

A smarter way to manage resilience in a volatile world

Power market review

November 2023





Part One: Ensuring resilience in a volatile world

What just happened? Our four key challenges for 2023 revisited

- The challenges reported in 2022 – Russia-Ukraine conflict; global inflation; energy transition; climate change – are ever-present but with some positive developments in 2023:
 - Easing in the gas wholesale markets and restructuring of gas supplies away from Russia
 - Signs of global inflation easing as economies respond to higher interest rates
 - Growing momentum behind energy transition and a more supportive response to risk transfer needs from the sector
- On the less positive side:
 - Potential for global recession could create further uncertainty for generators and markets if industrial demand reduces
 - Transmission networks come under pressure from a higher reliance on intermittent power, as re-commissioned coal plants are turned off and gas-fired output is required to balance the system
 - High levels of natural catastrophes drive major losses across continents, with uncertainty from El Niño (ENSO).

- In the Swiss Re update of insured global natural catastrophe losses for the first half of 2023¹, losses were up from US\$48 billion in 2022 to US\$50 billion, the second highest since 2011. The average annual growth trend for insured natural catastrophe losses is 5–7%.
- The power sector is navigating increasingly challenging and uncharted waters on a global, unprecedented scale. The sector will need to call upon the knowledge and skills of its brokers and insurance partners to ensure companies have the right strategies.

The Polycrisis and the Energy Trilemma: the geopolitical risk landscape in 2023

- The term Polycrisis refers to ‘interwoven and overlapping crises’ facing humanity – environmental challenges; a cost-of-living crisis; supply chain disruption and geopolitical tensions. The Energy Trilemma concept summarises the tension between security, affordability, and sustainability in the power sector.

Beyond the Russia-Ukraine conflict

- Wide-ranging impacts of the conflict are seen in trade and investment flows and asset seizures, with impacts on energy availability and cost. Rather than hindering the energy transition, the IEA chief is optimistic the Russia-Ukraine conflict may have accelerated it². European investment has declined, dwarfed by investment in China³, but this geopolitical crisis may boost investment.

¹ <https://www.swissre.com/press-release/Severe-thunderstorms-account-for-up-to-70-of-all-insured-natural-catastrophe-losses-in-first-half-of-2023-Swiss-Re-Institute-estimates/cea79f3c-6486-41a8-9c6e-09df260efe30>

² <https://edition.cnn.com/2022/10/27/energy/iea-global-outlook-report-2022-climate/index.html#:~:text=In%20its%20annual%20World%20Energy%20Outlook%20report%2C%20published,the%20decade%20E2%80%94%20up%2050%25%20from%20today%20E2%80%99s%20spending.>

³ <https://www.visualcapitalist.com/ranked-the-top-10-countries-by-energy-transition-investment/>

- Are we transitioning from an overreliance on oil and gas, and on Russia, to a greater reliance on renewables, and on China? A shift from external to internal energy supply supports energy self-sufficiency and less conflict, but the rare earth elements and technologies critical to the energy transition are controlled by a few countries.

Tips for risk managers

- Although in a state of permacrisis, it is vital to distinguish useful data from noise. Investing in horizon scanning and scenarios can provide a useful ‘risk temperature’. Many risks driven by geopolitical tensions can be insured against, from crisis management to political violence and war. Insurance is just one of the risk mitigation strategies available.

Optimising risk: strategies for a looming recession

- The volatility experienced by the power sector in recent years is set to continue, with the possibility of a recession and an environment of high inflation.

Can savings be achieved without increasing risk?

- The WTW approach allows insurance managers to understand the key drivers of risk, their mitigation, and how to balance protection against losses at an affordable cost. By combining a power company’s data with industry data and knowledge of risk transfer markets and modern analytics, we develop a thorough understanding of the risk exposures under different economic scenarios.
- WTW’s Connected Risk Intelligence approach highlights the impact of different insurance strategies on a company’s cost budget and risk appetite, showing how effective the current insurance program is and comparing alternative structures. This helps insurance managers to:
 - understand their present risks and future scenarios
 - explain the benefits of insurance clearly to senior management
 - highlight the differences between insurance programs
 - provide a clear audit trail of decision making

Drought and water supply risk: an overlooked vulnerability

- Water is a critical element of power generation. In thermoelectric plants, steam turns turbine generators and water is used to condense the steam back to water. Water is also needed for firefighting and, in coal-fired power plants, to operate exhaust gas scrubbers. Lack of water or too much water present risks to hydroelectric generation.
- While coal-fired power plants can recycle water for reuse and have done much to conserve supply, any prolonged drought may cause plants to compete with drinking water needs and may put power generation at risk. Electric power generation accounts for about

40% of the total water withdrawals in the United States, most of which is used for plant cooling needs⁴. Evaporated water from cooling towers is lost to the atmosphere and must be replaced with large amounts of cooling water. The rate of water loss via evaporation is estimated at around 800 gallons per MWh, which would equal 400,000 gallons per hour for a 500 MW plant.⁵

- As the effects of climate change worsen, power plants in drought-affected areas must take steps to address a potential lack of make-up water and build resilience.
 - Conduct a drought vulnerability analysis to identify risks to mitigate
 - Improve water conservation efforts
 - Conduct a thermal performance analysis of cooling towers to ensure efficient operation
 - Consider capital projects to convert to a hybrid cooling system using a dry closed cooling tower along with the wet recirculating system
 - Prepare for restrictions on water use – ensure that equipment can safely operate at reduced loads.

⁴ <https://www.vox.com/23292669/drought-2022-power-energy-grid-lake-mead-climate-heat-hoover-dam>

⁵ <https://www.powermag.com/how-thermal-power-plants-can-save-80-of-their-water/>



The life extension process: considerations for power companies

- The challenging economic climate makes future investment in conventional power generation extremely uncertain, causing a general slowdown on new construction. However, the need for electrical power and the focus on energy security is increasing, putting pressure on operators to extend the life of aging assets.
- Life extension introduces potential risks, which operators and the insurance community need to fully understand, evaluate and mitigate. Insurers are paying closer attention and will penalise programs where attention has not been given to this process.
- Investment budgets supporting life extension programmes comprise capital funds (Capex) to replace or upgrade equipment, and estimated future operating expense (Opex), to cover maintenance expenditure and spare parts for the extension period. Operators seek to maximise the extension period while minimising (or optimising) their total investment, within the parameters of health and safety, and good industry practice.
- Independent analyses of robust life extension processes by qualified engineers should be undertaken to ensure assets operate safely and are 'fit for service'. Failing to do this could result in higher losses for operators and insurers.

Mothballed assets

- Analysis of life extension projects for mothballed assets needs to be more detailed, as some methods of mothballing are more effective at preserving asset condition than others. Life extensions on mothballed assets are potentially riskier than on operating assets.

The cyber insurance market: power to the customer

- With pricing reductions, innovation in coverage and the ability to 'ask for more', customers should work with their broker to partner with forward-thinking insurers to transfer risk and support growth plans. 2023 has seen a much-improved position for Cyber insurance and this trend is expected to continue until the end of the year at least.
- The risks from financial demands, the increase in ransomware and the geopolitical environment is present but less acute. Through 2023, first-party losses from ransomware or cyber-related business disruption are causing problems, while high-profile human errors in the UK (PSNI for example) have reinvigorated privacy concerns.
- The use of AI brings many advantages, but also additional risks to users and insurers. Current geopolitical tensions are still perceived as fuelling state-sponsored interference and attacks⁶. The

power industry needs to be vigilant to keep pace with improvements around security and defence and incorporate cyber insurance into their suite of covers.

- Current premium adequacy is encouraging new and existing providers to increase their capacity, leading to more competition and flexibility, which has pushed insurers to review premium rates for well-managed risks. Insurers are increasingly aware that they need to demonstrate flexibility to win business.

Application of parametric insurance in the power market

- A comprehensive risk management strategy is essential for the unique risks faced by the power industry. Innovative parametric solutions are a valuable tool for companies to manage and transfer risk, offering tailored designs, simplicity of operation and predictability of outcome.
- With no need for loss adjustment, speed of contract settlement is reduced to a minimum. Rapid liquidity in the aftermath of an extreme event can help to mobilise staff and support them.
- Parametric policies can offer protection where conventional cover is unavailable as it converts the challenges of an indemnity style policy into an indexed metric. Underwriting the index is a about analytics rather than underwriting a complex risk.

Parametric coverage for power risks

- When there is no insurable event, parametric solutions can be applied. For example when no wind or sun means no or low power is generated. Equally, in times of low demand during a warm winter or mild summer, a weather index can be hedged and accurate data used to manage exposure. Data is the currency of parametric products, with solutions including exposure to the effects of precipitation, wind, hail, snow, wildfire, pandemic, footfall and more.
- With climate change in stark focus, power businesses must re-review how extreme weather events may impact critical assets and operations. Parametric insurance can offer cost-effective and targeted solutions.



⁶ <https://www.microsoft.com/en-us/security/business/microsoft-digital-defense-report-2022-nation-state-attacks>



Part Two: The power insurance markets in 2023

Still struggling for profitability: a power underwriter's view of the market

Ian Green, Head of Power at Rokstone Underwriting

- We are at a stage in the underwriting cycle that should be near the top of the market. However, we only recently ended 15 years of sliding rate/terms and profitability has barely been restored. There is concern at the levels of pricing and terms due to challenges like PD and BI deductibles, valuation of assets, supply chain issues and talent shortage.
- Our exposure is largely machinery breakdown where small differences create different outcomes. Rating our class should be relatively easy with only a few styles of plant using similar or identical equipment. This homogeneity gives us an advantage, but insurers need oversight of much of the world's power plants to achieve this.
- There is a general increase in the quantity of losses, with MB still considerably outweighing Cat losses. Power assets are generally built to withstand extreme weather. But changing rainfall due to El Niño impacts hydro in Latin America, for example, and there have been more heavy losses to renewables in catastrophe zones. Solar power is more vulnerable to earthquake, wind, wildfire and hail.
- I expect the current environment to remain unchanged in the short term. In the medium term, we would expect rate rises to level out and then reverse. However, given the uncertainty, a continued level of increased claims activity will delay this.

Property: lack of competitive pressures continues to drive hard market conditions

- Risk managers in the power sector have faced hardening market conditions for several years, with rating increases being the norm and little prospect for change. Despite a gloomy prognosis, some positive factors limit the hardening market:
 - Increased premium income from revised values and BI purchasing offset the extent of rating increases
 - End of the 'values push' in sight
 - More flexibility in lenders' requirements
 - Capacity levels remain robust
 - Less focus on rating adequacy while deductible levels remain low
- The following negative factors are just balancing the positive factors as the hardening dynamic starts to falter a little:
 - Loss run continues as insurers remain concerned about profitability
 - New technology/upgrade concerns
 - Lack of competitive alternatives to existing leaders and vertical marketing issues
 - Increased centralization of underwriting authority
 - Continued withdrawal of support for coal programs
- Little has changed since our 2022 Review. For example, the best programs show a +2.5% to +5% rating increase, compared to a flat +5% increase last year. Insurers remain reluctant to offer more preferential terms and press ahead with rating increases to demonstrate that this portfolio remains an attractive one.

- As ever, forward planning is essential if customers are to mitigate the worst effects of the current market conditions.

International liability: reaching the peak or just a mirage?

- Despite the growing presence of competition in the international liability market over the past twelve months, moderate rate increases continue. Insurers are writing more premium. This has partly reset the equilibrium of the market and policyholders are benefiting from a much more balanced negotiating table.
- Macroeconomic and geopolitical factors have combined to create a complex underwriting environment:
 - Rate adequacy
 - COVID-19
 - Economic and social inflation
 - Reinsurance treaty renewals
 - ESG (influencing risk selection and policy terms and conditions)
- These factors sustain a hard market but are offset by factors pulling in the other direction:
 - ESG (insurers look more favourably on clients with strong ESG credentials)
 - Russia-Ukraine conflict
 - Drive from insurers to write more business
- Lack of competition is a key reason behind premium increases. However, where program limits are placed multiple times, competition through alternative capacity leads to downwards pressure on rating levels and protects buyers against opportunistic pricing. The overall limit of capacity remains relatively stable.
- Overall, the market appears more focused on rate adequacy than rate movement, with rates stabilising for favoured risks, and average rates dropping to mid-single digits.

- The marketplace presents challenges, but also opportunities not recently available and it may not have reached its peak rates.

Construction: hardening market dynamic continues

- The reduction in premiums and broadening coverage experienced over two decades has now solidified into a hard market of coverage restrictions and increased rates. But there are signs of market stabilisation. Power construction projects are exposed to geographical, economic, political, sociological, contractual and technical risks, and they face increased scrutiny from insurers.
- High inflation affects the costs of materials, equipment and labour in construction. From an annual 15% increase, prices have risen to 110% or more in power developments that use specialised parts, materials and equipment.
- Power projects have been badly affected by supply chain issues, due to the complexity of equipment and long lead times. It is estimated that 80% of companies have experienced considerable issues in the last 12 months. Supply chain complexities affect coverage and pricing.
- Changes in terms are a gradual process. In addressing adverse claims experience, insurers use three main levers: premiums, deductible levels and coverage. Imposing stricter coverage conditions, each risk is considered individually, and pricing is influenced by project type and geography, along with political risk.
- Nat Cat losses breached the 10-year average by approximately 40% in 2022, significantly impacting the availability of insurance for mines in exposed regions and construction projects. Also now under scrutiny are defective design, workmanship, plans and materials.





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