

Power failure:

How global utilities can tackle equipment lead times

With ever increasing lead times, contingency planning for critical equipment is a strategic priority for power and utilities companies.

Across the global power and utilities sector, equipment lead times are challenging existing operating models, constraining capital strategies and compounding exposures to financial losses.

Procurement times for major equipment such as transformers, turbines and generators have nearly doubled since 2021, with some components taking 2–5+ years to procure due to global bottlenecks. For generation companies, utilities and network operators, these delays directly translate into longer recovery periods after losses, higher estimated maximum loss (EML) values, and more volatile business continuity planning.

Why lead times are rising: Global forces, local impacts

Key trends are driving extended equipment timelines.

Electrification and AI-driven load growth

Rapid expansion of demand centers — from electric transport to hyperscale data centers — is absorbing global manufacturing capacity at unprecedented levels. Equipment that once supplied utilities is now also needed to power industrial-scale electrification and digital infrastructure. Power and utilities companies rely on these same original equipment manufacturers (OEMs) and are now competing with other industries to secure orders.

Regional conflict zones

The war in Ukraine and conflict in the Middle East represent major disruptors for the power sector. Following Russia's invasion of Ukraine in 2022, sourcing strategies shifted, where damage to critical infrastructure increased demand for replacement transformers, generators, cables and high-voltage components. More recently, the Middle East conflict has ushered in new waves of disruption. Attacks on commercial shipping in and around the Strait of Hormuz, the Red Sea, Bab el-Mandeb and wider regional chokepoints have led many carriers to reroute vessels around the Cape of Good Hope. In both cases, closure and disruption to traditional transport corridors forced cargo onto longer or less predictable routes, adding cost, complexity and uncertainty to delivery schedules.

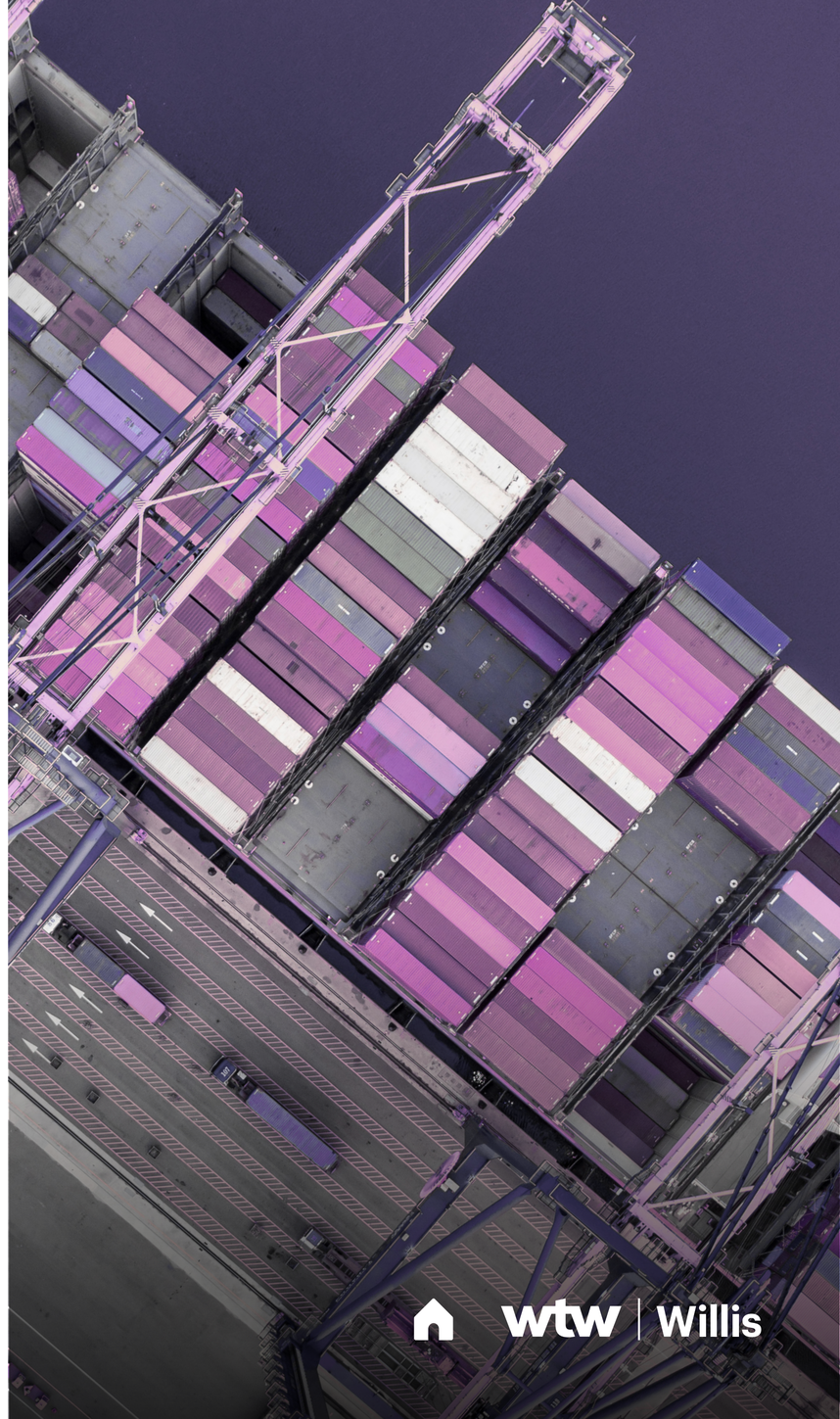
Manufacturing bottlenecks

The conflict in Ukraine, tensions in the Middle East and disruption to shipping routes have highlighted how energy security increasingly depends on resilient supply chains. Transformers, generator step-up units, high-voltage switchgear, gas turbines, rotors and control system components are all competing for limited manufacturing capacity, and Chinese OEMs have become an epicenter of manufacturing capacity for electrical equipment and critical power sector components.

Chinese manufacturers can often offer competitive pricing, shorter production windows and access to a broad supplier base at a time when European and North American OEM capacity is heavily committed. In a constrained market, Chinese OEMs present a compelling case for companies trying to secure equipment for new projects, grid connections or post-loss recovery.

But reliance on China also introduces a new dimension of concentration risk. If a critical transformer, switchgear component, control system or turbine-related part is dependent on a Chinese OEM or sub-supplier, the true recovery timeline may be driven by factors outside the operator's direct control: export capacity, port availability, shipping routes, customs clearance, quality assurance requirements, geopolitical tensions, sanctions exposure, trade restrictions, cyber and data requirements, and the availability of OEM engineers to travel and commission equipment. The issue is not whether the integrity of Chinese OEMs are more or less reliable; it is whether buyers fully understand where China sits in their asset, component and service supply chain.

This is particularly important for power companies operating mixed fleets. A plant may have European or U.S.-branded primary equipment, but still rely on Chinese-manufactured subcomponents, transformers, inverters, cables, switchgear or replacement parts. Supply chain visibility therefore needs to extend below the tier-1 supplier level.



Cross-sector competition

Competition among industries has shifted OEM production priorities.

> In Europe, for example, the forging capacity required for large-frame gas turbines is dominated by aviation: a higher-volume, lower-risk commercial proposition, pushing power and utilities equipment further down the production queue.



Mark Walshaw, Head of Risk Engineering, CEEMEA, Willis Natural Resources

The game changer: Risk engineering

A strong risk strategy needs more than insurance and scenario planning — it requires a technical discipline that connects real world asset behaviour with organizational decision making. That discipline is risk engineering.

1. Demystify complexity: Quantify risk

Risk engineering translates asset-level data into usable risk metrics. This includes:

- Understanding equipment failure modes
- Analysing lead times, OEM dependencies and recovery pathways
- Quantifying business interruption (BI) exposures based on technical realities

Risk engineering ensures loss scenarios and BI estimates reflect actual supply-chain constraints, not theoretical ones.

2. Identify hidden vulnerabilities across the entire asset lifecycle

Answering key questions, backed by data, can reduce the likelihood of catastrophic failure and shorten downtime if a failure occurs.

- Design phase: Are protection schemes appropriate for fluctuations in load and renewable intermittency?
- Construction phase: Are manufacturing quality, inspection and testing standards consistent across manufacturers?
- Operational risk: Are maintenance regimes aligned with OEM realities and spare availability?
- End-of-life and decommissioning risk: Should aging assets have their life extended, be refurbished, or be replaced? Is component obsolescence creating the risk of unsupported equipment?

3. Stress-test resilience

In scenarios where replacements for transformers can take up to 36 months, or a turbine loss occurs in a region with limited capacity, for example, scenario modelling can clarify how long recovery will take for each critical asset, what the total cost would be of the delay, and which single points of failure are most likely to lead to extended outages.

The true recovery timeline may also depend on the availability of specialist transport, lifting equipment, installation contractors, test equipment and authorized commissioning engineers.

These insights are critical to assess credible and accurate loss exposures, which ensure business continuity plans are not based on unrealistic recovery assumptions.

4. Allocate capital strategically

As demand accelerates and grid capacity struggles to keep pace, engineering-based guidance ensures CAPEX can be prioritized in areas where it delivers the most cost-effective risk mitigation. Risk engineering insights can be applied to rigorous and sophisticated analytical models to identify the optimal balance of risk retention and transfer under different scenarios. This analysis enables companies to compare different mitigation options, such as holding dedicated or shared spares, improving equipment redundancy, investing in condition monitoring, or securing manufacturing and service capacity in advance. This ensures companies get the most for every dollar spent on risk management.

5. Enable smarter insurance negotiations

When transferring risk to insurance markets, risk engineering data is the foundation of robust risk information that will help insurers make informed decisions.

Risk engineering gives power and utilities companies a strong negotiating position, enabling brokers to:

- Articulate robust maintenance and resilience planning
- Evidence redundancy and spare holding strategies
- Quantify the impact of mitigation measures on potential losses
- Validate that risk levels are being actively managed

Combined, risk information creates a powerful story, backed by data. It improves insurability, supports more favourable terms, and creates trust with insurers, ultimately contributing to optimal cost and terms.

Building resilience: There's opportunity in a soft market

Extended power equipment lead times translate directly into heightened business interruption exposure. Longer replacement periods can increase the probability that indemnity periods are exhausted, asset values are understated and recovery assumptions prove too optimistic. For underwriters, the focus will continue to examine spares strategies, contingency planning, asset valuations, OEM relationships, outage management and risk engineering findings.

But using the soft market to your advantage can create opportunities to smooth future supply chain risk and mitigate financial disruption. In a soft market where insurers are competing to secure market share and premium rates remain on a downward trajectory, brokers have scope to put extended indemnity periods on the table. Negotiating extended indemnity periods today could provide valuable protection when the market returns to a hardening cycle, should the current industry-wide issues persist and equipment recovery timelines continue to increase.



What power companies should do now

- **Validate lead times for critical equipment.** Replace historic assumptions with current supplier intelligence for transformers, turbines, rotors and other long-lead items
- **Map business-critical spares.** Identify what is held, where it is located, who controls its release, compatibility and whether it can be accessed quickly after a loss
- **Stress-test contingency plans.** Model recovery scenarios that reflect delayed shipping, constrained OEM support and extended outage durations
- **Conduct logistics and installation planning.** Pre-plan transportation routes, permits, lifting requirements, site interfaces, installation resources and commissioning support for critical replacement equipment
- **Increase equipment flexibility/interchangeability.** Where practical, standardize specifications across fleets and assess whether strategic spares can serve multiple sites or generating units
- **Engage OEMs earlier.** Strengthen visibility over manufacturing slots, service agreements, warranty commitments and alternative repair options
- **Use risk engineering strategically.** Treat engineering reviews as a tool for resilience planning, not simply insurer compliance
- **Review insurance program adequacy.** Reassess indemnity periods, values, deductibles and business interruption assumptions against current replacement realities

The companies best placed to protect revenue and reliability will be those that understand their exposure at asset, plant and portfolio level; build stronger visibility over spares and suppliers; and align operational recovery planning with insurance program design. In a sector where reliability, availability and grid access are central to value, critical equipment resilience is becoming a strategic differentiator.

To find out how to build resilience against extended equipment lead times, contact:





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