains are no longer just a supporting function. They are a determining factor in whether energy projects can be delivered at all. The ability to secure supply, manage complexity and respond to regulatory and geopolitical uncertainty is becoming critical to long-term performance in the energy sector. The test is whether energy leaders can respond to immediate disruption while building supply chains that are resilient to challenges in the long run. This sector perspective builds on our Growing Global: Strengthening supply chains report, and focuses on how supply chain constraints are affecting the energy sector and what steps business leaders can take to mitigate and prepare.

Mathieu Mougard
Partner, Head of Energy & Infrastructure
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Key insights

1. International expansion in energy remains widespread but increasingly selective

International activity remains a priority across the energy sector, with 82% of executives reporting that their organisation is planning to expand internationally. However, expansion is becoming more selective, with geopolitical instability, execution risk and supply constraints prompting many companies to reduce or revise target markets rather than pursue broad geographic growth.

For energy companies, this is particularly important because market entry, project development and supply chain design are now closely connected. A project may be attractive on paper, but its feasibility depends on whether the required materials, components, grid connections, permits and suppliers can be secured within realistic timeframes.

2. Tariffs and trade policy continue to complicate international operations

Trade tariffs remain a significant challenge for cross-border activity. While many executives report confidence in managing tariff-driven costs, trade policy continues to create friction across sourcing, procurement and project delivery.

In energy, these pressures are amplified by the scale and duration of projects. Changes in tariffs, customs rules or local content requirements can affect the economics of projects that were planned years earlier. Companies need to understand not only their immediate suppliers, but also where critical inputs originate and how exposed they are to changing trade conditions.

3. Supply security is becoming a strategic constraint on energy growth

Access to critical materials, specialised components, industrial processes and reliable suppliers is increasingly shaping the feasibility, cost and timing of energy projects. This is particularly acute in renewable energy, where supply chains for materials, processing capacity and equipment are often concentrated in a limited number of regions.

The issue is no longer simply about dependence on fossil fuel-producing countries. As energy systems transition, new dependencies are emerging around critical minerals, solar panels, wind equipment, converters, batteries and grid infrastructure. These dependencies can create bottlenecks, cost volatility and project delays if companies do not build more diversified and resilient sourcing strategies.

4. Energy security and infrastructure resilience are under greater scrutiny

Geopolitical instability, energy price volatility and exposure to strategic transport routes are increasing uncertainty for globally integrated energy supply chains. Recent disruption risks around the Strait of Hormuz highlight how events affecting traditional energy routes can have wider consequences for energy costs, industrial production and infrastructure planning.

For companies involved in the energy transition, this reinforces a broader point: resilience cannot be designed around a single scenario. It requires the ability to manage disruption across both traditional energy systems and the new supply chains required for renewable deployment.

5. Technology gaps are limiting supply chain performance

Technology transformation is a strategic priority, yet fragmented systems and inconsistent data continue to limit visibility and coordination. While AI offers potential, many organisations must first strengthen core data and systems to scale effectively.

For energy companies, the need for reliable data is particularly important because project delivery depends on multiple stakeholders, jurisdictions and supplier tiers. Better visibility can support procurement, traceability, risk modelling, compliance, forecasting and scenario planning, helping companies respond more effectively when conditions change.

Preparing for what's next

For energy companies, the challenge ahead is not simply to manage disruption but to build supply chains that can operate under sustained uncertainty. The sector is entering a phase where volatility is no longer episodic, it is structural. Multi-year development cycles, constrained access to materials, concentrated manufacturing capacity and increasing regulatory complexity mean that traditional approaches to planning and execution are becoming less effective.

This requires a shift in how supply chains are approached at a strategic level. Rather than being treated as a downstream execution function, supply chains must be considered early in investment decisions, project design and market entry strategies. The feasibility of a project is increasingly determined by more than financing or engineering capability, including whether the required materials, components, suppliers and approvals can be secured within realistic timeframes.

The energy transition makes this more urgent. Renewable energy deployment depends on a wide range of inputs, from critical minerals and industrial processing capacity to solar panels, wind components, grid equipment and battery supply chains. In many cases, these inputs are concentrated in specific regions or controlled by a limited number of suppliers. As a result, energy companies and policymakers are asking whether today's transition strategies could create new dependencies, even as they reduce exposure to fossil fuels.

"Whatever the challenge, when you want to mitigate risk, you have to diversify as much as possible. The issue is how to do that while remaining economically competitive. More companies are starting to embed this into tender processes, including requirements around local or regional production."

Mathieu Mougard
Partner, Head of Energy & Infrastructure
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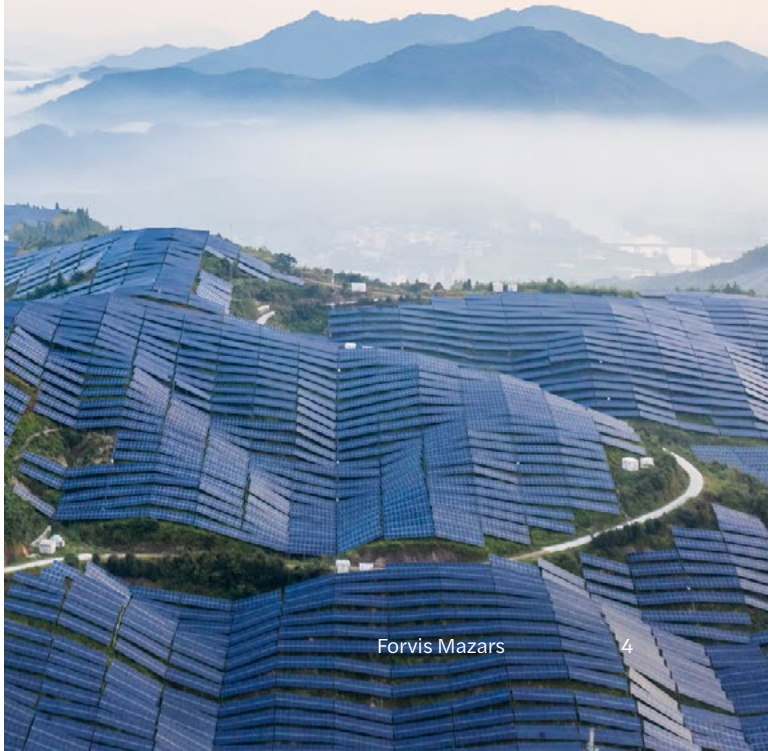


Looking ahead, four shifts are likely to define the next phase of supply chain development in the energy sector:

Greater emphasis on supply security and diversification

Companies will continue to diversify sourcing strategies, build closer relationships with key suppliers and reduce exposure to critical bottlenecks. In some cases, this may accelerate regionalisation of supply chains, particularly where geopolitical risk, regulatory pressure or local content requirements make global dependencies less viable.

Diversification does not mean abandoning global supply chains. In many areas of the energy transition, this would not be realistic. Instead, companies need a clearer view of where their dependencies sit, which suppliers or regions create the greatest exposure and where alternative capacity can be developed over time.

For energy companies, this also means embedding supply chain resilience into commercial and procurement decisions. Tender processes, for example, may increasingly include requirements around local production, regional sourcing or supplier diversification. However, these requirements need to be balanced against economic competitiveness, cost pressures and the long investment horizons required to build new industrial capacity.

A more strategic approach to industrial capacity

The energy transition depends on access to resources as well as the industrial processes required to refine, manufacture and integrate them. This creates a different type of supply chain risk. A company may be able to identify alternative sources of a mineral but still lack access to the processing capacity or specialist manufacturing required to use it at scale.

This is one reason why governments and companies are paying closer attention to strategic industrial capacity. In Europe, the U.S. and other markets, policymakers are looking at how to rebuild or protect capabilities linked to critical minerals, clean technologies and renewable infrastructure. The aim is not only to support employment or industrial policy, but to reduce dependency and strengthen energy security.

However, re-internalising capabilities is difficult. Building new plants, developing skills and scaling production takes time, capital and long-term visibility. Industrial companies are unlikely to invest in new capacity without confidence that demand will continue for many years. For a sector where projects may take five to ten years to develop and assets can operate for decades, short-term policy uncertainty can be a major barrier.

Deeper integration of regulatory and sustainability considerations into project planning

Compliance is no longer a separate checkpoint but a factor that shapes timelines, costs and delivery models from the outset. The ability to navigate evolving regulatory frameworks and demonstrate supply chain transparency will become a key differentiator in securing approvals and investment.

This is particularly important for renewable energy. Projects designed to support the transition must also demonstrate that their inputs are responsibly sourced and aligned with environmental and social expectations. That creates a paradox for the sector: the faster renewable energy deployment grows, the more scrutiny there will be on the supply chains behind it.

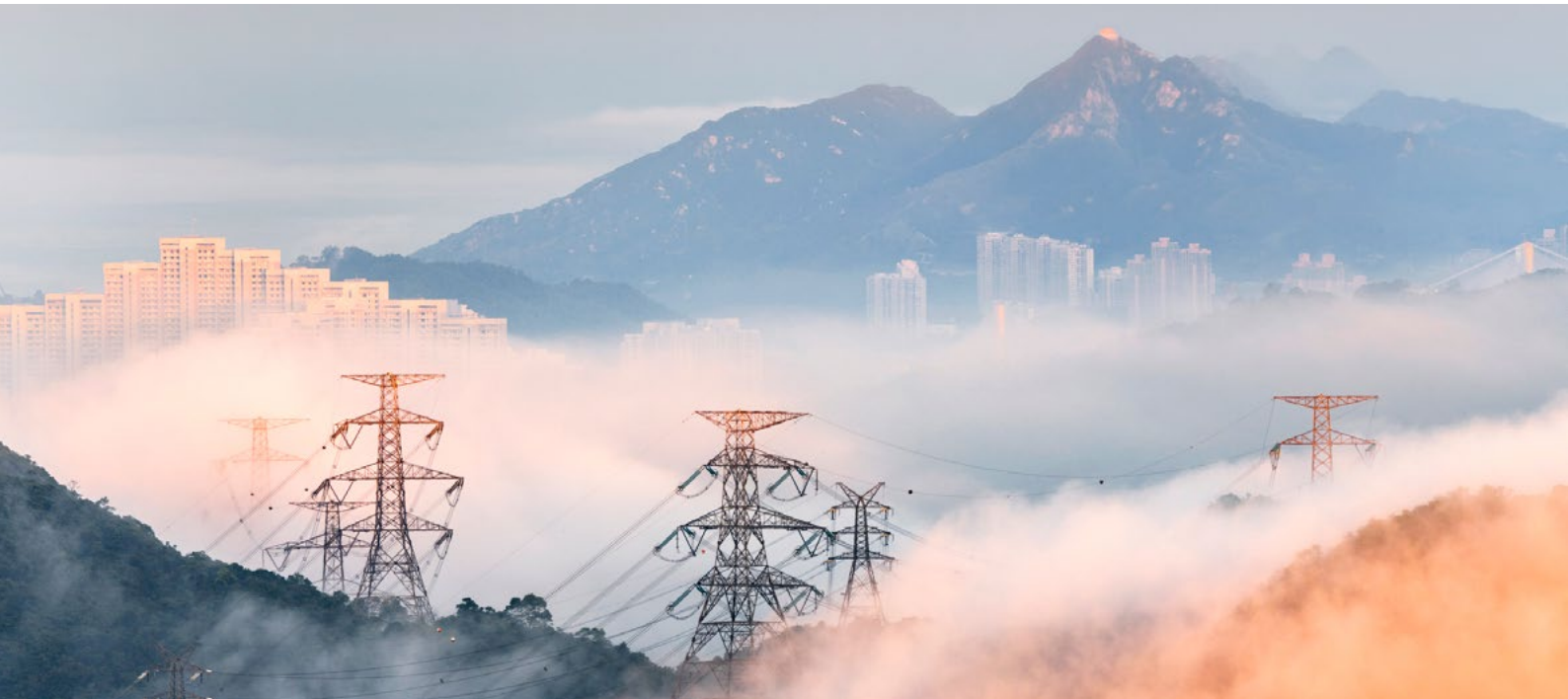
Traceability will therefore grow in importance in the coming years. Companies need to understand where their materials and components come from, how they are produced and whether suppliers can provide the data required by regulators, investors and customers. This goes beyond a compliance issue. It is also a way to identify hidden risk, improve supplier performance and strengthen confidence in project delivery.

Increased focus on visibility, data and coordination across complex ecosystems

As projects involve more stakeholders, more jurisdictions and more interdependencies, the ability to access reliable, real-time information will be critical. This includes the basics like tracking materials and suppliers, but also modelling risk, anticipating delays and enabling more informed decision-making.

For many energy companies, this will require stronger technology foundations. Fragmented systems, inconsistent data and manual processes limit the ability to understand exposure across supplier tiers. They also make it harder to assess the impact of changing tariffs, regulatory requirements, transport disruption or supplier constraints.

AI and advanced analytics have significant potential, particularly in forecasting, compliance monitoring, risk modelling and scenario planning. However, their value depends on the quality of the underlying data and the ability to connect systems across functions and geographies. Before companies can scale advanced tools effectively, they need to address the core systems, governance and data quality issues that continue to limit visibility.



These four shifts have implications for governance as well. As supply chains become more central to project success, they require greater visibility at board level. Leadership teams will need to ensure that strategic ambition is grounded in operational reality, with closer alignment between investment decisions and execution capability.

Ultimately, preparing for what's next is less about predicting specific disruptions and more about building organisations that are structurally equipped to manage them. This means strengthening operational discipline, embedding cross-functional coordination and investing in the systems and capabilities required to manage complexity at scale.

In a sector where projects are long-term, capital-intensive and increasingly exposed to external risk, the ability to deliver reliably under constraint will define success. Supply chains are no longer just a component of that equation; they are at the centre.

Related insight

As energy becomes increasingly intertwined with geopolitics and economic security, organisations must rethink not only their supply chains but also their long-term strategic resilience.

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Energy at the crossroads of geopolitics and economic security: what it means for global companies today.

"The energy sector has been driven for years by the race for capacity. The real value is now in the ability to complete projects and deal with volatility. Supply chain is at the center of this value."

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