Willis Towers Watson

COVID 19 – the effect on the power sector

Power Market Review June 2020

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Willis Towers Watson Energy Loss Database

All loss figures quoted are from our Willis Energy Loss Database. We obtain loss figures for this database from a variety of market sources (including a range of loss adjusters), but we are unable to obtain final adjusted claims figures due to client confidentiality. The figures we therefore receive from our sources include both insured and uninsured losses.

Style

Our Review uses a mixture of American and English spelling, depending on the nationality of the author concerned. We have used capital letters to describe various classes of insurance products and markets, but otherwise we have used lower case to describe various parts of the energy industry itself.

Abbreviations

The following abbreviations are used throughout this Review:

BI	Business Interruption
COVID-19	Coronavirus disease 2019
CIA	Chinese Interest Abroad
ESG	Environmental Social Governance
LEG	London Engineering Group
Nat Cat	Natural Catastrophe
OEM	Original Equipment Manufacturer
PD	Physical Damage
PMD	Performance Management Directorate
Power Gen	Power Generation
QA/QC	Quality Assurance/Quality Control
RTO	Regional Transmission Organisation
S&P	Standard & Poor's
T&D	Transmission & Distribution

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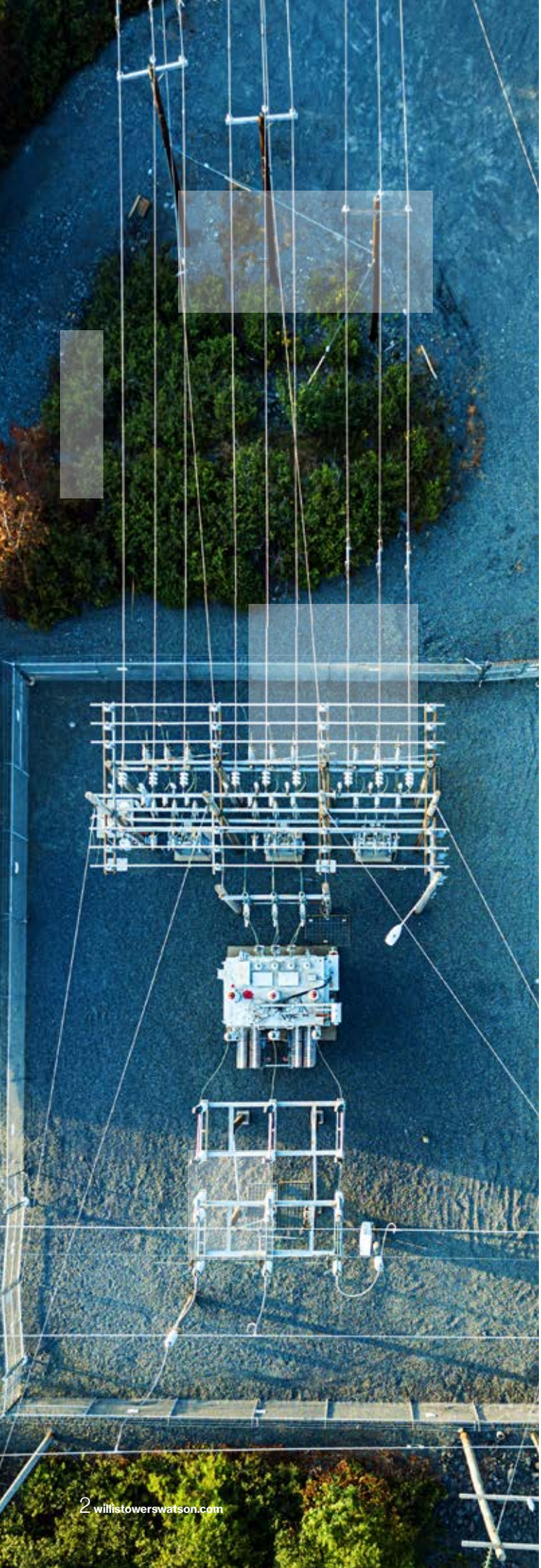

Introduction

Welcome to our Power Market Review for 2020 – and to a world that has seemingly been turned upside down. As I write, the full impact of COVID-19 is now being felt across the entire globe and all our thoughts are with our readers and their families as we collectively come to terms with the full magnitude of what is upon us. I can advise that Willis Towers Watson has a special page on our website devoted to COVID-19[1] and I would advise any of our readers to visit the site to find out all you need to know about our company's position as the weeks and months progress.

As this review went to press, there is no doubt that the issue of COVID-19 remained uppermost in all our minds as the power industry and their stakeholders – shareholders, lenders, insurers, brokers and others – begin to analyse the effects on their balance sheets and on their overall risk landscape. So this year, our leading article summarises the impact to date on both the power sector and its respective insurance markets. This is clearly an ongoing situation that will be with us for the foreseeable future so we will continue to keep our readers up to date with the latest developments as the rest of 2020 unfolds.

However, there is another fundamental issue that will outlive the current pandemic, and that is the issue of climate change and Environmental Social Governance (ESG), which has also had a major role to play in transforming the power industry risk landscape. Regardless of individual views on the subject of climate change, the risks to your organisation that it brings could not be more significant, both now and in the future.

Indeed, aside from COVID-19, ESG is rapidly becoming the single most important business driver of the decade, not just for the power industry but for business and commerce in general. Only last month the Financial Times (FT) was reporting that "companies that consider environmental and social factors – and abide by good standards of corporate governance – should be better equipped to ride out a downturn and quickly get back up to speed". In the same article, the FT also commented that "investors are also

[1] https://www.willistowerswatson.com/en-GB/Insights/trending-topics/willis-towers-watson-response-to-covid-19

still going all in on environmental, social and governance themes – and so far their bets have paid off. If anything, the pandemic has only reinforced fund managers' belief that ESG is worth worrying about"[2].

We have therefore dedicated the second part of the Review to the issue of ESG and the risk management implications for the power industry. Margaret-Ann Splawn, who is a climate policy finance and investment consultant, sets the scene with a detailed analysis of how ESG is impacting the power industry, while our experts from the Willis Research Network then show how power industry risk managers have a vital strategic role to play in quantifying climate change risk, as well as improving their company's ESG footprint.

Meanwhile the power industry continues to reel from the effects of the global insurance market's "retreat from coal", with insurance capacity in scarce supply as the global insurance market continues to harden significantly for Power risks. Willis Towers Watson's Carlos Wilkinson, our GB Head of Power, provides an in-depth analysis of how this trend is affecting the supply of insurance market capacity to the industry.

Part three of our Review focuses on a variety of risk management issues, including the vital role that analytics can play in determining optimal risk management strategies in a hardening market, as well as articles on managing your geopolitical and cyber risks. We also take a look at the risks emerging from digitisation in the industry and offer a fresh insight as to the value of enhanced Claims Protocols.

Finally, it won't come as any great surprise to most readers that the Power insurance markets have continued to harden significantly in 2020 and there is no denying that the last 12 months have been challenging ones for the power industry and their brokers. The underlying market dynamics which have led to today's hardening market conditions were outlined in some detail in last year's Review – a general centralisation of underwriting authority, a determination by senior insurer management to generate change, significant loss levels – have simply accentuated during the last 12 months.

So in part four of the Review we describe major Property and Liability insurance market developments in both London and North America and provide a round-up of regional developments from our Power specialists in Beijing, Dubai, Latin America and Singapore. The one common denominator for buyers is simple: the hard market has truly arrived; the placing process will take longer than you might be used to; so be prepared and work with us to derive optimal results for your organisation.

We hope you enjoy reading the Review, and as ever would welcome any feedback that you may have.

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[2] "Coronavirus is strengthening the hand of ESG investors" - Billy Nauman, FT website, May 15 2020

Part one - COVID-19: the effect to date on the power sector

COVID-19: the effect to date on the power sector

Introduction: managing unprecedented change and challenges

The COVID-19 pandemic has introduced unprecedented challenges for the global power sector across its core commercial, technical, operational and financial functions. The new environment has no rule book to play by but requires immediate and effective decisions to ensure that employee and plant safety are not compromised while managing the many variables required to maintain a viable long-term business.

In the following section we summarise the various challenges faced by the sector primarily from:

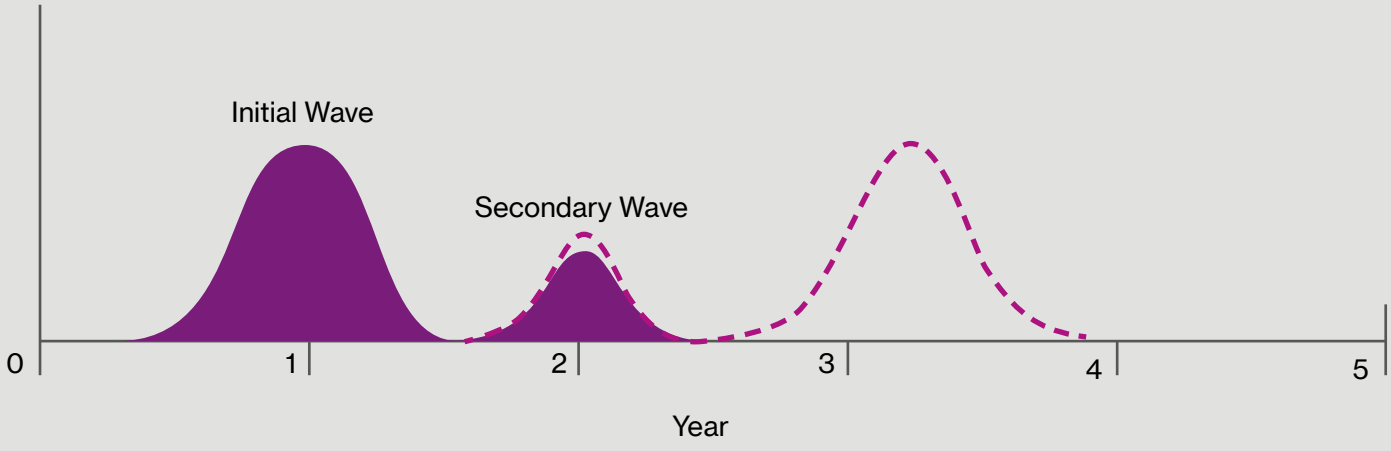
- a business environment and operational risk perspective, including emerging risks; and
- an insurers' perspective, including potential key concerns and activity needed to address them.

In terms of coverage, the market is now applying as standard broad exclusions in respect of direct and indirect losses arising from communicable infections such as the LMA5393 to protect against potential claims which we continue to challenge, particularly in respect of indirect losses.

The business environment commentary has a US lead; while there are some observations that may be specific to the US, for example due to its own regulations, legislative structure, climate, availability of local suppliers etc., a number of the key challenges outlined are applicable globally.

Securing supply in a pandemic

The Coronavirus (COVID-19) was identified on 1st January 2020 by the WHO (World Health Organisation). Since then, the global insurance industry, as with other industries, has hurried to adjust their working practices whilst simultaneously adapting to the new challenges and risks they face.



(Produced by Willis Towers Watson for illustrative purposes)

It is tempting to think that after several months living with a global pandemic, and observing countries 'pass the peak', things will soon return to normal. Yet as published in the Journal of the American Medical Association, Dr Taubenberger states that, "Every pandemic is completely different, it emerges in a different way." Dr Taubenberger concludes that even after studying previous pandemics, such as the 1918 flu pandemic and the 2009 swine flu virus, it is difficult to predict the future course of a pandemic[1]. However, different countries may have anything up to three waves, with the course or timing of each varying greatly between countries. This is perhaps the biggest indicator of what is meant by 'the new normal': significant changes to the daily commute, office hours upended, the staged return of global travel and enforced quarantine periods. The impact on people and businesses globally is likely to continue for the foreseeable future.

With modern technology, many jobs can accommodate flexible working conditions, but a significant share of jobs still requires a physical presence. In many countries businesses that are not considered essential and cannot work remotely have been forced to close under government guidelines. However, for 24/7 strategic industries that span the energy sector, from oil and gas production to power generation, the ability to operate, maintain and repair plants and transmission/distribution systems, including the purchase and supply of goods and services to support those sectors, is essential.

It is also clear from the above and all forecasts that the measures required to counter the current conditions will need to be robust and sustainable in the medium to long term to ensure the continued protection of employees and security of supply.

Key power industry exposures

Although insurance quotations are holding up and renewals are being completed, the insurance industry is acutely aware of the workplace and supply chain risks that the pandemic is placing on the power sector.

Absenteeism

Workforce absenteeism could at any time increase dramatically and with little warning, not just from those who fall ill but those who are considered vulnerable and are self-isolating. Whatever the reason, the workforce could significantly diminish with decision makers, subject experts and highly skilled team members incapacitated or working remotely.

Supply chains

The power industry supply chains that that it relies on will, at different times, be under similar levels of workforce disruption. Whilst some businesses remain open, other businesses may be forced to close, or are unable to mobilise their workforce to service their client's needs. The interconnectivity of the global supply chain is highlighting the strengths and weaknesses of businesses across the world. Most businesses will have already scrutinised their supply chain arrangements, whilst others are for the first time exposed to the known vulnerabilities within their particular chain.

Reliance on external OEMs

The power industry is particularly exposed, with a reliance on external OEMs (Original Equipment Manufacturers) and specialist service providers who provide a range of services, from pressure system inspections to planned maintenance and breakdown support. While there is leeway for certain planned activities, there remains an increased risk on the business and their insurers for every deferred activity. Perhaps the worst scenario is an unplanned machinery breakdown where swift action is required to return the equipment and business to normal.

Resource challenges

Today's power generation businesses do not have vast central engineering departments nor a large team of highly skilled craftsmen and women to carry out inspection and repair activities without OEM participation. Furthermore, with the latest advanced technologies, particularly in gas turbine design, it is almost impossible to carry out outages without OEM technical support, equipment and spares. Clearly, OEMs are critical to a plant's reliability and availability. Whilst each OEM service hub is dealing with its own unique set of pandemic circumstances, the potential impact will remain real for all power plant owners and operators. This is already playing out across the world, where plant owners and operators are finding slower or delayed OEM support, lack of in country expertise and the inability for OEMs to mobilise their teams who will also face periods of quarantine on arrival at the destination country.

Insufficient waiting periods

A few minor delays may seem inevitable, but for major breakdown events that require loss adjusters - initial OEM fact-finding specialists, followed by a team of OEM service specialists, plus their equipment and replacement parts - the cumulative effect of delay will inevitably consume the waiting period deductible. It is also worth mentioning that OEMs are also reliant on their supply chain for key components such as single crystal blades, which could lead to further unforeseen delays.

[1] https://jamanetwork.com/journals/jama/article-abstract/184362

US power sector perspective (and other global issues)

While there are levels or areas of impact which are specific to the US, for example due to its own regulations, legislative structure, climate, availability of local suppliers etc., there are a number of key challenges outlined below that are applicable globally.

Unique power sector risks

The US power sector has considerable experience of planning and responding to many natural hazard events, blackouts, and other emergencies. However, the COVID-19 pandemic presents some unique risks to this sector that must be managed to maintain this reliable supply. These risks include:

- Electrical demand reductions, affecting marginally profitable plants
- Moratoriums on construction projects
- Availability of personnel
- Travel restrictions, impacting access to operating assets for maintenance

With COVID-19, the past is no guide to the present...

Past catastrophic events in the US have not had the widespread impact of COVID-19, making mutual aid and assistance more challenging; hurricanes, earthquakes and even terrorism attacks have been limited in their geographic footprint. Blackouts have also historically been regional; however, given the widespread effects of the virus across the country, existing contingency plans are being tested and mutual aid capabilities threatened. A post-recovery "lessons learned" review should certainly strengthen planning and recovery time and resiliency for future events.

Impact on electricity demand

With businesses and factories shuttered, electricity demand during the pandemic has dropped, along with a flattening of the peak demand curve. This reduction in demand, also referred to as Demand Destruction[2], is prevalent throughout the nation's regional transmission systems, including the New York Independent System Operator (NYISO), The Electric Reliability Council of Texas (ERCOT), the Midcontinental Independent System Operator (MISO) and the Pennsylvania-New Jersey-Maryland Interconnection (PJM). The reduced demand, combined with a normal decrease with the onset of spring weather, has resulted an electricity price decline. Depending on how long the pandemic lasts, this could accelerate the retirement of some financially challenged assets, including coal-fired plants. Merchant baseload generators, which account for approximately 57% of electric generation in the US[3] and include coal and nuclear, will be especially challenged as they are more directly exposed to lower market prices, along with some renewables[4].

In its May 12, 2020 EIA Short-Term Energy Report, The United States Energy Information Agency (EIA) forecasts that coal generation will drop 25% in 2020, and electricity sales will decline in the coming months by 6.5% in the commercial sector, 6.5% in the industrial sector and a modest 1.3% in the residential sector, with increased consumption from stay-at-home workers tempered by the expected milder weather[5]. For 2020, the overall decline in generation is estimated to be 5%; coal consumption will fall 25% in the US while reduced coal exports as a result of the pandemic will also reduce coal consumption in Europe. Overall, all forms of power generation are seeing reduced usage except for renewable energy, which will grow slower than previously projected this year[6].

[2] https://www.powermag.com/wp-content/uploads/2020/04/covid-19-power-market-report.pdf
[3] https://www.washingtonpost.com/business/2020/04/19/electricity-new-york/
[4] https://www.world-nuclear-news.org/Articles/US-economists-study-COVID-19-energy-industry-impac
[5] https://www.eia.gov/outlooks/steo/
[6] https://brattlefiles.blob.core.windows.net/files/18557_impact_on_covid-19_on_the_us_energy_industry.pdf And https://www.bloomberg.com/news/articles/2020-05-04/nuclear-is-getting-hammered-by-green-power-and-the-pandemic

The impact on wholesale electric prices from the combined effects of lower demand due to COVID-19, along with the seasonal decline in demand, is providing the opportunity for some high cost generators to shut down their generation and instead purchase wholesale power for less than it costs to make, to replace/fulfil their generation commitments. Low natural gas prices are also likely to exacerbate the pressure on higher cost generating units. Older coal generators, as well as some nuclear units, could be affected.

Impact on new generation construction projects

While the EIA is predicting renewable energy to be the fastest growing source of generation in 2020, it is forecasting that the effects of COVID-19 are likely to reduce new wind and solar capacity builds by 5% and 10% respectively compared to pre-COVID-19 forecasts[7]; however, RTO Insider reports no delays in proposed US offshore wind projects[8]. Construction of conventional power plants was slow prior to COVID-19 and even slower now, further stressing the financial performance of large OEMs. Experts are wary of the impact of delays and stoppage of construction projects, as well as the need to safely and carefully test equipment on first use and restart following shutdown. Coverage issues with respect to operational and construction policies need to be carefully reviewed with respect to such delays, testing and restarts.

Impact on T&D sector

The mild spring weather, combined with reduced demand during the COVID-19 lockdown, has resulted in increased reserves and reduced prices; grids are now operating without stress.

Whilst there may have been some benefits for the Grid Operators, they have still faced the same employee and operational continuity risks faced by the rest of the power sector and have managed them in much the same way.

Some risks that are more specific to the T&D sector include the effective vegetation management necessary to minimise the risk of wildfires, particularly as we approach the hotter summer months. This activity is tasked with keeping power lines and conductors from contact with trees and other vegetation and requires personnel to work in teams. To protect them, the Tree Care Industry Association and the International Association of Arboriculture has created on online COVID-19 resource for worker protection guidelines.

For critical network assets, the expanded use of remote monitoring/diagnostics and control capabilities of distribution systems help to reduce the need for personnel interaction and also offset the potential impact from the limited availability of healthy field staff.

[7] https://www.eia.gov/outlooks/steo/ and https://www.greentechmedia.com/articles/read/eia-forecasts-coronavirus-to-push-down-u.s-electricity-demand-lower-renewables-buildout
[8] https://rtoinsider.com/international-partnering-forum-2020-160997/

Regional Transmission Operators (RTO) in the US are studying how the pandemic might affect forecasted generation needs for the upcoming, spring, and summer season. PJM Interconnection LLC, (PJM) is the largest RTO in the US, serving all or parts of 13 states and the District of Columbia. It recently presented a generator availability analysis, to determine the maximum generating loss PJM could handle without curtailing power. For this spring and summer, the analysis considered the impact of an outbreak at one plant, then spreading and disabling a generating company's entire fleet. It reported it could withstand a 60% loss of installed capacity on a spring day, and a 40% loss of installed capacity on a summer day, in a worst-case scenario where generating units were unable to operate due to an outbreak among plant personnel. These findings will be used develop proactive steps to respond to events as they evolve[9].

On a more administrative level, Power Gen companies have also noted local Interconnect owners and RTOs completing outstanding paperwork faster and clearing administrative backlogs as construction projects slow and electrical demand declines.

Measures taken by Power Gen companies

Examples of steps taken by generating stations to protect staff and ensure plants can continue to operate safely have included:

- Rearranging shifts into dedicated teams, discontinuing overtime and reconfiguring work areas to keep shifts or work crews segregated
- Restricting employee access to the plant and control rooms to those required for essential tasks, including routine operations and maintenance and for reception of parts and supplies
- Discontinuing visitor access and limiting contractor access to critical needs, including any providing outage support, such as Original Equipment Manufacturers (OEM) personnel
- Implementing CDC guidelines e.g. pre-screening, monitoring of staff conditions, PPE, Social Distancing, disinfecting work areas
- Developing a contingency plan early in response to overseas reports of virus impact
- Moving fall outages to spring while electric demand and pricing are down
- Maintaining a strong supply chain (two generating plant managers interviewed indicated no issues yet with their supply chain)

Additional steps taken by nuclear generating stations include:

- Stockpiling of meals, disposable tableware, and personal care items for on-site staff
- The Nuclear Regulatory Commission (NRC), and the US Department of Homeland Security issuing guidelines to assist plants in coping with the effects of the virus on their workforce

Proactive outage management

Insurance company risk control staff are concerned about the delay or cancelation of risk mitigating maintenance or outage activities during the pandemic due to various isolation restrictions. Several clients suggested adequate measures are being taken to manage any increased risk.

Some clients have actually taken advantage of the decrease in electrical demand and lower pricing to proactively advance scheduled maintenance operations forward, contrary to insurer expectations; furthermore, one client was able to utilize available plant personnel rather than contractors to significantly reduce their maintenance spend. Another plant continues to work through the pandemic with scheduled outages, with adjustments for minimum staff and contractor levels, along with COVID-19 social distancing and PPE needs. Another site worked with their insurer to postpone a scheduled outage from spring to the fall, after a review of the site's operating history and previous inspection activities verified that no ongoing

[9] https://rtoinsider.com/pjm-analyzes-potential-covid-19-generation-losses-161933/ and https://pjm.com/~/media/committees-groups/committees/mc/2020/20200501-corona/20200501-covid-19-analysis-presentation.ashx

risk issues or concerns existed, as well as implementing additional operational monitoring and equipment surveillance.

Outages at 97% of US nuclear generating sites in 2020 could be affected by COVID-19. These are typically planned for the spring or fall period, months when electrical demand is typically light[10].

Some maintenance is continuing as originally scheduled. At one nuclear generating station some 1,400 contractors are being utilized for a planned spring reactor refuelling and plant outage that began despite the pandemic. Some workers have complained about social distancing and other safety measures and have voiced fears about contracting the virus; other nuclear sites are considering revising the work scope and duration of a service outage, to adjust for the effects of the virus on the outage resources[11]

Impact on insurer risk engineering

COVID-19 makes conducting insurer loss control visits more challenging, due to travel restrictions and restricted site access. In lieu of physically visiting sites, insurers' risk engineers have therefore conducted remote desktop inspection reviews. Information gathering comprises a significant portion of in-person field surveys, and this information can be obtained as easily during virtual visits as it can be in person.

Where possible, plant staff provide requested documentation to the risk engineer for review, followed by a conference or video call, with the insurer issuing their inspection report based on the information obtained. Plant personnel sometimes supplement these visits using virtual tours, while they walk the plant showing it to carrier personnel via mobile phone. Virtual surveys can work well for power plants previously visited by the insurer that have no outstanding critical risk concerns and have shown to practice sound risk management. Security and privacy issues would need to be considered when conducting a virtual video tour.

For insurers considering new power generation risks, remote desktop inspection reviews can assist in providing adequate underwriting information for most carriers to fulfil their new business considerations, especially for sites with favorable loss history, for locations they have never visited and/or where site access is restricted. These virtual inspections generally include a documentation review, photographs, and tele or video conference to explain plant property and fire protection and maintenance practices, as well as reviewing equipment risk questions. Clients can provide site overview presentations about their facilities to help familiarize the insurers with their sites during these calls, following the process via slide decks passed along in advance of the meetings, or via Skype or Zoom technology.

Insurers will want to compare originally planned scheduled maintenance dates against the modified schedule for any delayed maintenance and outage activities and will want to fully understand any significant changes in planned maintenance spend.

As the power generation sector and its insurance partners adjust to conducting business during the COVID-19 pandemic, all parties must remain disciplined in assessing and managing risks. Risks that are magnified by the pandemic, including personnel availability of plant and vendor support personnel, and disruption to operation and maintenance tasks, should be managed with the joint goal of ensuring plant reliability. At a time where plant resources might be limited, open and transparent communications with their insurance risk consultants should leveraged to the benefit of all.

Risk engineering

So far in this article we have considered the impact of COVID-19 on the power sector. This section now focuses on insurer concerns and the key areas that power companies will have to analyse in every territory to ensure they are well placed to manage these concerns. As part of that process, they will have to ensure that they don't fall

[10] https://www.powermag.com/covid-19-threatens-outages-scheduled-at-97-of-u-s-nuclear-plants-in-2020/
[11] https://www.neimagazine.com/features/featurecovid-19-impacts-nuclear-industry-worldwide-7839553/

foul of any policy conditions that may be compromised by the operating environment, together with constraints that will apply while COVID-19 restrictions remain in place.

Please note: this process includes areas that have been immediately and noticeably impacted, and other areas that after careful review may be affected in the future. These need to be reviewed with your broker in the context of your policy coverage, conditions and your disclosure obligations so you can assess what actions may be required.

So what areas of interest and information do (re)insurers need to hear about to enable them to assess your changing operations and their risk exposure? Below are some key topics that overlap with the interests of (re)insurers and that need to be considered and potentially communicated.

Travel

- Do operations require overseas or in-country technical specialists? Are they able to travel/access country/ access site?
- What are the potential delays and requirements for overseas specialists? Will travel restrictions and mandatory quarantine periods on arrival slow the necessary steps from breakdown to recovery? Are there measures that can be taken to house and effectively quarantine overseas visitors on site?
- Are own business (and other business) travel restrictions likely to have an impact and are there alternatives?

Operations

- Have the Operations & Maintenance teams been adequately adapted to cover shift patterns, absenteeism and protect against cross contamination with each other and each shift?
- How does the new shift structure compare with minimum safe manning levels?
- Are adequate communications between offsite engineering and onsite operations and maintenance staffs taking place?
- Are there clear policies for flexible working to reduce the spread of infection? Are there clear guidelines for those who suspect they are ill or suspect they have met with others who are ill?
- Will remote equipment condition monitoring, where available, continue to be analyzed to the same levels by plant technical staff, whether on site or while working remotely?

Maintenance

- In the next 12 months, are there any safety and/ or equipment critical scheduled inspections and maintenance outages planned? If so, is there the potential for resources (personnel, equipment, materials) to be constrained leading to a material delay?
- Insurers are very aware of the effect that the downturn in the economy has had on the demand for power and the financial impact of this on Power Gen companies. Certain sub-sectors, such as that of Waste to Energy, will have been affected in more ways than one, their customer base having shifted from commercial businesses' waste to residential waste. Residential waste generates lower tipping fees but allows the sites to continue to operate. Insurers will seek reassurance that planned risk improvement projects remain funded.
- In the next 12 months, are there any statutory/ jurisdictional inspections that may be deferred due to mobilisation issues?
- Will deferrals of the above affect plant safety, machinery breakdown exposure, operating licensing, or insurance preconditions? How have deferrals been assessed against safety and machinery breakdown exposure? Do the delays lead to an increase in risk/ or potential for loss?
- Will there be any delays in completing insurance company recommendations?

Breakdown and indemnity periods

- Have the consequences of a major breakdown during the COVID-19 pandemic been assessed? What is the current status of 'in-country' and other country OEM support? Could a major equipment breakdown be overcome with internal engineering and maintenance teams or standby power generation?

Emergency response

- Has the number of on-site emergency response team members reduced across any of the shifts? Has the capacity of external emergency response services been impacted? Can fire systems be maintained in a fully operable condition

BI exposure/lead times

- Are strategic spares available and have manufacturers' supply chains and transportation routes been affected? To what extent could this extend previously considered Indemnity Periods and can anything be done to mitigate this?

Vacancy and security

- For any plants that shut down, are appropriate measures being taken, such as implementing a proper lay-up plan, developing a safe restart program, and alerting insurers before restarting operations, as well as keeping fire protection and security intact throughout the shutdown?

Conclusion: take the time to communicate

Although the pandemic is unlikely to have an impact on Machinery Breakdown and associated Business Interruption claims coverage and settlement, it is clearly a unique situation which is presenting immediate challenges and new risks to plant operations. Taking the time to communicate the impact on operations and providing information about the measures taken to mitigate the risks is therefore essential for (re)insurers to be able to understand this.

As in the run up to a policy renewal, the output of engineering surveys is vital for (re)insurers. A lack of information, particularly in the current market, can often have the effect of penalising clients with adverse terms and conditions. The time spent preparing a response may seem wasted, lacking any real gains in managing the immediate challenges to your business. However, the quality and timeliness of information is perhaps the greatest indicator that your business is proactive and able to make the adjustments needed to meet the challenges and risks presented by the global pandemic. Perhaps now it is more critical than ever to foster insurance relationships and take the time to differentiate your risk and highlight the strong leadership, adaptability and resilience of the business.

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Part Two - ESG risk management implications for the power industry

ESG, climate change and the power risk landscape: a transformation in the making

Introduction: why the power industry risk landscape is going to change

Regardless of where you stand on the "Trump–Thunberg scale" in terms of your attitude to the issue of climate change and the viability of a swift transition to a "zero-carbon" future, there can be no doubt that the power industry risk landscape is now on the cusp of a major transformation. That's because there is a long running topic that has risen to strategic, board level importance and is now significantly affecting major business decisions across the globe – Environmental Social Governance (ESG)[1].

The rise of ESG

In the past, business decisions taken by utility companies, their stakeholders and other corporates around the world used to be based purely on profit.

Now in 2020, it is becoming increasingly apparent that, as well as profit, ESG ratings are also going to be an important driver for power industry stakeholders - lenders, insurers, shareholders, regulators – and even consumers. Indeed, it's likely that the money will increasingly follow those power companies with the highest proven ESG credentials, because recognition of the systemic nature of ESG issues and a plan to manage them are likely to be key indicators of appropriate risk management. Much like the warning signs of the 2008 financial crisis, is it time to pay attention to the ripples before they turn into waves.

Don't forget that fundamentally sustainability is about efficiency – words any board will be happy to hear – and the transition to a low carbon economy is a financial opportunity to ensure your business is aligned with the new landscape. That means a fundamental re-appraisal of power company climate risk, to achieve (or maintain) an ESG rating that will enable them to attract and maintain the support of the stakeholders critical to their business. In short, today's successful power businesses have to have a significant ESG footprint.

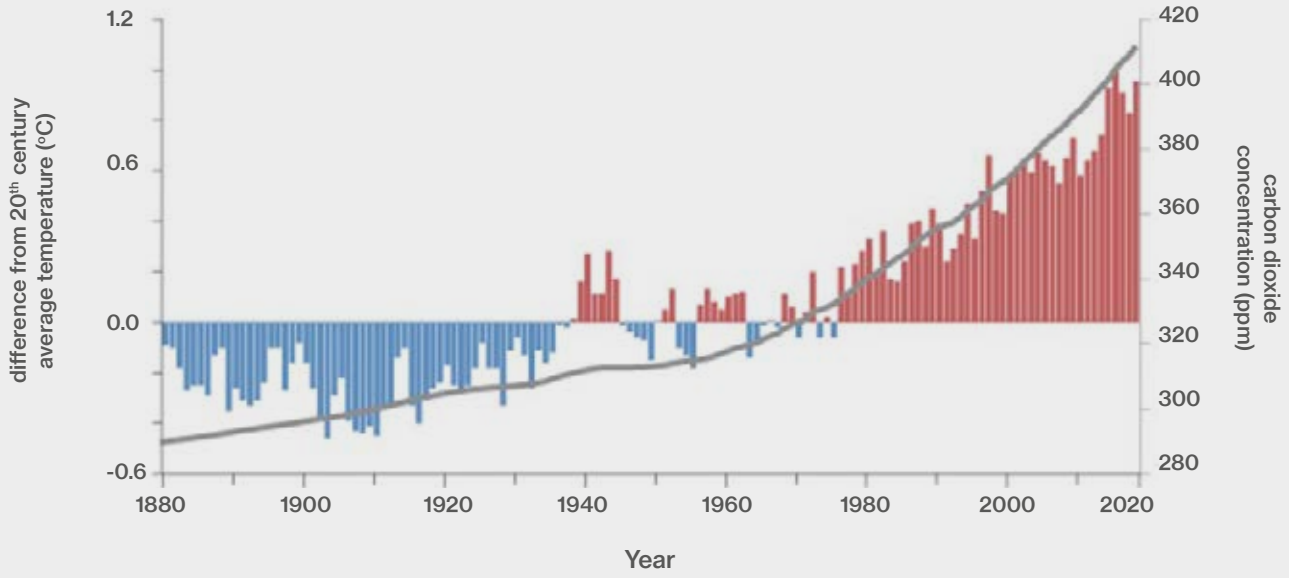
The purpose of this article is to provide an overview of developments that will impact the power industry across the globe, with prudent risk management at the heart of managing this transition – both now and in the long-term future. It will discuss the gap between the science and policy response to climate change; it will examine the response of regulators, lenders and investors, along with some insights from a range of experts. Finally, it will provide a high-level summary of the consequences for the power sector as the world shoehorns ESG into strategy, business and investment decisions.

IPCC: who they are and what they do

Set up in 1988, the Intergovernmental Panel on Climate Change is an intergovernmental body of the United Nations. They provide the world with objective, scientific information that is relevant to understand the risks of human induced climate change. They produce reports that cover the scientific, technical and socio-economic information of climate change, it's potential impacts and options for adaptation and mitigation. The IPCC does not carry out original research, rather thousands of scientists and other experts across the globe contribute on a voluntary basis to writing and reviewing reports. These reports are then shared with governments, which includes a 'Summary for Policymakers', for them to use in their decision making. Their job is to put the facts on the table, and to use the analogy of the changes to the car industry since the move from horse and cart to the engine; it is then up to policy makers to decide if they want to put seatbelts and fire-retardant materials in and think about setting national limits to negate the speed.

[1] ESG has been defined by the Financial Times as "a generic term used in capital markets and used by investors to evaluate corporate behaviour and to determine the future financial performance of companies. ESG factors are a subset of non-financial performance indicators which include sustainable, ethical and corporate governance issues such as managing the company's carbon footprint and ensuring there are systems in place to ensure accountability" - http://markets.ft.com

Fig 1: Atmospheric carbon dioxide and the Earth's surface temperature, 1880 - 2019



Source: NOAA Climate.gov
Data ESRL/ETHZ/NCEI

Yearly temperature compared to the twentieth-century average (red and blue bars) from 1880–2019, based on data from NOAA NCEI, plus atmospheric carbon dioxide concentrations (gray line): 1880-1958 from IAC, 1959-2019 from NOAA ESRL. Original graph by Dr. Howard Diamond (NOAA ARL), and adapted by NOAA Climate.gov.

This is one of the most repeated graphics because it is so simple; download a copy of any one of the IPCC reports and you'll see there are thousands of pages of scientific evidence that cover all the nuanced pieces

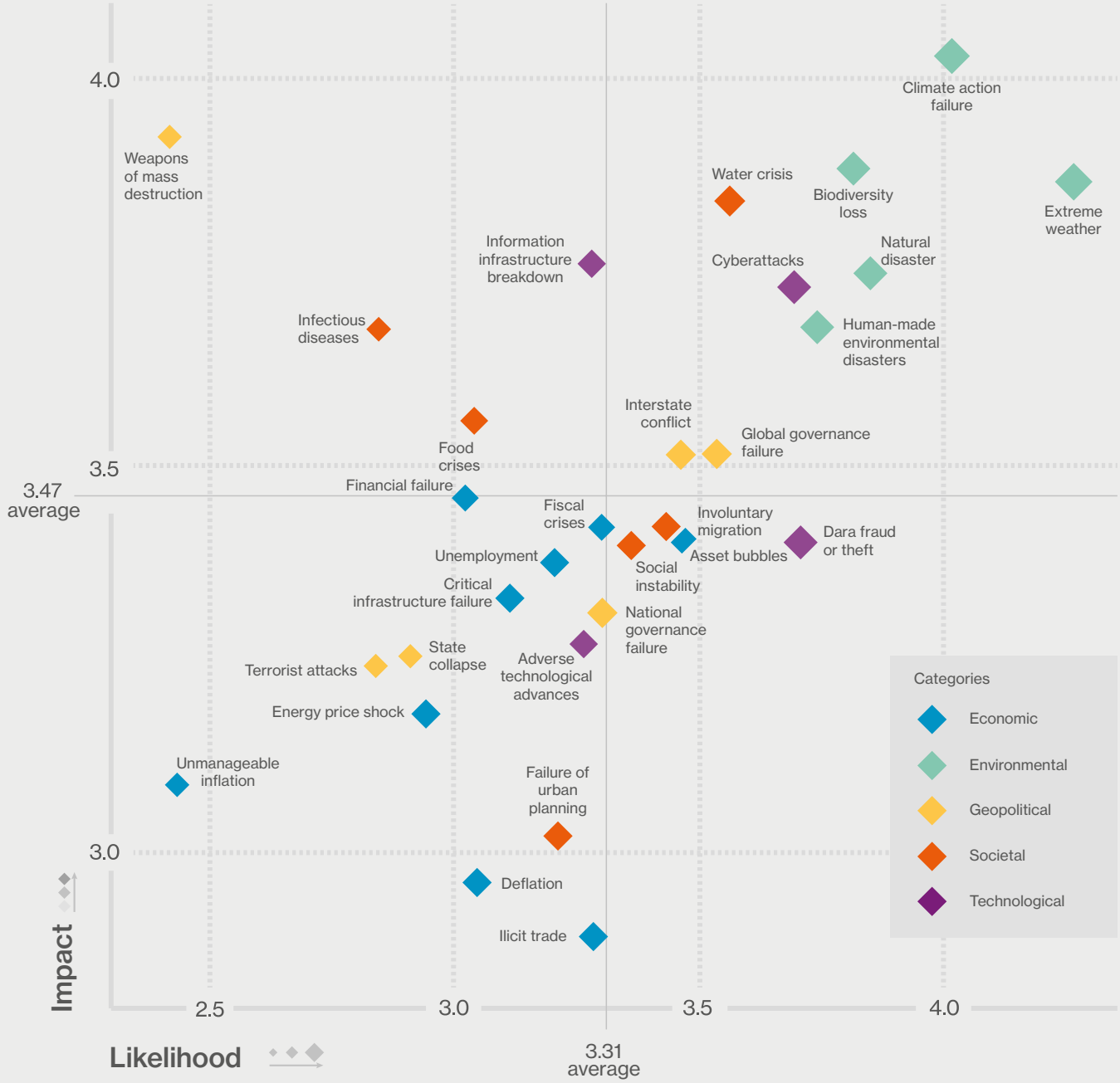
What the science is telling us

In brief, the science is telling us that the earth is getting hotter. Figure 1 above shows that the trend of the global surface temperature of the earth; twenty of the warmest years on record were in the past 22 years. The grey line shows the rising concentration of CO2 levels.

It seems that the scientific body of evidence from the Intergovernmental Panel on Climate Change (IPCC) is overwhelming. The IPCC interprets the science and summarises it to governments; it's then up to governments what actions to take, based on the scientific data.

"In my view, the scientific body of evidence from the Intergovernmental Panel on Climate Change (IPCC) is overwhelming."

Fig 2: The global risk landscape, 2020



Environmental threats are in the top five long term risks by likelihood and occupy three of the top five places by impact

Source: World Economic Forum
http://www3.weforum.org/docs/WEF_Global_Risk_Report_2020.pdf

In 2018, the IPCC produced a special report on Global Warming of 1.5°C[2]. This set alarm bells ringing about the risks of climate change impacts, not only with policy makers but also with businesses and corporates, because it showed that the differences in outcomes between 1.5°C and 2°C are considerable. What's terrifying is that, without changes, we are likely to blow through the carbon budget during the next decade and are likely to carry on warming beyond 2°C if significant action isn't taken in transitioning to a zero-carbon economy.

The effect on the power sector risk landscape

Companies determine their risk appetite by analysing their exposure to a variety of segments, such as market movements, geopolitical events and changes in counter-party risk. There is now a sharper focus on environmental threats over the next ten years, and power sector industry leaders know it. For the first time in the history of the World Economic Forum's Global Risk Report 2020, environmental threats dominate issues on senior leaders' agendas, as evidenced by the position of the green diamonds in Figure 2 opposite – remember this is a survey asking them what issues are crossing their desks before the onset of the COVID-19 global pandemic.

In summary: business and finance leaders know that the likelihood and impact of environmental threats to the power sector are high. The science is clear - high carbon intensive industries are particularly exposed to three primary risks: physical, transitional and liability, all of which have significant financial consequences for the power sector. Let's discuss each in turn.

Part 1: physical risk

As many readers will already appreciate, climate change is not just about temperature rise - there may also be unpredictable changes to the weather. Chronic changes to temperature and sea level rise will accompany changes to acute extreme weather events such as tropical cyclones, wildfires or droughts.

Indeed, climate change affects virtually every aspect of the energy system, with specific challenges varying by geography and intensity. A Florida electric company is worried about hurricanes; California utilities have to manage wildfires; droughts and flooding impact electricity demands across the globe and power plants' ability to meet them. The concept of prudent expenditure is relevant to forecast normal operating conditions but it's difficult to

[2] https://www.ipcc.ch/sr15/

create an expenditure forecast assessment for extreme weather events if the past is no longer a reliable guide for the current of future climates; for example, Australia's recent bushfires have been unprecedented in their frequency, severity and geographic spread.

The region you're in might not be impacted by water stress or flooding right now, but that could change and seasonal tolerances might be further stressed. This is where the use of those IPCC scenarios is incredibly useful because they give an evidence-based frame to consider possible futures for asset management and new capital expenditure.

Business Interruption

The power industry will also face an increasing number of Business Interruption (BI) scenarios according to the Allianz Risk Barometer 2019, and natural catastrophes were the third biggest fear of businesses, after BI and cyber incidents.[3]

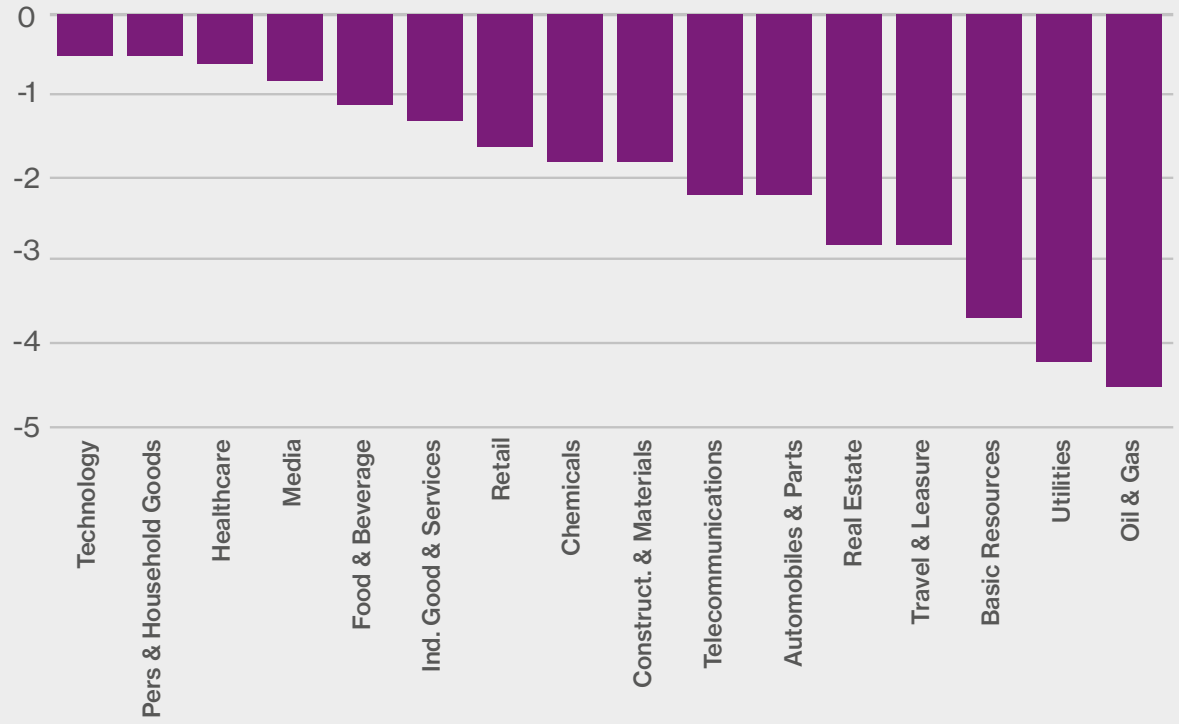
What's it going to cost?

The potential costs of insuring assets against the impact of climate change is higher for the energy industry than any other line of business. According to an analysis from Schroders as part of a physical risk assessment for the oil & gas industry, it could equate to more than 3% of their market values, as outlined in Figure 3 opposite.[4]

[3] https://www.agcs.allianz.com/news-and-insights/expert-risk-articles/risk-barometer-2019-nat-cat.html

[4] https://www.schroders.com/fr/insights/economics/how-will-physical-risks-of-climate-change-affect-companies/

Fig 3: Adjustment of companies' total value for physical climate risks (%)



Schroders analysed and calculated what businesses would have to pay to insure their physical assets against hazards caused by rising global temperature and weather disruption. The oil & gas industry is most exposed to the physical impacts of climate change.

Source: Schroders, based on most recent data avaliable in March 2018 (We have excluded financial sectors from this summary given the low direct exposure of their fixed assets understanding the risk embedded in their assets or liabilities. SCH69706)

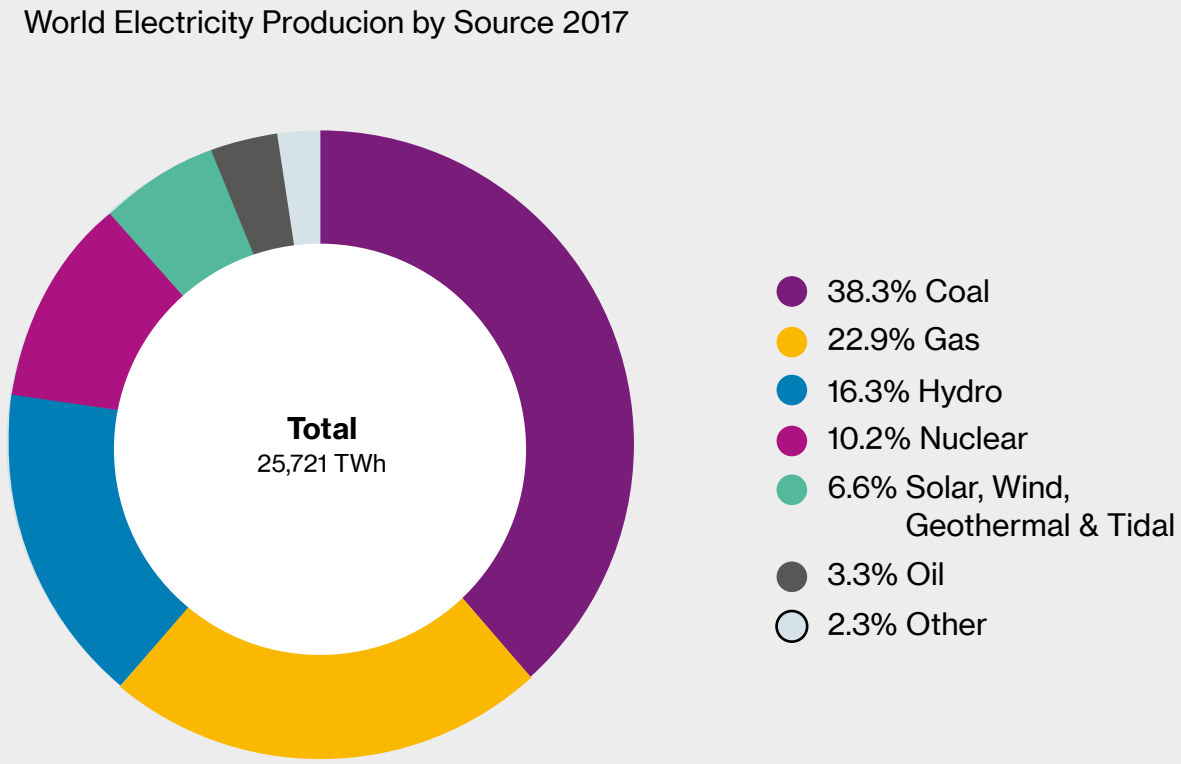
Part 2: transition risk

Transition risks occur as societies move toward a zero-carbon economy. 49% of annual global GDP – more than $39 trillion – is now covered by regions of net zero targets, according to the latest analysis from the Energy and Climate Intelligence Unit (ECIU).[5] Investors have a growing concern over the viability of high carbon business models in an increasingly carbon-constrained world. Creating an effective climate risk mitigation plan is proving difficult for the power industry, but it is not impossible.

The transition away from coal generation is ongoing. Gas has been promoted as a "bridging" fuel in the transition to a zero-carbon economy; however, it is still a fossil fuel. And any advantage it might hold over more carbon intensive fuels such as coal or oil are lost with even small amounts of leakage of methane, which is a far more potent greenhouse gas than CO_2.

[5] https://eciu.net/news-and-events/press-releases/2020/almost-half-of-global-gdp-under-actual-or-intended-net-zero-emissions-targets

Fig 4: The power sector: energy transition risks growing



Fossil fuels coal and gas still dominate the global power generation mix in 2019[6]

Souce: IEA Electricity Information 2019

Furthermore, it has been estimated that the implementation of a carbon tax, which is one of the most commonly cited potential policy responses, on the power generation and oil & gas industries with a tax level of about $50 /tCO2e could result in $50 billion to $300 billion in losses on outstanding debt across both sectors; the report extrapolated that as much as $1 trillion could be at risk in the broader economy[7].

"Transition risks are more advanced in the power sector as renewable energy has disrupted power more than any other sector," says Mark Lewis, Head of Climate Change Investment Research at BNP Paribas Asset Management.

While global electricity production has grown continuously since 1974, except for the blip in 2008-2009 due to the financial crisis, with non-OECD countries more than doubling the share they held in 1974,[8] Mark Lewis points out that, "electrification is going to be one of the main drivers of the next three decades. Electricity is the fastest growing part of the energy sector, and renewable energy the fastest growing part of electricity demand." Indeed, in Europe electricity produced with renewables have increased as much as 150% since 2000, whereas fossil electricity dropped by 17% according to Eurelectric, the federation for the European electricity industry.[9]

[6] https://webstore.iea.org/download/direct/2563?fileName=Electricity_Information_2019_Overview.pdf
[7] https://www.oliverwyman.com/content/dam/oliver-wyman/v2/publications/2020/February/Climate-Change.pdf
[8] https://www.iea.org/reports/electricity-information-2019
[9] https://cdn.eurelectric.org/media/4005/power-barometer-final-lr-h-3A4C4DC9.pdf

The 3 big Ds

"The big three Ds to watch in the power sector are decarbonisation, digitalisation and decentralisation," says Laurent Segalen, a clean energy banker, and co-host of the Redefining Energy podcast. Segalen has a point; the world is now committed to decarbonising the economy, digitalisation has increased efficiency and decentralised power is more in demand as it meets the needs of society better while technology, such as solar rooftops and batteries, has become much cheaper. Electricity customers across residential, commercial and industrial segments want cleaner energy sources, increased resilience and more control over their energy use.[10]

Many power companies are already exploring new business models. "Ten years ago, the power industry had fat margins, but now utilities operate on thin margins, they've had to adapt," says Segalen, "and utility companies had technological choices to make regarding renewables - some of them took that route while others fought against it. At the end of the day, it was not a given to make the move to renewables, it was a choice."

The energy chain has been consolidating and new business models have appeared. Energy big-data created by smart metering, coupled with AI, is providing new insights into demand and customers preferences, allowing utilities to continuously improve the customer experience and manage the grid more effectively. However, digitalisation creates its own challenges for power companies; for example, with regards to managing growing cyber risk and the rise of new nimble actors such as aggregators, Virtual Power Plants (VPP) and traders.

Nuclear power and Carbon Capture & Storage

In my view, nuclear power is a bit like marmite: you either love it or hate it. For the benefit of non-UK readers, marmite is a sticky, dark brown spread that's made from yeast extract, vegetable extract and spices that the Brits spread on toast for breakfast. Much debate goes on in the UK about which camp you are in[11]; a parallel universe seems to exist regarding opinions on nuclear power. Choosing where you stand is not so simple because on paper, it's great. Many studies in top scientific journals find that nuclear power plants are one of the safest ways to make reliable energy; they provide a stable baseload, in contrast to renewables which are intermittent. Unfortunately, it is also one of the most expensive options to produce electricity and there is a significant construction time lag; it takes 5-17 years longer to build a new nuclear plant than a utility scale solar or onshore wind farm.[12]

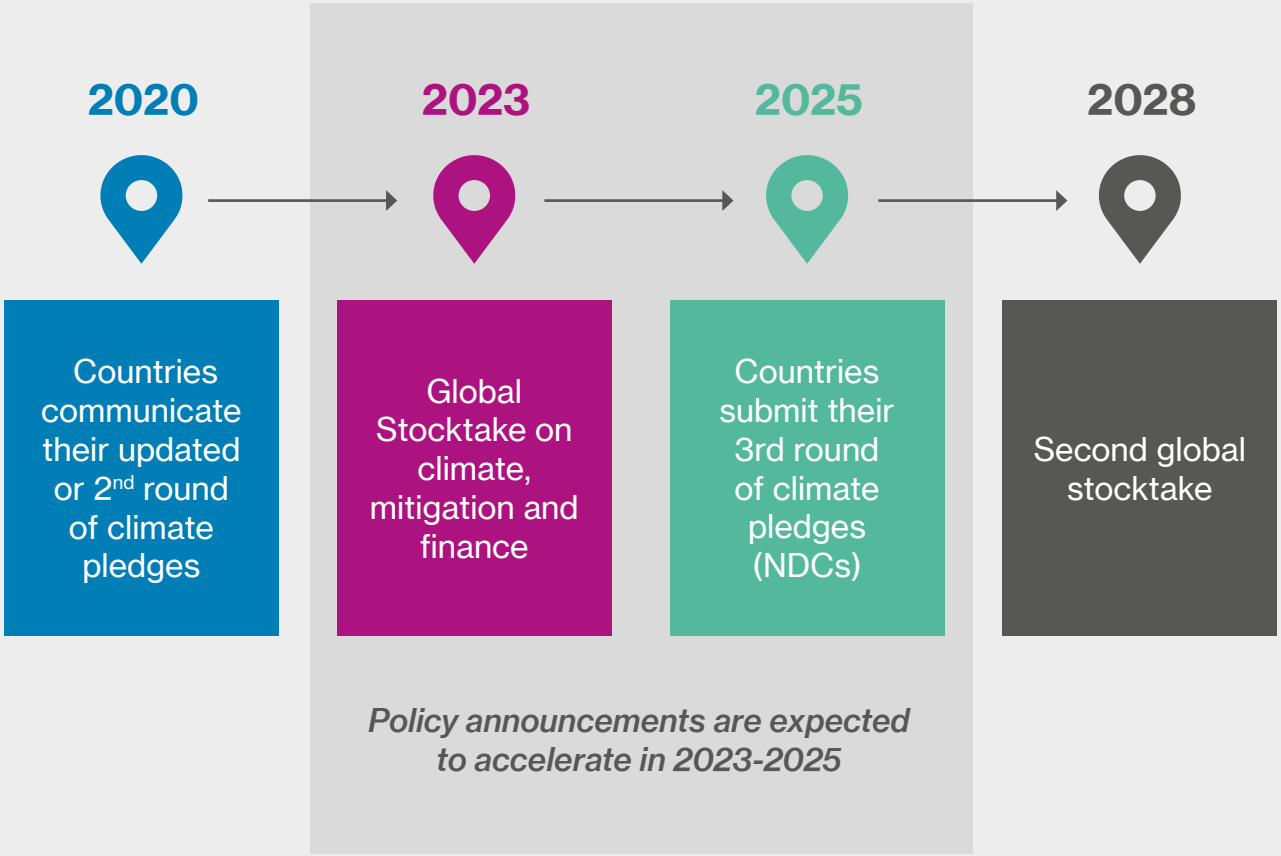
Whatever camp you are in regarding your views on nuclear power, the fact of the matter is that we must abate carbon in the shortest amount of time and in the most cost-effective manner. Laurent Segalen makes three substantive points: "First of all, nuclear power is one of the most centralised ways to make electricity, which conflicts with the growing trend of decentralisation that seeks stable grid management and can still serve the last mile of customers. Secondly, it is also inflexible, so difficult to manage in grids integrating more and more renewables. And finally, nuclear is the most expensive form of energy, being the only source of power which costs have gone **UP** in the past 10 years by around 20% to 30%, when wind and solar were benefiting from costs reductions of between 50% and 80%. Without huge subsidies, nuclear is now uneconomic and has become a political rather than an economic choice."

Furthermore, Mark Lewis indicates that, "there will be further step changes in renewables efficiency and battery storage during the time it could take to build new expensive nuclear power plants."

Carbon capture and storage technology is not advancing quickly enough to curb emissions growth. There is no silver bullet to tackle decarbonisation; it is a complex and challenging task requiring all stakeholders, governments and society to come together to find solutions. And as shown below, the task is will only become more challenging as policy continues to tighten.

[10] https://www2.deloitte.com/content/dam/insights/us/articles/5065_Global-resources-study/DI_Global-resources-study.pdf
[11] https://www.theguardian.com/lifeandstyle/2016/oct/13/what-is-marmite-british-food-spread-tesco
[12] https://www.worldnuclearreport.org/IMG/pdf/wnisr2019-v2-hr.pdf pg 25

Fig 5: The Paris Agreement's "rachet mechanism" increases the likelihood that governments will strengthen policy by 2025



Source: https://www.unpri.org/download?ac=9833

Business interruption

Of course, business interruption risk is not just physical; it can impact a company's reputation and has the potential for liability. As well as choosing not to insure high-carbon assets in some instances, insurers are also hedging against losses due to physical impacts by improving their risk analysis with advances in climate modelling. Premiums are being adjusted and industries with large environmental footprints are under increasing pressure to safeguard sensitive ecosystems, both on land and at sea.

Part 3: liability risk

Utility companies are already facing the physical and transitional risks of climate change and now they have to confront a third risk in the form of litigation liability. Some of the litigation claims seek to attribute Scope 3 emissions (third party emissions from the end use of products) to the power/energy producer or seller of those products. New litigation cases are using science to quantify and show the relationship between emissions to particular place-based companies and climate change related impacts, such as sea level rise.[13]

[13] https://insideclimatenews.org/news/04042018/climate-change-fossil-fuel-company-lawsuits-timeline-exxon-children-california-cities-attorney-general

Pacific Gas & Electric: the first "climate change bankruptcy"

PG&E has been heralded at the first 'climate change bankruptcy' when they filed for bankruptcy in the face of liabilities from wildfires of $30 billion or more that swept across their service areas in northern California. PG&E is a regulated utility that serves approximately 5.2 million households. It's been over a year and PG&E is trying to restructure its debt to emerge from bankruptcy. During the past year PG&E announced a $13.5 billion settlement with a committee of law firms representing about 70% of people who suffered losses from fires in recent years and reached an $11 billion settlement with insurance companies on claims related to the recent wildfires. Regulators boosted a previously agreed $1.7 billion settlement announced in December 2019 to a record $2.1 billion penalty in February 2020. PG&E still face hurdles and California Governor Gavin Newsom set a deadline for a bankruptcy exit plan to be in place by 30 June 2020, which would allow PG&E to access a new state "wildfire fund" to pay for damages. PG&E still needs state approval of the plan to qualify for the fund.

On March 16 2020 PG&E won court approval to raise $23 billion to help pay its bills over destructive California wildfires after Governor Gavin Newsom dropped his opposition to a financing package designed to help the nation's largest utility get out of bankruptcy.

Sources:

https://www.mercurynews.com/2020/01/23/confused-about-pges-bankruptcy-heres-what-you-need-to-know/

https://www.cnbc.com/2019/09/13/pge-reaches-11-billion-settlement-relating-to-wildfire-claims.html

https://www.nbcbayarea.com/news/california/california-wildfires/regulators-boost-pges-wildfire-fine-to-2-1b/2243860/

https://www.marketwatch.com/story/pge-wins-court-approval-of-23-billion-bankruptcy-financing-package-2020-03-16

Global trends in climate change litigation

According to a "Global Trends in Climate Change Litigation: 2019 Snapshot" policy publication at the Grantham Research Institute on Climate Change and the Environment housed at the London School of Economics, climate change litigation is expanding across jurisdictions as a mechanism to strengthen climate action[14]. There are over 1,800 climate laws and policies according to Climate Change Laws of the World, an open-access compilation of climate change litigation, which is increasingly viewed as a tool to influence policy outcomes and corporate behaviour[15].

Combine this with increasing climate-related disclosure reporting and one starts to question, and look into, who the shareholders are in the utility provider. "The investor in the power company could be caught by new climate mandatory reporting rules," according to Wendy Miles, Partner at Debevoise & Plimpton, who deals with international dispute resolution, including climate change. Article 173-VI of France's Law on Energy Transition for Green Growth (LTECV) has set a global precedent by requiring institutional investors to be transparent on the climate impacts of their investments. Much like obligatory financial reporting, investors have to "comply or explain". Since 2016, when Article 173 was put into law, there are several French legal cases that have been brought forward. Claims have issues ranging from companies failing to adequately assess and report climate risks of their own activities to action taken against the French government's failure to take further action to reduce greenhouse gas emissions, claiming that this violates a statutory duty to act under domestic and international law.

Investors in France have a legal obligation to report and reduce the carbon footprint of their portfolios; by continuing to hold carbon intensive assets in them, they hold direct and indirect litigation risk. "Litigation risk for the investment target detracts from its investment appeal and the investor itself could face claims for director's breach of fiduciary duties if it were to misreport the climate risk across its portfolio," points out Wendy Miles.

Private sector and policy response

The push for climate disclosure

Michael Bloomberg tweeted in 2014: "if you can't measure it, you can't manage it."[16] The truth of the matter is that climate risk is hard to measure. Much of this is due to a lack of data - how do you take decisions when faced with the uncertainty of climate change, knowing that your data is incomplete?

Work is being done across governments and industry that addresses those data gaps. For example, the EU taxonomy for sustainable activities released last year provides guidance to around 6,000 EU-listed companies, banks and insurance companies that have to disclose non-financial information under the Non-Financial Reporting Directive.

However, more methods are required to asses climate risk. Researchers out of the University of Arizona specifically focused on literature about climate risk management in the case of the electric utility sector and learned that while the industry anticipates climate change extreme events, that there were no observably uniform methods for assessing risks.[17] This is why new tools, such as Willis Towers Watson's Climate Quantified™, will be crucial to risk managers (see the next chapter of this Review).

Increasing action by investors and the banking sector

During 2016 to 2018 ESG investment grew 34%, representing $30.7 trillion in assets, according to the Global Sustainable Investment Alliance.[18] The growth of sustainable and ethical investing continues to rise, with new funds being developed alongside ESG products and services. The overall rational for ESG, or sustainable investing, is that those companies who are managing their risk would, in theory, perform better in the transition to a low-carbon economy. Furthermore, some research shows that companies with higher risk of climate change have a higher cost of capital.[19]

"The truth of the matter is that climate risk is hard to measure. Much of this is due to a lack of data - how do you take decisions when faced with the uncertainty of climate change, knowing that your data is incomplete?"

[14] http://www.lse.ac.uk/GranthamInstitute/publication/global-trends-in-climate-change-litigation-2019-snapshot/
[15] https://climate-laws.org/
[16] https://twitter.com/mikebloomberg/status/425738442803511296?lang=en
[17] https://reader.elsevier.com/reader/sd/pii/S2212096317301572?token=8D05ACC7D9A8C5678504212F21F8CDC8E47B155F50B292F16A6C41D8748E44B7555C43297DBB78EA727DAC43C0F2A56F pg 16
[18] http://www.gsi-alliance.org/wp-content/uploads/2019/06/GSIR_Review2018F.pdf
[19] https://www.researchgate.net/publication/326350603_Relationship_between_Climate_Change_Risk_and_Cost_of_Capital

Fig 6: High level objectives for central banks' portfolio management

The NGFS aims to address the impact of climate-related risks and / or ESG risks on the portfolio - and also on the environment and society[20]

Source: https://www.ngfs.net/sites/default/files/medias/documents/ngfs-a-sustainable-and-responsible-investment-guide.pdf

Lenders are responding to calls for them to do more. The rise of green financial products continues, with banks creating new green instruments and implementing climate risk assessments or a 2°C scenario analysis. Alongside this there is thorough work being undertaken to consider what green is, so there will be no room to hide behind surface level efforts. The UNEP FI Principles of Responsible Banking is an example of one of the initiatives that is actively exploring this space.

In addition, the rise of green and sustainability linked loans signals the start of a fundamental shift in the broader economy. The key difference between a green loan and a sustainability linked loan is that use of proceeds in sustainability linked loans are not conditional for a particular green purpose. Rather, the sustainability linked loan incentivises the borrower to improve its performance against predetermined ESG criteria and KPIs. "Sustainability linked loans are one way for utilities to finance their transition and transition financing is going to take on more importance as we further advance to a low carbon economy," says Graham Smith, Director, Sustainable Finance Unit at HSBC. Smith represents HSBC on the Loan Market Association's (LMA) Green Finance committee. The LMA, in consultation with private sector financial institutions and law firms, have developed documentation to help standardise Green Loan and Sustainability Linked Loan Principles.

Standardisation is one of the keys to improving market liquidity as it creates a pathway for other banks and investors to follow. It sets the "rules" of the game, so to speak, so that other actors, including utilities, can participate. "However, one must understand that there are global differences and you can't apply just one standard globally. The IFC guidance is to use the best standard available in that country with the view to always looking for improvement," said Graham Smith when questioned about how the EU Taxonomy will fit into the green and sustainability linked loan principles.

[20] https://www.ngfs.net/sites/default/files/medias/documents/ngfs-a-sustainable-and-responsible-investment-guide.pdf

Central banks are taking action

Climate-related risks pose complex challenges not just to private banks but also to central banks, regulators and supervisors. Contrary to the lack of significant global policy responses from governments, the rise of central banks examining climate risk shocks to financial stability has been swift. They are becoming organised via the Network for Greening the Financial System (NGFS) which was launched in December 2017 with eight central banks and has grown to 65 members and 12 observers across five continents[21]. The NGFS is a group of central banks and supervisors who are developing guidance around climate risk assessment and scenario analysis. This work will provide frameworks for other regulators who are also looking to evaluate climate risks – at the end of the day what they want to know is that companies understand their risks and are taking concrete action.[22]

The rise of climate stress testing

Stress testing is conducted to focus on financial stability, to ensure that financial institutions are adequately capitalised for the next crisis.

Regulators develop macroeconomic scenarios; firms evaluate their portfolio against these scenarios and create their own scenarios too. The Bank of England is looking to test the resilience of the current business models of the largest banks, insurers and the financial system to the physical and transition risks from climate change."[23] Central banks tend to adopt the best market practices of their peers; it would be a logical development for other central banks to follow suit with climate stress testing in their own countries. Efforts by the NGFS are gathering momentum and numbers to create a framework, and the development of more low carbon policies is just a short matter of time. These policies will increase the burden on risk managers.

Conclusion: consequences for the power industry

Physical and transition risk

The costs of physical impacts and business disruptions can be considerable for the power industry. Utilities still depend heavily on fossil fuels for power generation, yet many are locked into high emissions from long-lived fossil fuel power plants until 2050, so transitioning out of this will prove challenging.[24]

The global financial system and the power industry must make a faster shift towards the alignment of climate security and sustainable development.

"Climate-related risks pose complex challenges not just to private banks but also to central banks, regulators and supervisors."

[21] https://www.ngfs.net/en/about-us/membership
[22] https://www.bis.org/press/p200430.htm
[23] https://www.bankofengland.co.uk/-/media/boe/files/paper/2019/the-2021-biennial-exploratory-scenario-on-the-financial-risks-from-climate-change.pdf
[24] https://www.cdp.net/en/articles/media/major-european-utilities-put-14-billion-of-earnings-at-risk-by-missing-climate-goals-new-report-finds

Liability risk

Some commentators have shifted their focus to physical and transition risk, grouping litigation risk within the latter. This detracts from the significance and unique challenges of litigation risk, which encompasses risk arising out of new transition reporting regimes, but also myriad potential claims affecting all aspects of utility operations, from permitting to licensing to environmental protection and continuing efforts by NGOs and citizens to seek to attribute historic climate change to energy and power providers. As transition continues to change the regulatory framework, that litigation risk is likely to increase without careful and focused risk management by utility providers and their investors.

The growing trend of litigation cases against energy companies has just got started and the financial and solvency, implications could be severe. The bankruptcy of PG&E has been recognised as the first major corporate casualty of climate risk, and few people expect it to be the last.

Final thoughts: prudent risk management will be critical!

Capital has to be reallocated to support the just transition to a zero-carbon economy. Such a just transition means balancing society and the economy, along with managing the transitional implications for potentially "stranded" assets, communities and workers.

Transitioning to a zero-carbon economy for the power sector is extremely complex, with lots of moving parts. ESG actions, financial flows and alignment are not happening fast enough to deliver impact at scale. Fundamental systemic change is required on a global level - change is coming, whether we like it or not. It can be embraced or delayed – but not avoided, so starting now is key. The COVID-19 pandemic highlights the importance and value of collective action with coordinated support; long term strategies and sustainable investment approaches are required.

To conclude: as stated at the beginning of this article, prudent risk management is at the heart of this piece. For utility companies to remain a going concern in the future, action is required: be prepared, share information and work with other relevant stakeholders and governments to find solutions for the eventual transition to a zero-carbon economy. Only in this way will the industry respond effectively to the future transformation of the power market risk landscape.

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Enhancing your ESG response: the strategic role of the risk manager

Introduction: doing nothing is not a viable option!

Environmental Social Governance (ESG) factors have been around for the last few decades, but whereas they were once considered "nice to have" principles or an ethical stamp of approval to show that you were a good, moral company, times have changed. ESG has now become a financial and strategic imperative; many ESG factors are now demanding Board level attention with climate change particularly dominating recent discussions at the World Economic Forum in Davos[1].

Doing nothing is not a viable option, particularly in the power sector; investors are demanding climate disclosure, central banks are working together to 'green the financial system' and expectations of employees and customers are rapidly shifting as ESG truly enters the mainstream.

If your CEO or CFO hasn't been asked about your company performance through an ESG lens, then rest assured it is coming, and coming soon. Add to this the idea that COVID-19 may accelerate the broader appetite towards ESG as the financial markets look to build resilience to systemic risks, and there is an even stronger case for enhancing your ESG response.

The strategic role of the risk manager

The good news is that risk managers can be proactive in addressing ESG; furthermore, many industries are finding that the insurance sector is uniquely placed to help them, given our experience of being on the front-line of managing the impacts of a changing climate over many decades.

As we navigate the challenges of a COVID-19 world, it will be critical to maintain momentum and interest in this area; especially as ESG issues, the effects of oil prices dipping into negative figures and disruption to global cargo markets are likely to place energy security high on the agenda and trigger new infrastructure projects.

As we explain in this article, there's never been a better time for risk managers to bring together a system-wide perspective, play a critical strategic role in guiding the Board's ESG response and pivot from risk to opportunity.

[1] https://www.euractiv.com/section/climate-environment/news/davos-wrap-up-forum-runs-out-of-steam-as-climate-becomes-king/

ESG drivers: a changing climate, and a climate of change

Since the industrial revolution, and particularly over the last 50 years, the world has experienced significant economic growth, powered by ever increasing use of natural resources, driven by a substantial increase in global energy demand. This increase in human activity is known as 'The Great Acceleration' and has resulted in many benefits, lifting millions out of poverty and creating our modern world; however, it has also had some unintended consequences, including unprecedented changes in our climate.

Indeed, events that would have seemed unimaginable only a few years ago, such as PG&E becoming the first recognised corporate casualty of climate risks[2], or the Chairman and CEO of Black Rock discussing climate risk and referring to a fundamental reshaping of finance[3], are now becoming the norm.

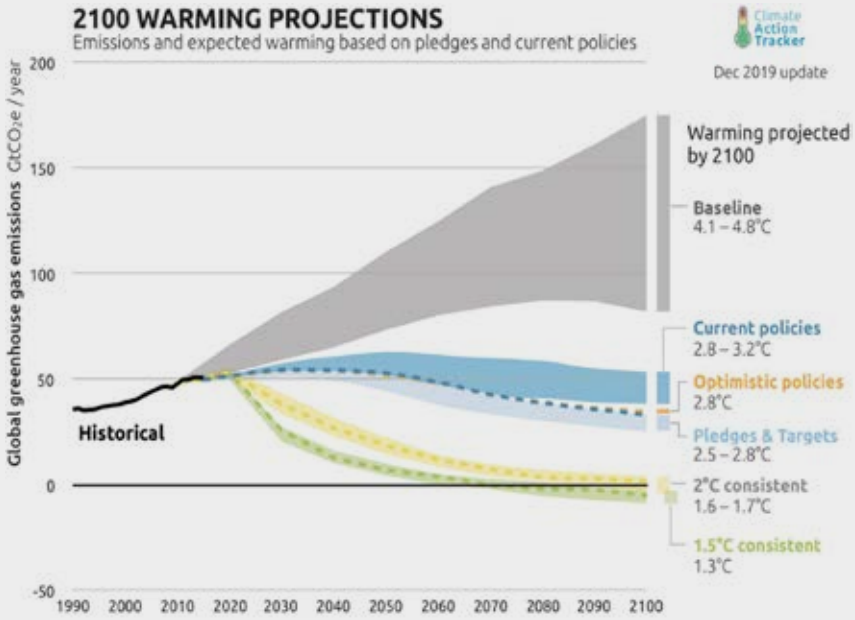
To more fully understand why there has been such a significant shift in the ESG zeitgeist, it is useful to understand current views of the science, the frameworks being used, and the actions that central banks, regulators and investors are taking.

These factors will have a big impact on your role as an power risk manager, and there has never been a better time to get up to speed with the ESG landscape and help your Board develop a strategic response.

"Doing nothing is not a viable option, particularly in the power sector; investors are demanding climate disclosure, central banks are working together to 'green the financial system' and expectations of employees and customers are rapidly shifting as ESG truly enters the mainstream."

[2] https://www.wsj.com/articles/pg-e-wildfires-and-the-first-climate-change-bankruptcy-11547820006
[3] https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter

Fig 1: The science landscape



If we are to keep global temperatures to 'well below 2°C', the guardrail which scientists view as important to reduce the risks of severe, irreversible and pervasive changes in our climate, we need to make substantial and sustained reductions in the rate of emissions and reach 'net zero'

As shown in Figure 1 above, 2020 represents a fundamental fork in the climate change road. The actions we take now, and in the coming years, may well determine the future of the world's climate system. Views on how extreme weather events will change in a warmer world vary, depending on the type of event and its individual characteristics. This is where modelling future climate scenarios using state of the art scientific knowledge can play a key role in your strategic planning and risk management processes.

While a 2°C increase in temperature may not seem important it's worth bearing in mind that for the last 10,000 years, it's the relative climate stability of +/- 1°C that has, at least in part, been the foundation of our collective progress today: a climatically stable nursery for civilizations to grow. Beyond 2°C, or even 1.5°C according to a recent IPCC (Intergovernmental Panel on Climate Change) report[4], we are going in to uncharted territory with increasing risk of climate tipping points.

There has been a significant and rapid increase in concentrations of atmospheric carbon dioxide (CO_2), especially since the 1970s, reaching levels unprecedented for at least 800,000 years, during which time we've been through many ice ages and warm periods (inter-glacials, such as our pre-industrial climate). In fact, palaeoclimatological evidence shows that the last time CO_2 concentration was this high was at least 3 million years ago. Temperatures were two or three degrees higher than pre-industrial climate and seas were 15-25 metres higher.

CO_2 is a greenhouse gas that acts like a thermal blanket around the Earth, and it's getting thicker every year. In response, our planet is warming, sea levels are rising and weather patterns are changing. The rapid increase in CO_2 takes time to exert these impacts on the planet, and so the emissions produced already will continue to affect our climate for centuries to come. If we continue along a similar pathway – continuing to increase carbon emissions – global temperatures could rise over 4°C by the end of the century, and this has been quoted by some as being an uninsurable world[5].

[4] https://www.ipcc.ch/sr15/
[5] https://www-axa-com.cdn.axa-contento-118412.eu/www-axa-com%2Ff5520897-b5a6-40f3-90bd-d5b1bf7f271b_climatesummit_ceospeech_va.pdf

The current ESG landscape: a framework for climate-related financial risks

As the worlds of ESG, climate science and finance have come together in recent years, a new language of climate-related financial risk and disclosure has developed.

One framework you may be increasingly aware of is the "physical, transition, and liability" financial risks from climate change, which Margaret-Ann Splawn referenced in the previous article. This framework was first set out in a report by the Bank of England in 2015[6], published alongside a seminal speech on 'Breaking the Tragedy of Horizon' by the Governor of the Bank of England, and Chair of the Financial Stability Board, Mark Carney.

As illustrated by Margaret-Ann, these three channels of climate risk are highly relevant to the power sector and are already having a meaningful financial impact. In her article Margaret-Ann pointed out that they feature prominently in the recent bankruptcy of PG&E, one of the first major corporate casualties of climate change. Few people expect it to be the last[7].

As a quick reminder:

- **Physical risks** are the direct risks arising from damage, loss of business or supply chain disruption due to increasing intensity of extremes of weather and climate. Assessment of physical risk can help power and utility companies understand their operational risks and respond to extreme events. Insurance industry catastrophe modelling techniques can be applied to assess risks to infrastructure or incorporate IPCC-projected climate scenarios to investigate extreme events and changes to energy demand.
- **Transition risks** are the financial impacts of moving towards a low or zero-carbon economy, such as re-pricing of carbon intensive assets, the opportunity costs of making the transition too fast or too slowly or choosing sub-optimal technological solutions. For the power sector, this might take the form of changes in government policy, for example through taxes to limit supply or demand; or through improvements in technology, enabling more efficient and cheaper supply; or changing the demand for energy through electrification.
- **Liability risks** include those that arise from parties who have suffered loss or harm due to climate change and seek to recover damages from those who are judged by law to be responsible. Liability settlements, or costs of court cases, may well grow if such cases start to win compensation from high carbon sectors. While liability risks can be passed to insurance firms if policies allow and the market capacity is there, damage to reputation and subsequent uninsurable claims could be significant. These risks could arise from a failure to adapt, mitigate or disclose the financial risks from climate change.

The position and integrated nature of many utility companies puts them at the forefront of key challenges and opportunities associated with the energy transition, including decarbonization, electrification and technological development. Evaluating new and existing projects against this framework will be essential to respond to the changing landscape.

In many ways, these risks are not new per se; they translate into existing categories of financial risk such as credit, market, business, operation and legal risks that risk managers have been managing effectively for many years. For example, physical risks such as storms and floods can lead to operational risks in the form of business disruption, or climate liabilities can result in legal risks as those who have suffered damages seek to recover losses.

But as new sources of financial risk, they do present new challenges, not least a more extensive modelling of the natural world and developing a much more granular understanding of the transition to a 'net zero' future (see Figure 1 on previous page for more details).

That's one of the reasons why Willis Towers Watson is now working in multiple sectors and geographies across the world to help clients manage and respond to ESG and climate risks.

"But as new sources of financial risk, these risks present new challenges, not least a more extensive modelling of the natural world and developing a much more granular understanding of the transition to a 'net zero' future."

[6] https://www.bankofengland.co.uk/climate-change
[7] https://www.wsj.com/articles/pg-e-wildfires-and-the-first-climate-change-bankruptcy-11547820006

What's coming next: a strategic opportunity for risk managers

Over the last year or two, there has been an equally important development which is only just beginning to filter into financial markets, and in turn, into the energy sector and through power markets.

Many of the world's central banks and supervisors, through the Network for Greening the Financial System (NGFS), have upgraded their view on the financial risks from climate change. As highlighted in Figure 2 overleaf, the risks from climate change are now increasingly seen as having 'distinct characteristics' which means these risks need to be 'considered and managed differently'. Key areas where questions are now being asked include:

- **Board response:** regulators are setting clear expectations that managing the financial risks from climate change requires a long-term strategic response owned by the Board, with the premise of 'if you don't consider climate risk to be material, then tell us why'.
- **Individual accountability:** In some countries, such as the UK, banks and insurers are being required to nominate a specific senior executive to be responsible for climate risk[8]. A common home for this is the Risk Management team, with the CRO named as the individual accountable.
- **Climate Stress Testing:** at least 15 countries have committed to run climate stress tests[9], including the need to consider risks up to 2050 and how banks and insurers are adapting their business model to a changing climate and net zero future. Stress testing is not a new activity and Willis Towers Watson has been helping its clients explore the resilience of their business and risk management strategies for decades. However, designing stress tests to represent current and future impacts of climate change is an emerging field of climate risk analytics, and new developments are being adapted from the scientific community to support this activity. Risk managers should keep an eye on the outputs, because they are testing future lending conditions.

This step change in action by central banks is being matched by the private sector, with many companies already signed up to voluntary climate risk initiatives such as the Task Force for Climate-related Financial Disclosures (TCFD).

And some of the world's largest investors and banks are now going further, not only disclosing risk but also committing to align their investment or loan portfolios to the 'well below 2ºC' goal of the Paris Agreement on climate change[10]. The Global Sustainable Investment Alliance (GSIA) estimates that ESG investments, i.e. sustainable investing, represent in excess of $30 trillion globally, with industry research suggesting that this will double in the next three years.

As the landscape continues to shift, the demands on firms in the wider economy to respond to ESG measures will only increase. And sectors such as power, that can play a central role in ensuring an orderly transition to a resilient, net zero future, are likely to be at the centre of the ESG storm.

[8] https://www.bankofengland.co.uk/prudential-regulation/publication/2019/enhancing-banks-and-insurers-approaches-to-managing-the-financial-risks-from-climate-change-ss
[9] https://www.bankofengland.co.uk/-/media/boe/files/speech/2020/the-road-to-glasgow-speech-by-mark-carney.pdf?la=en&hash=DCA8689207770DCBBB179CBADBE3296F7982FDF5
[10] See, for example, https://www.unepfi.org/net-zero-alliance/ and https://www.unepfi.org/banking/bankingprinciples/

Fig 2: The distinct characteristics of risks from climate change

Far-reaching impact in breadth and magnitude:

Climate change will affect all agents in the economy (households, businesses, governments), across all sectors and geographies. The risks will likely be correlated with and potentially aggravated by tipping points, in a non-linear fashion. This means the impacts could be much larger, more widespread and diverse than those of other structural changes.

Foreseeable nature:

While the exact outcomes, time horizon and future pathway are uncertain, there is a high degree of certainty that some combination of physical and transition risks will materialise in the future.

Irreversibility:

The impact of climate change is determined by the concentration of greenhouse gas emissions in the atmosphere and there is currently no mature technology to reverse the process. Above a certain threshold, scientists have shown with a high degree of confidence that climate change will have irreversible consequences on our planet, though uncertainty remains about the exact severity and time horizon.

Dependency on short-term actions:

The magnitude and nature of the future impacts will be determined by actions taken today, which thus need to follow a credible and forward-looking policy path. This includes actions by governments, central banks and supervisors, financial market participants, firms and households.

Source: NGFS
https://www.banque-france.fr/sites/default/files/media/2019/04/17/ngfs_first_comprehensive_report_-_17042019_0.pdf

Climate Quantified: a new way of enhancing your ESG response

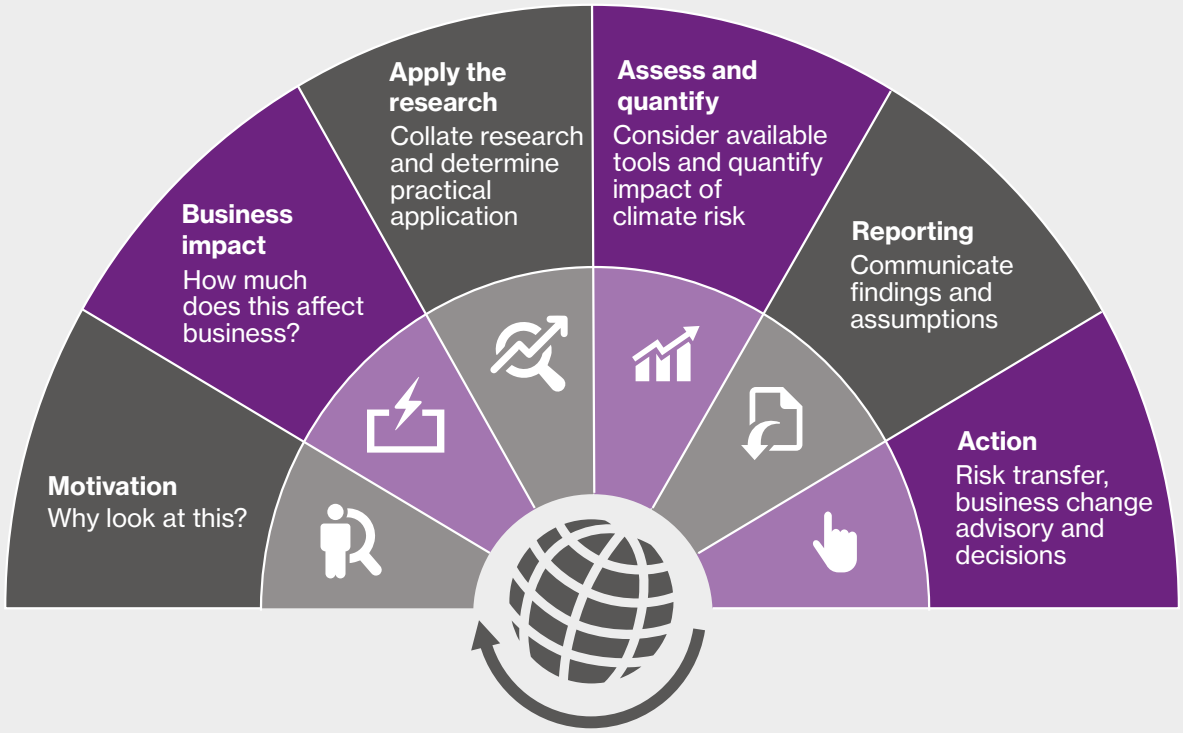
Climate Quantified brings together our deep weather and climate analytical experience from the (re)insurance and investment markets, our extensive academic, research and institutional investor relationships, and our multi-discipline expertise and capabilities in a fully integrated service offering.

Furthermore, it embodies a proactive approach to helping shape the global community's response to climate risks. For example, through our $50 million investment in the award winning Willis Research Network[11] to support open climate and natural hazard research, insights from our Thinking Ahead Institute[12] to influence change in the investment world, and our founding role, with the World Economic Forum, in the Coalition for Climate Resilient Investment[13].

[11] https://www.willistowerswatson.com/en-GB/Insights/research-programs-and-collaborations/willis-research-network
[12] https://www.thinkingaheadinstitute.org/
[13] https://www.willistowerswatson.com/en-GB/Insights/trending-topics/climate-risk-and-resilience

Fig 3: Willis Towers Watson Climate Quantified™ framework

To turn organisational words into action, whether the drivers are ethical, legal, investors or something else, the framework below underpins the diverse ways in which we support clients.



Since the early 1990s, Willis Towers Watson has supported private and public sector organisations to enhance their approach to managing climate-related risks in response to market and regulatory developments.

Our heritage, skills and connections across markets help our clients quantify the financial risks and opportunities from a changing climate and develop a strategic response to supporting an orderly transition to a low carbon and resilient economy.

We find the starting point for many clients is modelling the impact of the current physical risks from a changing climate, such as storms, floods and other extreme weather events, on an operational site-by-site basis. We've helped a number of clients along this journey - for example, supporting a large bank to understand its climate risk exposure on a large rail infrastructure project. This engagement focused on physical risks to assets and anticipated downtime following damage as part of creating a common asset resilience language.

Modelling the likely amounts of damage or financial losses linked to future climate projections, i.e. 2030, 2050, 2100, and under different climate scenarios, can help to make the impacts of possible future climate change more tangible. Knowledge fosters understanding, and then action. This might include modelling sea level rise to estimate the corrosive effect of salt water on gas pipes, or the impacts of high winds or fire on transmission lines – issues that can move from operational concerns to strategic imperatives.

Through this type of climate risk assessment, your company will also be much better prepared to respond to increasing expectations of consumers, lenders and investors, around climate disclosures, and to guide future planning, risk management, and strategy.

Risk managers are uniquely placed to ensure their companies are prepared to meet the increasing expectations of disclosure by investors and regulators, embed climate risk into existing frameworks and ensure Boards are taking a strategic approach.

A changing landscape means there are new business opportunities and the potential to redeploy existing resources for new revenue generating activity. Transitioning to low-carbon energy technology represents a tangible opportunity for market differentiation, and the power sector's expertise around the generation, transmission and use of energy can play a leading role in supporting the energy transition.

There are roles for everyone, and risk managers have a unique opportunity to facilitate them in key areas, including:

- **Governance,** including the board's role in providing oversight of climate risk responses and defining management responsibility for climate risk and ESG.
- **Risk identification,** identifying the key channels through which climate risks can impact the company.
- **Risk appetite,** including forming a view as to whether climate risk should be considered as a separate element or part of aggregate risk.
- **Risk measurement,** including how to incorporate climate risk into financial risk models and reports and deciding on relevant metrics for decision making, a key element of TCFD disclosure.
- **Reputation risk,** including identifying public communications needs and a strategy for communicating a firm's climate and ESG response.

Having a solid understanding within the business will not only prepare you for the changes that are already happening, but also those that are coming down the pipeline, such as the electrification of the energy system. By engaging with Climate Quantified™, risk managers can benefit from a structured, data driven and strategic approach and deeper insights into ESG issues. And by being pro-active, risk managers can be far better prepared to meet the demands of their regulators, investors and Boards.

Conclusion: is it time to quantify your climate risk and develop a strategic response?

While there may be challenges ahead, the mainstreaming of ESG presents a strategic opportunity for risk professionals, particularly in the power sector. As Boards grapple with the ESG onslaught, risk managers can play a lead role, providing not only risk quantification and analysis but also strategic insight into a rapidly evolving ESG landscape.

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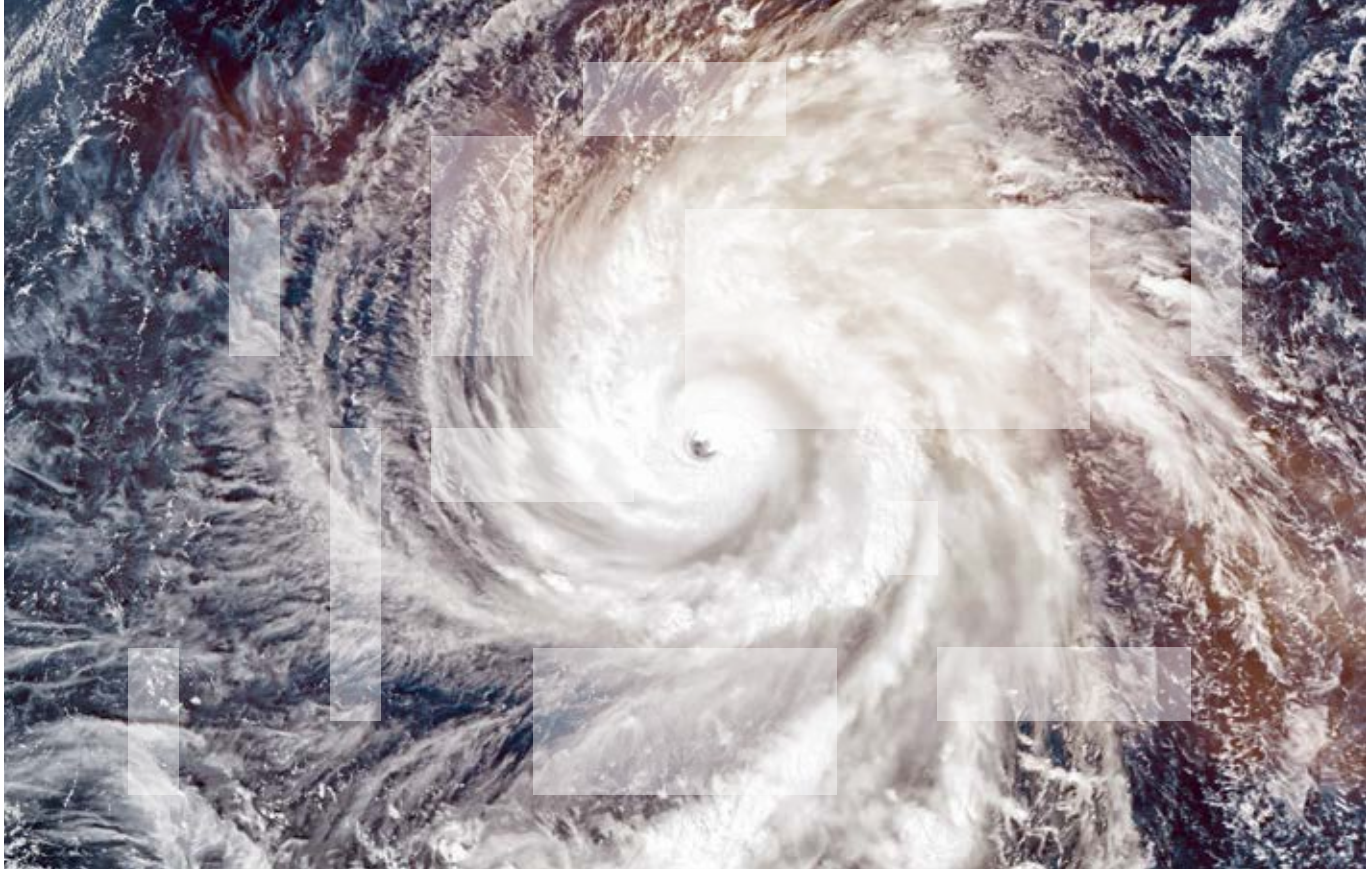


Climate change: the effect on the Power insurance market

Introduction

The previous two articles have described very clearly why, throughout 2019, global headlines have been dominated by climate change and how this has driven the growing focus on ESG by major investment funds. The global power sector is in the eye of this storm, with many major portfolio generators and investors having for some years been responding, at varying rates and levels of success, to the increasing reality of the physical, transition and liability risks outlined earlier.

But now in 2020, the eyes of the world were diverted to a completely unprecedented and unprepared for disaster, COVID -19, that in a matter of weeks has brought a devastating socio-economic impact on a global scale, the shockwaves of which will be felt by individuals, businesses and economies for years to come.

Despite COVID-19, climate change risk still paramount

However, this is not expected to deviate spending away from climate change initiatives. On the contrary, the pandemic has highlighted to the world the huge and very real impact that man-made disasters can have on our planet and its communities, as well as the need to take action now to mitigate future damage. Economic stimulus packages being put in place now, to regenerate economies in the virus' wake, are likely therefore to reinforce the importance of sustainable investment strategies as economies and investors continue to pursue the greater growth opportunities presented by companies that are investing in solving what continues to be the world's greatest challenge.

The insurance industry is also having to not only live with the consequences of the changing climate but also develop future strategies for operating in an ever-changing environment.

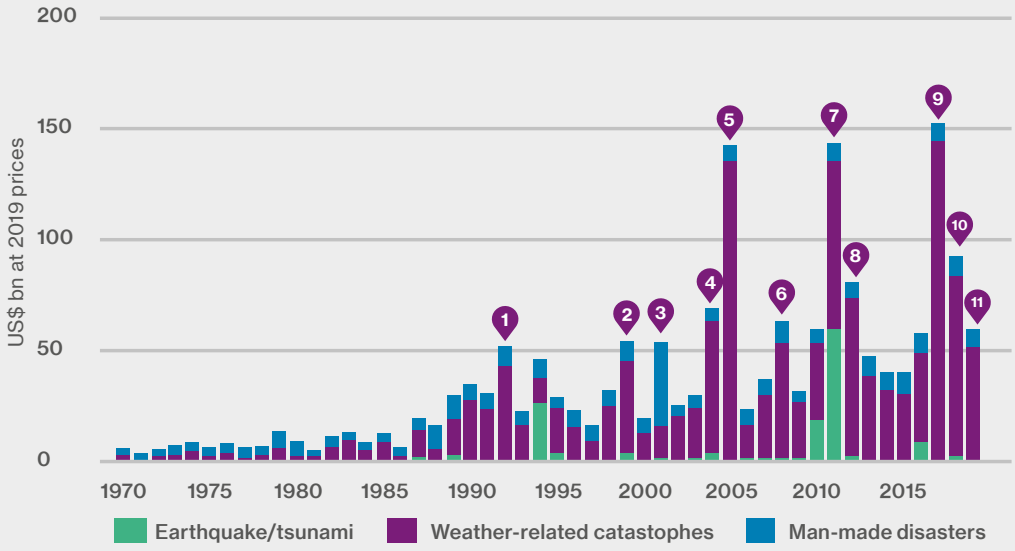
Increasing natural catastrophe loss trends

Swiss Re's 2020 Sigma analysis of global losses since 1970 demonstrates the steady rise over time in the frequency and severity of catastrophe losses over this period[1]. The classification of 'catastrophe' is generally accepted across the insurance industry as one that exceeds US$25 million and impacts a certain number of policy holders. Over the past 20 years the increasing number and size of the losses has led to the financial threshold being increased from US$5 million to

[1] All statistics for this section are taken from Swiss Re's Sigma 2020 report: https://www.swissre.com/institute/research/sigma-research/sigma-2020-02.html

Fig 1: Insured catastrophe losses 1970-2019

1. Hurricane Andrew
2. Winter Storm Lothar
3. WTC
4. Hurricanes Ivan, Charley, Franes
5. Hurricanes Katrina, Rita, Wilma
6. Hurricanes Ike, Gustav
7. Japan, NZ earthquakes, Thailand flood
8. Hurricane Sandy
9. Hurricanes Harvey, Irma, Maria
10. Camp Fire, Typhoon Jebi
11. Typhoons Hagibis, Faxai



Source: Swiss Re Institute

US$25 million. The study identifies natural and man-made catastrophes and further splits the natural events between earthquake/tsunamis and weather-related events. The contrast between weather related and other losses is stark, as evidenced by Figure 1 above.

Mega-losses and the rise in 'Secondary Perils'

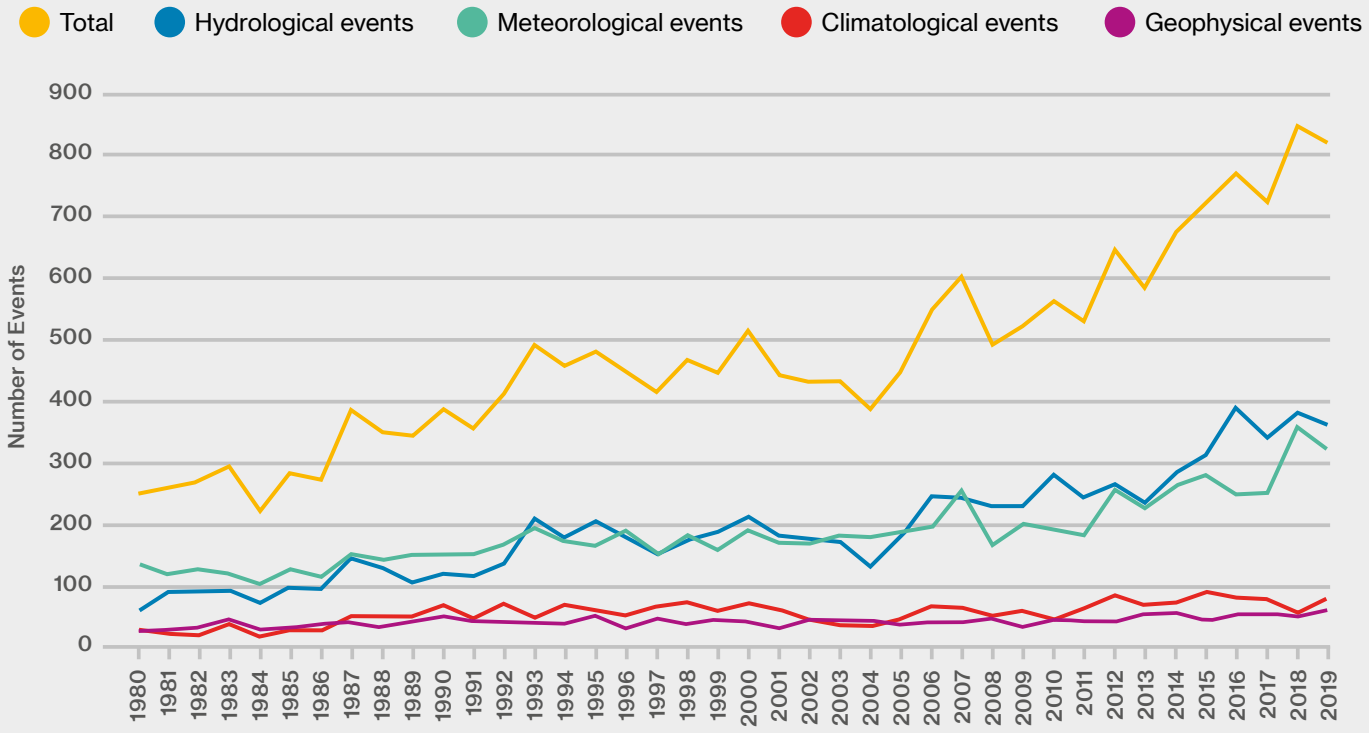
In terms of their value, there has also been a notable increase in the frequency of "mega-catastrophes" which run to the billions of dollars. 8 out of the 10 most destructive losses in US history (on a cost adjusted basis) have occurred within the last 20 years and 10 have occurred since Hurricane Andrew in 1992, with losses ranging from US$9-12 billion for Hurricane Michael in 2018 to US$53 billion for Hurricane Katrina in 2005.

Swiss Re also noted in their 2020/2 Sigma study that losses associated with "Secondary" (nat cat) perils have been rising. Secondary perils are the secondary effects of a primary peril such as heavy rainfall and flood following a monsoon, a tsunami following an earthquake, or wildfires. Over the past three years, such events have been increasing in impact and have made up the majority of each year's total insured losses, something they expect to continue to see on the increase.

Munich Re's analysis of natural catastrophe events over the period 1980 to 2018 found similar trends in causes[2]. While earthquake frequencies have remained relatively flat at approximately 50 per year, hydrological and meteorological events have risen steadily from around 100 per year to between 300 to 400. The total of global natural catastrophe events has increased from approximately 250 per year to 820 in 2018 (see Figure 2 overleaf).

[2] All statistics for this section and the subsequent chart are taken from the Munch Re website page "Risks posed by natural disasters: economic losses caused by natural catastrophes are trending upwards": https://www.munichre.com/en/risks/natural-disasters-losses-are-trending-upwards.html

Fig 2: Natural catastrophes on the rise - number of relevant loss events by peril 1980–2018



Source: Munich Re (https://www.munichre.com/en/risks/natural-disasters-losses-are-trending-upwards.html)

Prevalence of losses in built-up areas

Another feature of the insured losses that insurers are focused on is that they arise in built up urbanized areas where there are heavy concentrations of people and assets. In the case of the US and Asia where most of the climate related losses occur, these urban locations are often coastal and in the path of storms or related events. This build up has been accelerating, as people are increasingly drawn away from more remote rural areas by the economic growth and greater opportunities offered by the cities. The *2018 Revision of World Urbanization Prospects* estimated that between 2050 and 2018 the proportion of the globe's population living in urban areas increased from 751m to 4.2bn (55%). By 2050, this is expected to increase to 68% which, together with population growth, could add a further 2.5bn[3].

However, the impact is felt not only in terms of increases in concentration of values but also in terms of the urban sprawl that follows onto flood plains or onto the more exposed land not previously used. Change of land use from clearance of woodland to agricultural often exacerbates the issues, with greater and faster run-off of heavy rainfall into inadequate infrastructure.

[3] https://population.un.org/wup/Publications/Files/WUP2018-KeyFacts.pdf

Power sector natural catastrophe loss experience

Whilst there has been high profile weather related mega-losses that have impacted the Power market, a number of the standout events been:

- construction-related, such as the Ituango Dam loss in Columbia
- insured in nuclear pools, such as the Fukishima loss
- major storm or wild fire losses, which have impacted overhead Transmission & Distribution infrastructure

These losses have been substantially uninsured. So, while there have been catastrophic operational Power sector losses running to hundreds of millions of dollars from windstorm and earthquake events, the performance of the global Power underwriting portfolio has been more substantially driven by "man-made" and technology related losses rather than weather-related losses - contrary to the overall global insurance market experience.

In view of the nature of the sector's loss experience, the Power market's underwriting focus therefore predominantly remains on the quality of the engineering risk.

Climate change lobby & investor pressure: the effect on market capacity

Notwithstanding the above, the rising influence of ESG, together with the combination of the global insurance industry loss data and the significant body of 'climate change' evidence that has built up against the thermal generation sector, has led insurers and investors to have to view the Power portfolio through a different lens. This has led to the question increasingly being asked: why would the very insurers paying these claims continue to support businesses that actually increase the risk of future climate-related losses?

Preliminary focus is on coal as withdrawals increase

Bearing this issue in mind, as well as the glare of investor and climate activist attention, many insurers have considered their position in relation to fossil fuel power stations over the past three years. At this stage the focus has been firmly on coal, the largest polluter both in terms of air quality and global warming CO_2 emissions.

As a result, the momentum to retreat from coal has continued to build; what started as a trickle in 2017 with the Axa, SCOR and Zurich withdrawals, has now turned into a much more consistent retreat, with as many insurers declaring their intention to withdraw in 2019 as in the previous two years combined.

Chubb and Axis join European insurers

Of particular significance in 2019 was the withdrawal of two major US insurers, Chubb and Axis, who were key markets for the sector. Although in Axis's case they took a broader view and withdrew from the thermal power sector as a whole rather than specifically coal, it does set a precedent and the hope among lobbyists is that they will serve to put pressure on other US insurers to follow suit. Equally notable is the continued absence from the market of Asian insurers, particularly any of the key Chinese insurers such as PICC, CPIC and PingAn.

Fig 3: Key Power insurance market stances on coal-fired power plants, May 2020

Insurer	Existing Clients	New Clients	Challenged Territories	Final exit from coal
Axa (France)	Subject to 30% threshold	No	-	2040
Zurich (Switzerland)	Subject to 30% threshold	Subject to 30% threshold	Subject to 30% threshold and no construction	N/A
Swiss Re (Switzerland)	Subject to 30% threshold	Subject to 30% threshold	Subject to 30% threshold	N/A
Chubb (USA)	Subject to 30% threshold	No	Subject to viability of alternative Energy sources in region.	Ongoing
Axis (USA)	Subject to 30% threshold and 'case by case' review to 2023	No	Case by Case depending on socio-economic criteria up to 2025	2025
VIG (Austria)	Subject to 50% threshold	No	Case by Case depending on socio-economic criteria	N/A
UNIQA (Austria)	Subject to Transition Plan	Subject to 30% threshold	-	2025
NN (Netherlands)	Yes	No	-	
SCOR (France)	Yes	Yes	-	N/A
Allianz (Germany)	Yes	Not "stand-alone" sites	Case by Case depending on socio-economic criteria	2040
Munich Re (Germany)	Yes	Yes	Case by Case depending on socio-economic criteria	
Generali (Italy)	Yes	No	-	
Mapfre (Spain)	Yes	Yes	-	N/A
QBE (Australia)	Yes	No	-	2030
Talanx/ HDI/ Hannover Re (Austria)	Yes	Yes	Yes other than Construction where limited number on case by case basis	2038
Suncorp (Australia)	Yes till 2025	No	-	2025

Source: Company websites

Withdrawal more gradual than it appears

A closer study of the most up to date statements from insurers who have clear exit strategies shows a slightly more gradual withdrawal than may be immediately apparent from press headlines. All 18 are still writing business for existing clients, subject to varying conditions and end dates. It is clear though that for those that are more heavily dependent on coal the restrictions will already be biting and for the rest this is little more than temporary respite, unless they have a clear plan to reduce dependency on coal. In Figure 3 above we outline the current position taken by the major insurers in the Power market, according to releases on their own company websites.

Premium volume considerations not the issue

A review of these latest insurer statements makes clear that, for those that have a more staggered position between the commencement of restrictions and the final exit dates, insurers are not driven by a reluctance to lose revenue. Most of the insurers have clarified that the premium volume derived from the sector as a proportion of their overall portfolio is not something that would in itself prevent them from exiting sooner.

However, there is a recognition that the transition from coal is not something that can be done easily; having been close partners of many of their Insureds for a number of years, part of these insurers' obligation is to play an active part in encouraging and helping these companies through the technical challenges of the transition period.

Regional awareness and understanding limits withdrawal momentum

There is also a very clear awareness and sympathy for the greater challenges faced by buyers in certain regions of the world, where socio-economic factors and the reality of local circumstances mean that transition from coal may simply not be a reality over the medium or even longer term. It is this dynamic that is also delaying many other insurers who have not yet taken a firmer stance; while this would appear to be substantially at odds with their respective governments' commitments under the Paris Agreement, they have at least all committed to withdrawing capacity for new coal power construction.

The insurance market therefore continues to struggle to find the right balance between their own ESG commitments and helping governments to deliver on their decarbonization commitments, while ensuring a reliable and affordable energy supply.

Conclusion: managing climate risk in the power sector

For those insurers remaining in the Power market, the challenge remains around returning to a more sustainable and profitable underwriting environment in which the portfolio can be returned to profitability. While driving the majority of the losses, the risks arising from engineering/ technology related losses are those that insurers are better placed to manage, through the combination of their own engineering-based expertise, rating corrections and coverage adjustments that have become a feature of the current market conditions.

Past experience will be no guide for the future

However, the climate-related exposure is one that, for all the reasons discussed in the earlier sections, is a significantly harder one to forecast; with a complex and constantly changing climate and population risk landscape, past experience cannot be taken as an indication of what is to come. More sophisticated 'Cat' modelling techniques, fed by better quality weather and climate change data, will therefore be essential for insurers to develop the confidence they need in their rating strategy to be able to continue to offer cover to the levels that will be needed.

Good quality information will be critical as models improve

In an increasingly uncertain world, good quality information will be key to successful outcomes for insurers and buyers alike. More sophisticated modelling not only gives insurers the ability to predict the frequency and severity of future events more accurately but will also enable them to feed in risk management features of insured locations, including that which is site-specific, as well as overall regional nat cat protection. It is also important for buyers to work with their risk advisors to be able to run their own models, which will inform their risk management spend, minimize losses and ultimately, through lower costs and enhanced coverage, lower their total cost of risk.

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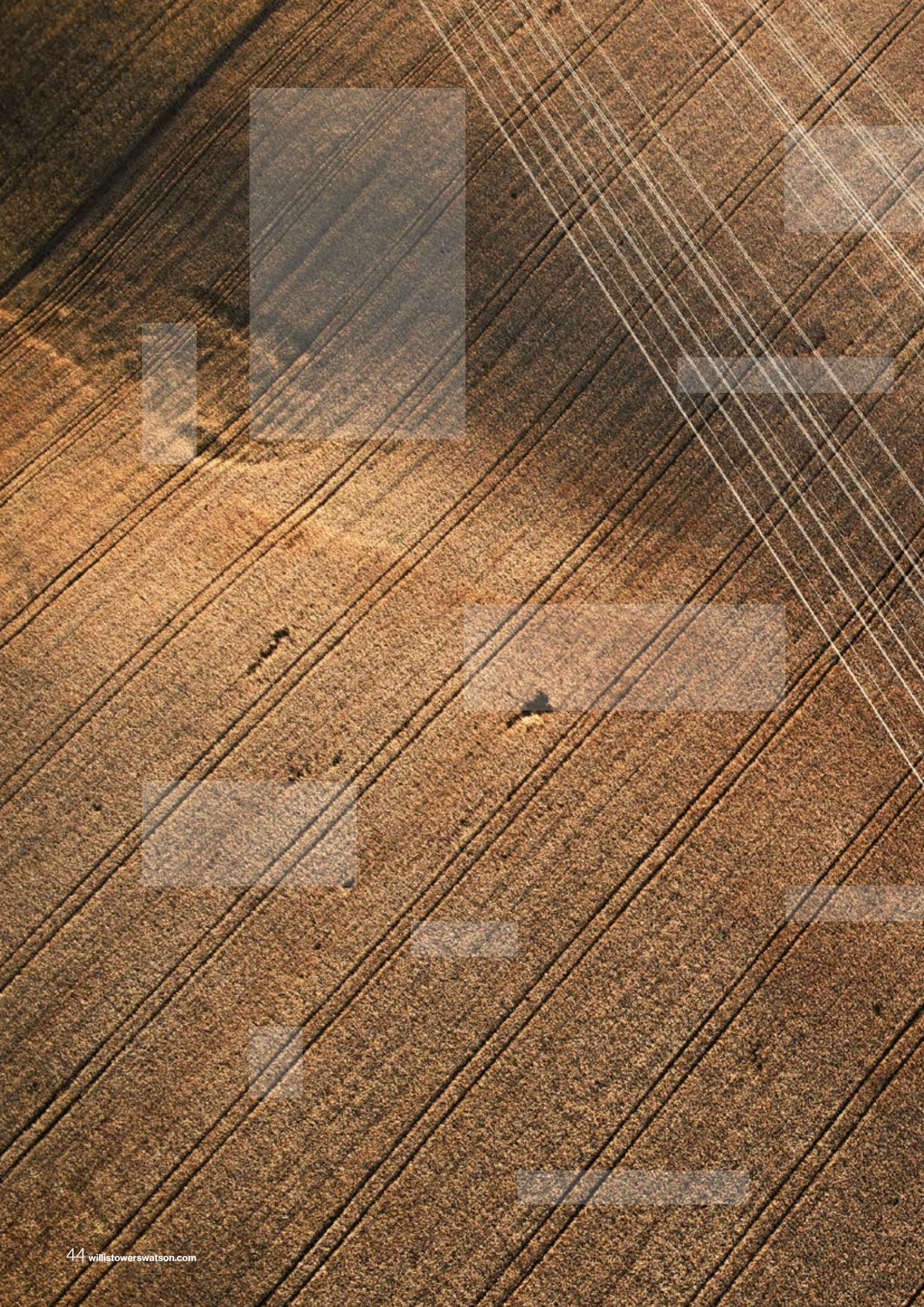
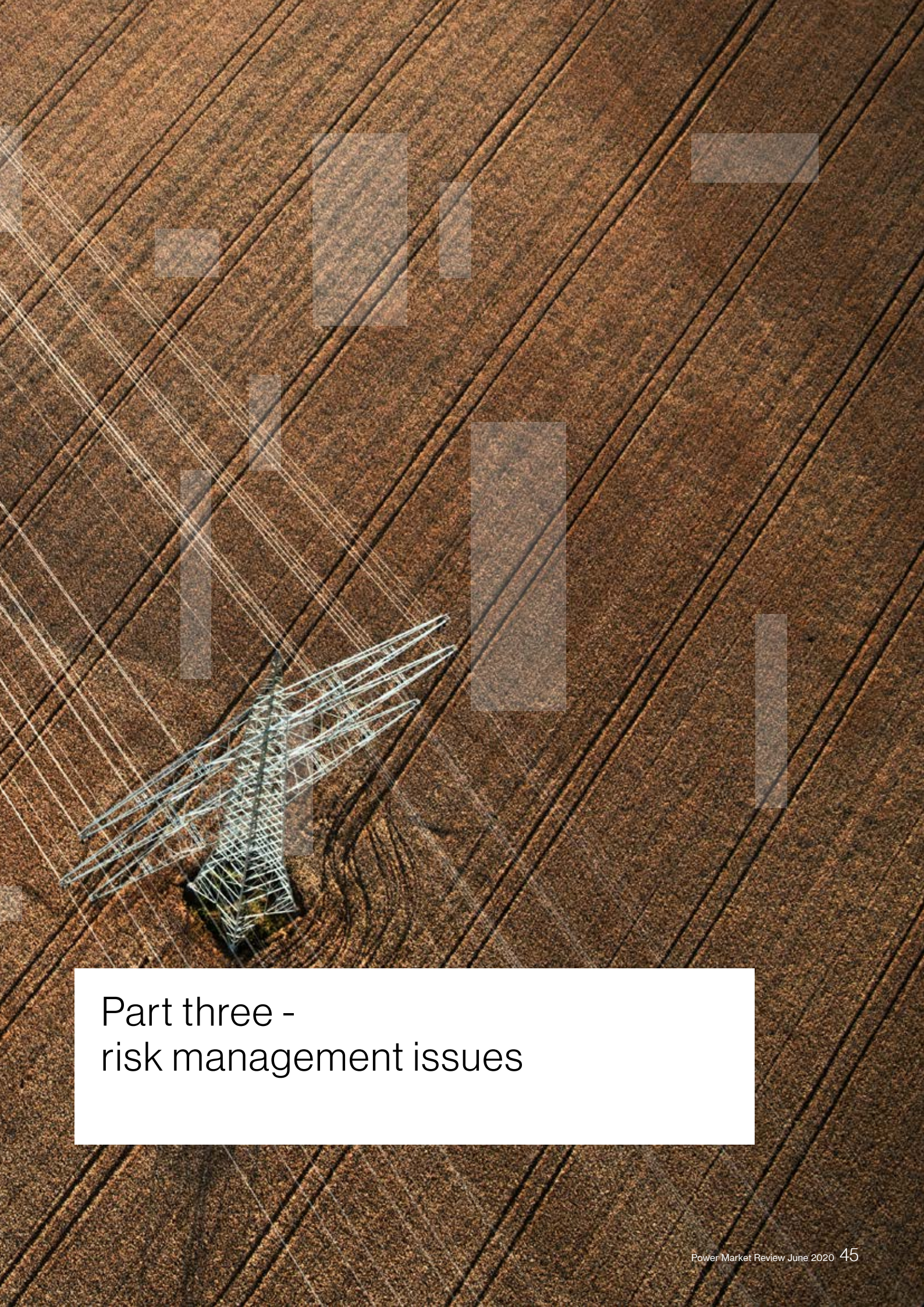




Part three - risk management issues

Multi-risk optimisation: an approach to hardening insurance markets

Introduction: positioning to grab opportunities

In the past couple of years many leading companies have combined data with focused analytics and deep industry knowledge to view risk in a different manner, enabling superior risk financing decisions and positioning themselves strongly relative to others in the industry. How are these leaders positioning themselves to capitalise on their efforts-to-date and generate relative premium savings in a hardening market?

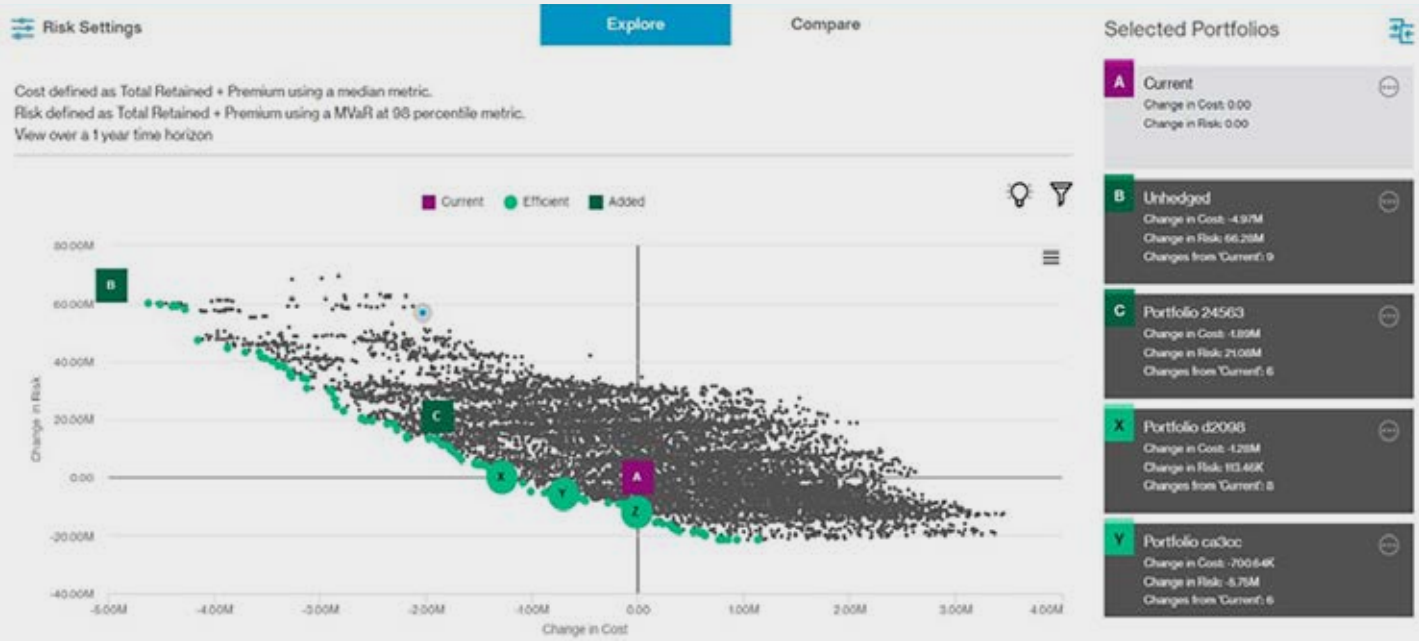
Was the status quo too narrow and unnecessarily complex?

For several decades, power companies considered each class of insurance in isolation when assessing historic losses to establish ongoing insurance arrangements. Premium, market capacity, deductible and insurable limit were the main drivers, with only limited analytical decision support undertaken to assess placement outcome and pricing. Additionally, insurance lines are often bought with different renewal dates, with some local policies stretching across different geographies as well as varying levels of deductibles and limits; this adds complexity, alongside the narrow focus on individual classes. However, embracing a portfolio view using modern analytical capabilities and computing power has led to better understanding of dependencies between and within risks and exposures, together with more optimal decision making.

What if risk managers adopted their FD's perspective?

Historically, basic terms for individual classes where tweaked in response to changing rates in hard and soft markets, often to maintain budgeted spend. But this does not fit with the preferred decision-making framework of Treasurers and CFOs, as the complex structures are not transparent regarding protection from a series of losses and the value of insurance as a hedge is therefore not revealed. However; power companies easily perceive the value from transferring risk in a layered arrangement by purchasing hedges in commodity markets, interest rate and currency markets and seeing a portfolio of risks interacting with extreme scenarios. The trade-off between risk and return is a familiar approach for most CFOs and Finance teams and is integral to their decision-making framework. For our purposes, we will amend the framework slightly to show the trade-off between retained risk and expected cost and align with the world of Finance.

Fig 1: Establishing the efficient frontier (for illustrative purposes only)



Source: Willis Towers Watson

In Figure 1 above:

- The horizontal axis shows the **expected annual cost** of the insurance strategy, which is made up of the premium spend and the cost of the retained losses.
- The vertical axis shows the **amount of retained risk in a 'bad year'.**

The objective is to reduce the amount of retained risk and at the same time reduce the expected annual cost and move to a more efficient programme, closer to the edge of the cloud in the above diagram. We call this edge the efficient frontier. It represents structures with an annual cost saving to the company, as well as significantly de-risking the balance sheet at the same time. There can be many paths to the efficient frontier, depending on potential insurance structure scenarios. Furthermore, new and known non-insurable risks can be easily added to the portfolio.

Advantages of multi-risk optimization

The proposition for companies here is clear:

1. They will spend only what they need to on insurance - and not a penny more.
2. They will effectively and efficiently protect the company against the insurable risks that matter most to them. In our experience, optimization leads to a 10-30% reduction in risk and/or insurance cost savings.
3. There will be better understanding and visibility of new or non-insurable elements in the overall risk landscape when they are added.
4. They have positioned themselves to broadly enhance decision-making capability for the future.

Catching the current moment

What happens in a rapidly hardening market?

A potential consequence of the old-fashioned approach to viewing insurable risk in siloes is purchasing more insurance than necessary across the portfolio of risks and at elevated prices, given current market conditions. In a prolonged soft market, awareness of this unfavourable pricing will be low as each successive year may yield the company a small decrease in premium, for the same terms and conditions, with relatively little effort expended. The hardening market therefore often comes as a somewhat rude shock; plain sailing has quickly become a storm. However, those that have invested in robust navigational instruments can use the storm to their advantage to win the race, at least in relative terms.

How can energy companies react?

When insurance rates are rising rapidly there is sudden pressure for transparency and better understanding on costs of risk-transfer and sharing, so opportunities for savings are more easily realised and communicated. Clearly in a rapidly hardening market, the positioning of the edge of the cloud can evolve, as all elements of premium and coverage structure are in flux concurrently. Insurers may simultaneously change their view on deductibles, limits, sub-limits and committed capacity. The range of potential optimal scenarios has widened and can easily be captured by a good multi-risk optimisation approach as described above. It is preferable if the underlying models have already been constructed before the market hardens but an experienced analytics team can construct a model relatively quickly.

Methodology

In practice, the response to a changing market is carried out in six distinct steps:

1. Set the key metrics for the insurable risk
2. Define the cost and risk profile of the current insurance programme
3. Identify alternatives to optimise the cost/risk profile and then trim to most realistic option
4. Define the company's insurable risk tolerance
5. Identify optimal insurances to stay within risk
6. Adjust the programme as the risk profile changes and insurers respond to the new market conditions

Having kept the ship steady, it may also be desirable for key new or non-insurable risks to be given visibility in the decision-making framework, yielding a more complete picture.

Transferring volatility: preparing for the future

Tailored cover and alternative solutions

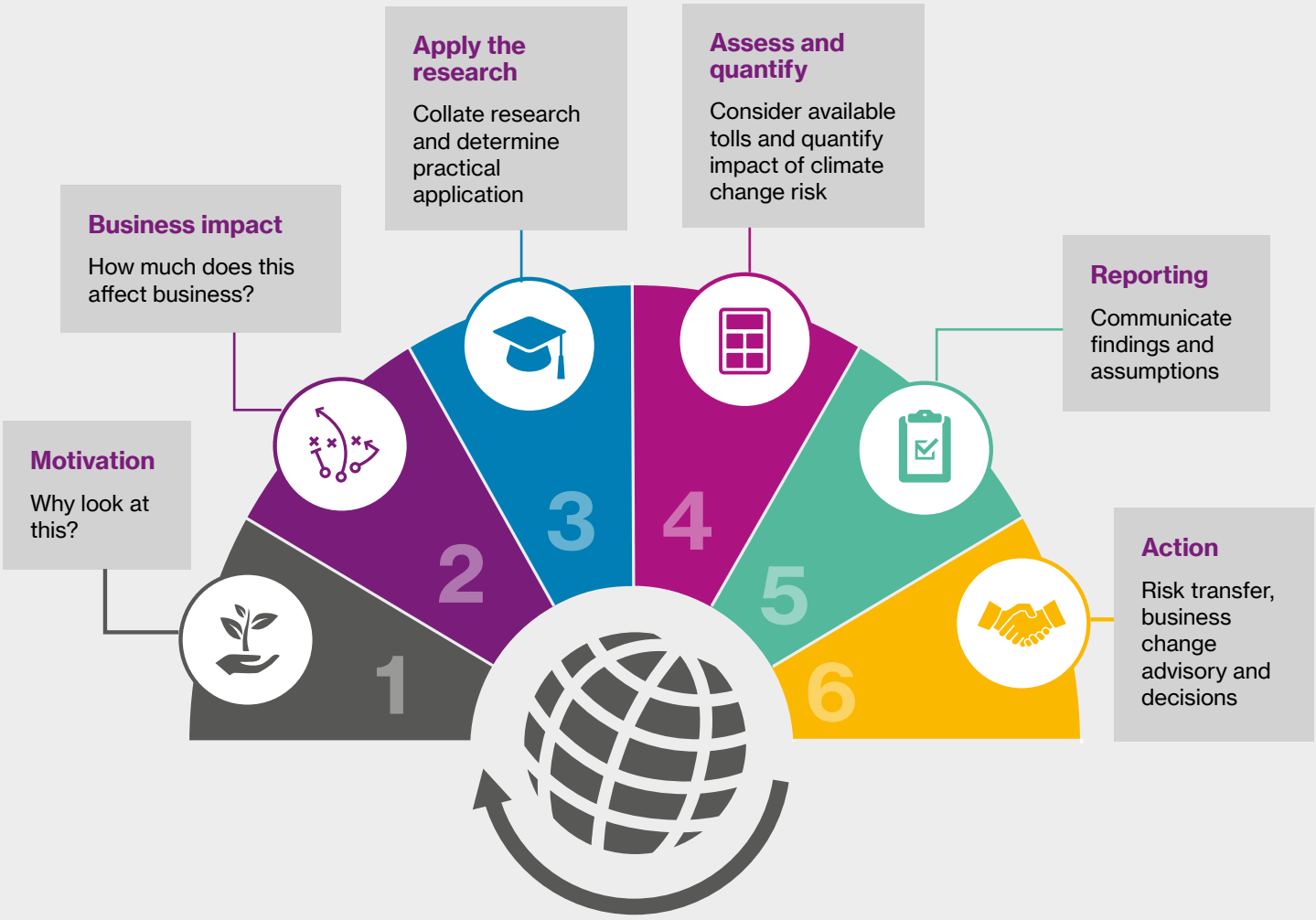
A hardening market for insurance always encourages the search for creative alternatives within the market. Currently, large power companies may wish to understand the impact of using insurance-linked securities as a vehicle for tapping alternative markets for risk-transfer of extreme scenarios. Parametric solutions, which can transfer financial volatility arising from weather-related events or natural catastrophes away from company balance sheets are an excellent example. By understanding the variability inherent in risk exposures that are not necessarily insurable, it is possible to use analytics to develop tailored cover based on measurable factors such as volume of rainfall, wind speed, footfall and temperature. These may offer good long-term value for certain segments of the risk landscape as the risk partners are often outside of the traditional insurance space. They favour speed, simplicity and may generate the ability to trade power company risks into a liquid market.

Enhancing governance

A useful by-product of taking this systematic approach to establishing the most efficient structure for transferring risk is the creation of an audit trail of decision-making for risk financing. It can be shown that an objective and robust approach has been followed that accounts for the interdependencies of risk while also considering the merits of different strategies.

In the governance realm, power companies will be particularly interested in the Task Force for Climate related Financial Disclosures (TCFD) introduced by the Bank of England in 2017. The use of cross-class modelling, including interdependence and non-insurable elements, will allow companies to demonstrate awareness of the longer-term impacts of climate change on their business. Some good illustrative examples include the cost of additional flood defences on low-lying infrastructure or higher cost of fuel supplies due to carbon-taxes.

Fig 2: A modern approach to viewing insurable risk



Source: Willis Towers Watson

Benefits of this approach

More generally, companies that use this approach find that they:

- Change the nature of conversation about risk
- Increase the focus on the portfolio of risks rather than individual types of risk
- Recognise the value of transferring risk above their risk tolerance, often using novel approaches
- Enable an enhanced understanding of the interaction of a wide range of risks
- Improve their corporate governance and highlight that improvement to investors and regulators

Conclusion: a practical example

To conclude, a recent example will help to show the breadth of questions that can be answered by this approach.

Major renewable energy generating company

This client carried out a risk optimisation exercise covering differing types of generating assets and focusing on Physical Damage and Business Interruption risks to better understand their overall risk exposures and to identify the key drivers of risk, both by asset-type and class of risk. The range of assets covered wind, solar, hydro and biomass, together with an element of traditional fossil-fuel generation. The risk profile of the company was quantified, including a detailed assessment of financial risk tolerance.

Various options for increasing retentions were quantified, using a combination of client and market loss data held by Willis Towers Watson; the client increased retentions on key classes to reduce their total cost of risk. As a well-structured portfolio model had been developed, the company was well positioned at the next renewal to understand the impact of a hardening market and adjust their insurance structure appropriately to minimise increases to their total cost of risk. They are also starting to develop their capability for using parametric solutions for the non-insurable impact of weather events for wind and solar generation and integrate these risk models with their insurable risk.

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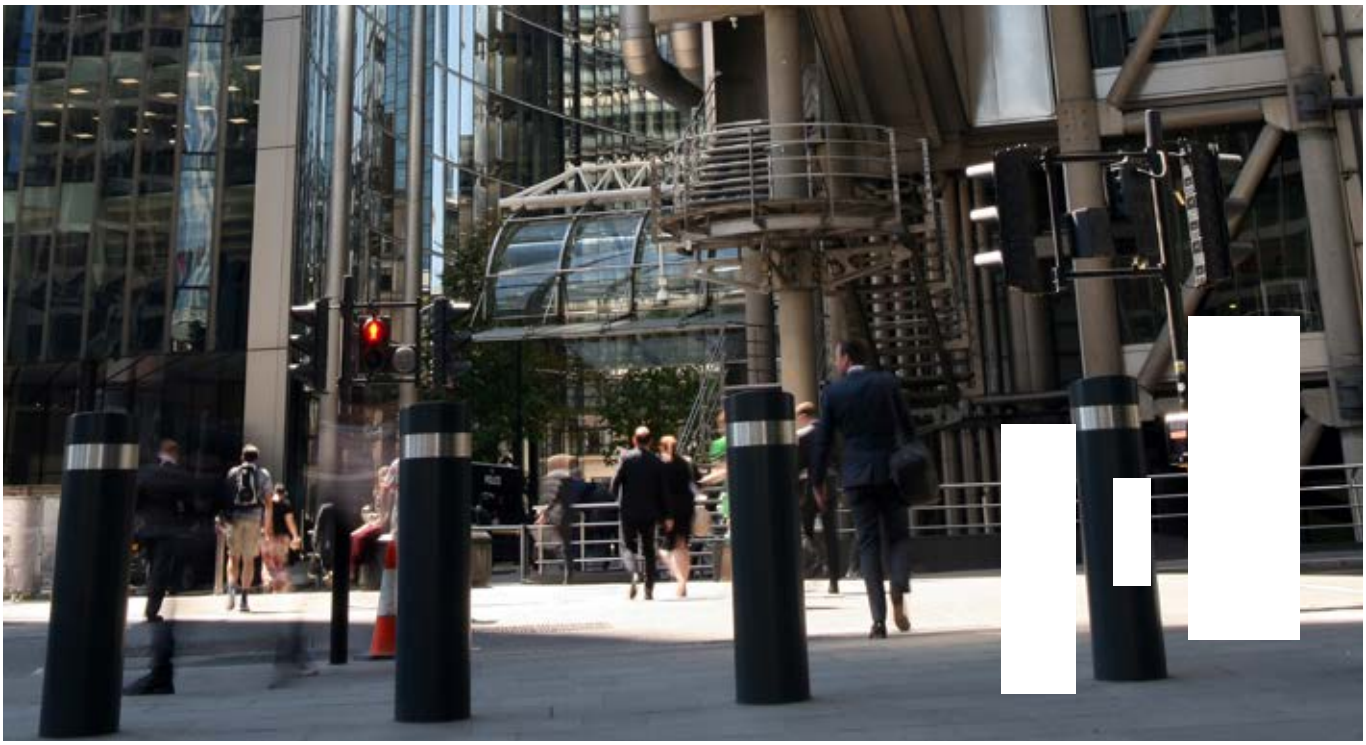


Geopolitics of energy: navigating threats to the power sector

Introduction: new geopolitical challenges and risks

The lenses through which geopolitical risk can be viewed apply to almost every business sector, and the power industry is no exception. At every stage of the lifecycle of a project, new challenges and risks are emerging that, if not managed correctly, can threaten the very viability and long-term profitability of the project concerned. But how do these risks manifest themselves and how can they be mitigated?

Geopolitics high on boardroom agendas

Geopolitical risks have always been with us, yet industry dynamics and global trends have caused their importance to rocket up board agendas over the last year. 61% of respondents of the Association of Insurance and Risk Managers in Industry and Commerce (AIRMIC) member survey expect geopolitical risk to become "harder to manage" in the next three years – 14% higher than the next biggest risk: climate and environmental disruption.[1]

Unrest outbreaks in previously benign regions

Over the last 12 months we've seen the ripples of natural, man-made and political upheaval spread far and wide; and environmental, technological and political changes continue to highlight any number of new uncertainties as global trends set new domino chains in motion. At a societal level, the outbreaks of mass unrest in Chile, France and Hong Kong have made it clear that political risk events can arise suddenly in regions traditionally seen as risk-free, and the unfolding COVID-19 outbreak has highlighted the fragility of the global system to interconnected events.

As well as causing operational challenges for the power sector, investors are asking questions around how these risks are being identified and managed. 40% of respondents in the 2019 Willis Towers Watson Political Risk Survey felt that they were facing more pressure from investors regarding political risk management.[2] When uncertainty is your only certainty, it is easy to see why investors want to know companies are on the case. The last six months leading up to COVID-19 in Argentina illustrate some of the challenges faced in this area.

As COVID-19 continues to spread around the world, we're seeing countries unable to pay and businesses that deal with public entities or governments directly facing political risk losses as a result. In many cases these losses will be more than the value of a contract, and upfront investments in sectors such as utilities, will also be at risk.

[1] 2019 Airmic member survey https://www.airmic.com/news/guest-stories/rethinking-geopolitical-risk
[2] 2019 Political risk survey report https://www.willistowerswatson.com/en-GB/Insights/2019/12/2019-political-risk-survey-report

With the International Monetary Fund historical $53.6bn bailout to prevent a debt crisis[1], followed by Argentina's central bank announcing new restrictions on foreign currency transactions in September[2], these have been topped off by an election with a new President whose August primary win triggered a free fall in stocks and bonds and a 20% decline in the value of the peso[3].

Since then, it looks like Argentina has arguably had an effective sovereign default as the indirect effects of COVID-19 hit the country[4].

Sources:

[1] https://www.weforum.org/agenda/2019/10/argentina-economic-crisis-presidential-election/

[2] https://www.washingtonpost.com/politics/2019/09/06/argentina-just-reinstated-foreign-currency-restrictions-heres-what-you-need-know/

[3] https://www.weforum.org/agenda/2019/10/argentina-economic-crisis-presidential-election/

[4] https://www.forbes.com/sites/afontevecchia/2020/04/22/argentinas-coronavirus-default-dance/#56848568515b

Understanding the geopolitics of power

While COVID-19 continues to grab the headlines, it's important to remember that all the other risks don't go away. The power sector is at the forefront of new challenges and risks that, if not managed correctly, can threaten the very viability and long-term profitability of sites.

While there is no doubt the global energy mix is changing, the last century has witnessed multiple transitions to and from different fuels and technology, and we can learn from that. Foreseeing trends is often a matter of perspective and sometimes it helps to take a step back and look at challenges with fresh eyes.

If you had watched Earth from space over the last 100 years you would have seen the physical representation of global energy dynamics. As time progressed, different areas of the world have been lighting up as Earth started to emit light. Cities, regions, and global industry have been connected to energy networks and the lights have come on, powering global innovation. But those lights are only one form of energy consumption, and IEA (International Energy Agency) research estimates the world consumes 10 times more energy than at the start of that 100-year period, and we're not slowing down[3].

Energy consumption is still going up, and linked to that, before we reach 2030 we're likely to see some major climatic events which will accelerate the sense of urgency with which policy makers feel they need to change how we generate power.

Interconnected drivers and risks can be difficult to unpick, but this is where thinking about the geopolitics perspective is useful because it gives context to the 'who, what, where, when and whys', and leads to asking the right questions. What opportunities and risks does this open up and how should they be dealt with?

[3] https://ourworldindata.org/energy
[4] https://www.sciencedirect.com/science/article/pii/S0301421505001758/pdfft?md5=536d85db8316833d20b5a2ed1a876c5a&pid=1-s2.0-S0301421505001758-main.pdf

Dialling in on risk

In the last Willis Towers Watson Power Market Review[5], we introduced you to the six lenses used to explore these nuances and build an integrated view of risk. In an increasingly connected world, many of the geopolitical drivers of risk are interrelated, and effects often cascade beyond local geographies or individual industry sectors.

Think of these lenses as focusing dials on a microscope. There isn't one answer to viewing geopolitical risk under the lens – every company's exposure is different, and the real value is in uncovering different perspectives to ask useful questions. Do you want to zoom out for the global macro view, or zoom in to a local issue? If you don't have the expertise in-house to understand them, who do you need to talk to?

The lenses cover a broad range of risks – from cyber-attacks to the impact of sanctions – and recognise interconnecting global trends such as shifting public sentiment, population dynamics and technological innovation.

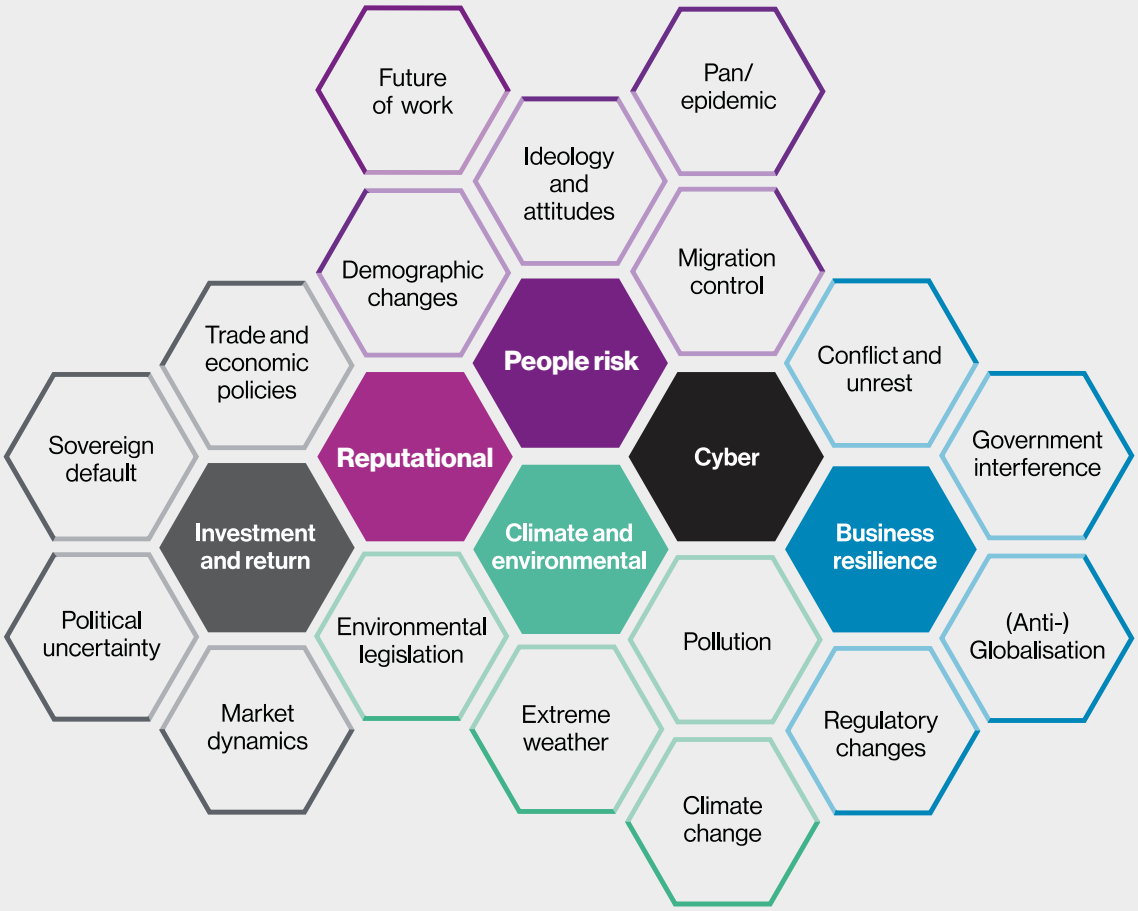
Six lenses – an integrated approach to geopolitical drivers of risk

The six lenses that we deploy to examine geopolitical risk fall into the following categories:

1. **People risk:** Safety and security issues can pose clear risks to employees; however, there are also risks associated with workforce management, including recruitment and retention, which must be understood and managed.
2. **Investment and return:** Exposure across multiple geographic locales means geopolitical drivers of risk can be diverse. In order to protect assets and investments, this diversity of risk must be critically considered, and appropriate risk management tools deployed.
3. **Business resilience and value chain:** When risks materialise as incidents and events it is crucial to have effective business continuity practices. Response and recovery plans, which have been properly tested and exercised, can limit the impact of incidents and help companies quickly resume business operations.
4. **Climate and environmental:** The risks presented by climate and environmental factors, including storms and earthquakes, can be better understood with advanced analytics. By modelling environmental events and physical assets, risks to property and people can be quantified and managed.
5. **Cyber risk:** Digital ecosystems and connected devices fundamentally underpin the modern power sector. Having a comprehensive understanding of a company's cyber footprint is critical to managing this source of risk, including network outages and regulatory impositions.
6. **Reputational risk:** Impacts on brand and reputation can affect the ability of a company to attract customers, recruit talent or even to gain an operating licence in a country. Being attuned to the relationships between geopolitical drivers and reputation helps anticipate and mitigate these risks.

[5] https://www.towerswatson.com/assets/pdf/power-renewable-energy-market-review-2019.pdf

Fig 1: The six lenses within the context of other geopolitical risks



Source: Willis Towers Watson

Organisations need to identify and understand their geopolitical risks and the connections between them in order to mitigate the risks and seize new opportunities, so:

- when there's a change of government on the other side of the world, the components delivered by your supply chain are less likely to be affected; or
- when fire hits a remote data hub many thousands of miles away, your customers and suppliers can still work with you; or
- when your competitors leave a geography due to civil unrest, your understanding of the situation may present you with an opportunity.

As our contribution to this Review, we wanted to set out three possibilities that bring these lenses to life, and which can be used to construct bespoke scenarios for clients. This is the approach we have taken across all the Natural Resources reviews this year, and we would recommend looking at the reports to understand the sector specific issues and consider how these may create secondary impacts for you.

Storyline One - geopolitics of power: business resilience, climate and environment, investment and return lenses

Enabled by technology, the development of large-scale regional networks will strengthen the reliance on energy grids as geopolitical nodes in the coming years. While the issue of cybersecurity is often highlighted and the risk of breaches to data and operations is essential, the geopolitics of power distribution and the potential for conflict need to be explored.[6]

Enhanced energy security

At an international level, the potential for cross-border electricity trading and the creation of grid communities[7] raises the opportunity for enhanced energy security, which can be a positive investment factor. Examples include the Viking Link between the United Kingdom and Denmark, the North Sea Link between the UK and Norway, the Nord Stream 2 pipeline between Russia and Germany and the upcoming EuroAsia interconnector that will create a grid between Israel, Greece and Cyprus.

Each of these examples are infrastructure investment efforts aimed at diversifying supply routes with strong geopolitical drivers[8]. However, connecting these networks can increase the likelihood for nations to use inter-state electricity cut-offs, blockades or embargoes as foreign policy tools[9]. This creates opportunities for power companies to respond.

The importance of data

Back in 2017, The Economist published a story entitled, "The world's most valuable resource is no longer oil, but data"[10], and this is where the power sector should be thinking about the decades of information that they have regarding responding to supply and demand dynamics, and what can be done with that. For example, while large thermal plants take many hours to increase their output from a cold start, small, energy efficient, deployable plants could help enable energy security[11].

The role of research

Quantifying how possible futures will affect companies can allow them to make choices based on their risk appetite, capability and aspirations, and to use existing expertise to create new revenue streams. This is where research can play an important role. Alongside the physical sciences, economic modelling and social science are providing new insights and access to scenarios to represent the possible futures[12]. For example, COP25 ended with no agreement on trading carbon credits[13] and COP26 has been postponed, which raises the risk of rapid policy interventions in the future that will not leave companies time to respond if they haven't considered implications and responses.

Modelling environmental effects on your business model and having access to experts who can translate those effects into business insights has never been more important, and this is reflected in the broad people, capital and risk expertise that makes up our Climate Quantified™ proposition.

In the Review you will find two articles that set out the challenges and opportunities around Environmental Social and Governance (ESG) issues, along with information on how our Climate Quantified™ proposition can provide a framework to support you in developing a strategic response.

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[6] https://www.iris-france.org/wp-content/uploads/2019/03/GENERATE-Working-Paper-4.pdf
[7] https://research.hks.harvard.edu/publications/getFile.aspx?Id=1554
[8] http://large.stanford.edu/courses/2013/ph241/roberts2/docs/WEO2009.pdf
[9] https://energypolicy.columbia.edu/sites/default/files/CGEPTheGeopoliticsOfRenewables.pdf
[10] https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data
[11] https://www.ft.com/content/ba6bd46a-1d75-11e8-956a-43db76e69936
[12] https://www.willistowerswatson.com/en-GB/Insights/2019/12/a-changing-climate-of-risk-and-opportunity
[13] Climate talks break up with no agreement on carbon trading, DECEMBER 15 2019

Fig 2: The geo-political risk management process

Source: Willis Towers Watson

Storyline Two – generating resilience: people, business resilience, reputation and trust, investment and return lenses

At a local level, establishing new sites can result in land use conflict and trigger localised political risk[14], while current sites can also serve as focal points for local and international issues[15]. Both instances can cause reputational harm, investor uncertainty, and local security issues. It is therefore vital that the state of community opinion, politics and the security situation are monitored and responded to, and that political and security risk management are integrated into company culture.

Threat assessments

Experience indicates that the benefits of conflict analysis are greater when the approaches are integrated throughout the project cycle as opposed to being introduced only when conflict surfaces mid-flow. Predicting the occurrence and nature of political and social disruptions may seem impossible, but threat assessments can make use of recent examples such as attacks on pipelines and oil-processing infrastructure to add context to 'actor mapping'[16].

How closely do your security specialists collaborate with your environmental specialists, community outreach, communications staff and general management? Could they list the dividers and connectors in their project area and how their project increases or decreases them? While this kind of analysis won't give you all the answers, red teaming and scenario building with these questions in mind can give you input on the 'who, how and where'.

Continuous situational analysis

The scope of threats may be broad, and for this reason consultants may be commissioned to assist in analysis and planning. Typical areas of activity driven by continuous situational analysis may involve planning for medical emergencies, planning for political and natural disasters including evacuation, physical security at installations and a terrorist threat assessment of upstream and strategic installations. Other measures may include business diplomacy, lobbying, community liaison and the building of a dynamic network of local and regional influence and insight[17].

Addressing ESG risk

We also expect institutional investors to increasingly demand that Environmental, Social and Governance (ESG) risk is addressed before investing in projects in many parts of the world, and to be more active; this therefore needs to be part of the planning process and outputs used to inform employee risk assessments. Having an onsite engagement plan with local stakeholders and an assessment of regional interests will be essential to understand land use dynamics, and tools like virtual reality can be used to showcase your asset today and what it could be in the future[18].

"It is vital that the state of community opinion, politics and the security situation are monitored and responded to, and that political and security risk management are integrated into company culture."

[14] https://doi.org/10.1016/j.erss.2015.06.008
[15] https://www.canada.ca/en/environment-climate-change/services/climate-change/task-force-just-transition.html
[16] See p.34 http://www.actuarialpost.co.uk/downloads/cat_1/Willis%20Towers%20Watson%20EMR%202016.pdf and p.28 https://www.willistowerswatson.com/-/media/WTW/Insights/2017/09/mining-review2017.pdf for examples from the Energy and Mining markets
[17] http://www.actuarialpost.co.uk/downloads/cat_1/Willis%20Towers%20Watson%20EMR%202016.pdf
[18] https://startupsmagazine.co.uk/article-vr-startup-sitting-gold-mine

Potential adaptation options

This also brings an exciting opportunity dynamic to pivot to site lifecycles and to look at the potential adaptation options that could make existing power stations more attractive in the short term by increasing energy efficiency and reducing emissions. Investment in research and development for new technologies is one option that could serve to adapt and transform infrastructure to increase the lifespan of sites through additions like Carbon Capture Storage or looking at completely new uses.

Companies should learn from the innovation journeys of other sectors to think outside the box to create new value in future stranded assets[19]. For example, innovative companies are working with local governments to transform sites into new uses that take advantage of transport links, proximity to transmission lines, and their detailed site knowledge to create renewable energy sites[20], gas capture[21], battery storage locations[22], vertical farms, housing and tourism, which in turn can reduce regional inequality that can develop into social unrest[23].

Storyline Three - digitalising geopolitics: cyber, people, reputation and trust lenses

With inherently global economies becoming progressively dependent on digitalisation and technology, it is essential to understand the strengths and weaknesses of these capabilities. Technology has improved resilience to countless threats from an individual level to a societal level. However, increased dependence on digitalisation and the reliance on power puts the reputation of companies under the spotlight.

C-Suites should wake up to new policy landscape

Geopolitics drivers associated with digitalisation and cyber vulnerabilities are deep and varied, which is one of the reasons why cyber risks continue to be at the top of board agendas, and why there isn't a one size fits all answer.

Geopolitics at the national level can leave companies facing unintended consequences as bystanders in new trade wars. If an embargo such as the US government's attempt to block Huawei's involvement in 5G networks were to hit the power sector, do you understand what the impact would be? As the sector looks to digitalisation to gain efficiency, awareness of your supply chain and investors is going to be increasingly important, as is understanding the capabilities of the potential players on the board.

Cyber-attacks

For example, one of our geopolitical risk partners, Elisabeth Braw from RUSI's Modern Deterrence programme, recently flagged up Refined Kitten. While the name might evoke the image of a cuddly pet, Microsoft has just announced that Refined Kitten is a hacker team, believed to be backed by Iran, that can do things that virtually no other known hacker group can do, namely infiltrate the control systems of critical national infrastructure, including oil refineries and electric utilities[24].

At a company level, while most of the intrusions detected by power companies seem to have been basic reconnaissance operations or intellectual property theft, malicious actors are getting in to systems through unpatched vulnerabilities. While people risk is often thought about in terms of shadowy outsiders looking to cause harm, it is important to remember the risks that can arise from within the business from your own people's actions – intentional or not. Do you have security awareness programme to measure the effectiveness of your internal training? Have you run an internal phishing exercise to test readiness, and what templates and hooks are you offering your employees?[25]

[19] https://theconversation.com/coal-mines-can-be-closed-without-destroying-livelihoods-heres-how-124336
[20] https://coloradosun.com/2019/05/29/guzman-tri-state-coal-plant-offer/
[21] https://www.bgs.ac.uk/downloads/start.cfm?id=1370
[22] https://pureportal.strath.ac.uk/files/19668385/RevManuscript_1_.pdf
[23] https://www.jbs.cam.ac.uk/faculty-research/centres/risk/publications/geopolitics-and-security/
[24] https://www.willistowerswatson.com/en-GB/Insights/2019/12/what-you-should-know-about-the-changing-cyber-risk
[25] https://www.willistowerswatson.com/en-GB/Insights/2019/03/social-engineering-avoiding-the-hackers-harpoon-and-phishing-net

Uncertainty around COVID-19 may provide a doorway in[26]. Ninety-one per cent of cyber-attacks start with a phishing email[27], and aren't always directly aimed at your business. As was subsequently determined, NotPetya had been created by a hacker group working for Russian military intelligence, and initially targeted Ukrainian government agencies and businesses[28]. Even though Maersk – one company impacted – was not the primary target, it was "collateral damage," as its chairman, Jim Hagemann Snabe, later explained[29]. Being aware of the art of the possible has never been more important for risk managers to ensure scenario planning and business continuity exercises are relevant.

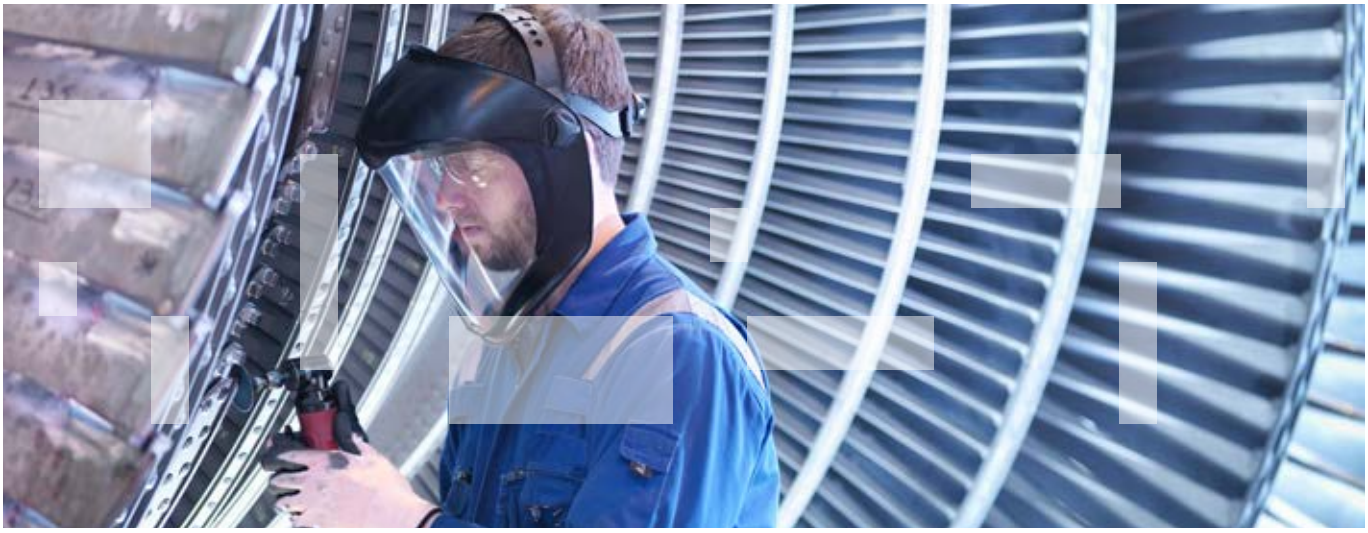
Delivering cyber resilience is a core part of effective corporate governance for power and the power sector. This year we've seen energy companies participating in initiatives such as the World Economic Forum Systems and Cyber Resilience working group to produce guidance and principles that will help board members meet the unique challenges of managing cyber risk in the power ecosystem.

Cross sector working groups and access to state-of-the art science can play a role in understanding the art of the possible, and our team is tapping in to this knowledge and bringing it closer to our clients through initiatives such as the Willis Research Network or RUSI's Modern Deterrence programme[30] that brings cutting edge defence and security research to its members.

Conclusion – multiple perspectives to build resilience

Given the speed, regularity and relative surprise of such events, and the unforeseen decisions, it may be time to reconsider how well businesses really are prepared for the impact of geopolitical events. In one of our recent articles, General Sir Richard Shirreff (former Deputy Head NATO) set out how the military approach to risk management might help the boardroom[31], and this should be a question that all mature companies ask themselves.

- **What risks are on the horizon and who can speak to them or be invited in to build awareness and understanding?** This is where board composition, NED selection, and trusted advisors are increasingly important to encourage a holistic view that recognises and explores interconnectivity of risks and how these can be pivoted to opportunity.
- **When designing scenarios to build resilience to these changes, power companies should assemble multi-disciplinary, diverse teams from across the organization.** This is the approach that our geopolitical team takes, and it reduces the possibility of blind spots. A classic example of the power of scenario planning is the approach pioneered by Shell. When the 1973 oil crisis hit, Shell was better prepared than its competitors because its management had already considered a comparable scenario[32].



[26] https://www.willistowerswatson.com/en-HK/Insights/2020/04/keeping-vigilant-against-increasing-cyber-risk-during-Covid-19-crisis
[27] https://cofense.com/enterprise-phishing-susceptibility-report/
[28] https://www.wired.com/story/notpetya-cyberattack-ukraine-russia-code-crashed-the-world/
[29] https://www.youtube.com/watch?v=VaqlYlYmDbA
[30] https://rusi.org/rusi-reports/modern-deterrence-first-year
[31] https://www.willistowerswatson.com/en-GB/Insights/2019/12/geopolitical-risk-and-how-experience-of-the-battlefield-might-help-the-boardroom
[32] The summer reader's guide to scenario planning https://www.willistowerswatson.com/en-GB/Insights/2019/08/the-summer-readers-guide-to-scenario-planning

Next steps

It is also important to consider the opportunities and ensure scenarios explore positive futures. As you read the Review, think about the trends and drivers and ask yourself, are these issues on our list as risks or opportunities, and do we have a plan? For example, if considering political risks, solutions such as VAPOR[33] allow global companies to assess the financial impact of political risk exposure that can feed into your company's business continuity planning, but if your company needs to examine its supply chain dynamics to understand the impact of the Chilean Water Directive on lithium production[34], the Willis Research Network, with its strong links to the scientific community, can help find the relevant experts.

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[33] https://www.willistowerswatson.com/en-GB/Solutions/services/vapor
[34] https://eandt.theiet.org/content/articles/2019/08/lithium-firms-are-depleting-vital-water-supplies-in-chile-according-to-et-analysis/

Digital enhancements in the Power Gen sector: becoming an "Intelligent Enterprise"

Introduction

There is a plethora of published articles on the benefits to be realised if companies invest in a more connected digital asset base. Whether the operations are in generation or distribution infrastructure (or both), there are forecasts aplenty of enhanced reliability, efficiency, safety, and reduced costs.

By becoming an "Intelligent Enterprise", companies will be able to release these benefits. This means increasing data capture through the addition of more sensors and using this new data in an effective way to create a dynamic (real-time) link from assets via cloud-enabled platforms to decision-making processes.

It has been reported by the US Federal Government that the US power generation sector will spend an estimated US$46 billion over the next 10 years upgrading generation assets and infrastructure. Similar spending is also estimated to be being planned in Europe with at least US$133.7 billion over the same period[1]. These investments cover the entire value chain, which will include the development of "smart grids", will also allow power generation from renewables to be more effectively integrated into the supply/demand equation. This brings the added potential benefits of reduced environmental impacts through lower overall carbon dioxide emissions.

This article will focus on the current developments in power generation plants to analyse the benefits and risks associated with adoption of a more digital asset base.

Power sector industry loss analysis

Like other industrial sectors, the commentary around digitisation is extensive and highly persuasive. However, there is little discussion around the potential risks that may arise out of this evolution.

Through regular risk surveys over the past 5 to 10 years, Willis Towers Watson engineers have observed changes to the power station assets where the companies have invested in digital infrastructure. But have the benefits of a more efficient and safer operating environment started to emerge?

[1] https://www.powermag.com/how-digital-intelligence-can-be-a-difference-maker-for-power-plants/ and https://fas.org/sgp/crs/misc/R45156.pdf

Fig 1: indexed total Power losses, 1998-2018

Source: Willis Energy Loss Database as at May 1 2020

Figure 1 above shows power sector loss for the past 20 years which suggest the over this period losses in the sector have increased.

This loss trend has occurred over a similar period where we have observed increased automation and analysis of the resultant data. Based on the claims regarding increasing digitisation, companies should have expected to see an improvement in profitability and safety.

There would appear to be other elements influencing the performance in the sectors; in an attempt to better understand what has happened, a closer look at the loss data and what has changed within power plants is necessary.

Figures 2-4 overleaf shows various charts of the total loss in US$ for different sub-categories of the power sector:

- Conventional – coal, gas, diesel, etc.
- Renewables – geothermal, hydro, solar, tidal, and wind
- Infrastructure – biomass, cable, substation, T&D lines

Fig 2: conventional power losses, 1980-2020 (coal, gas, diesel)

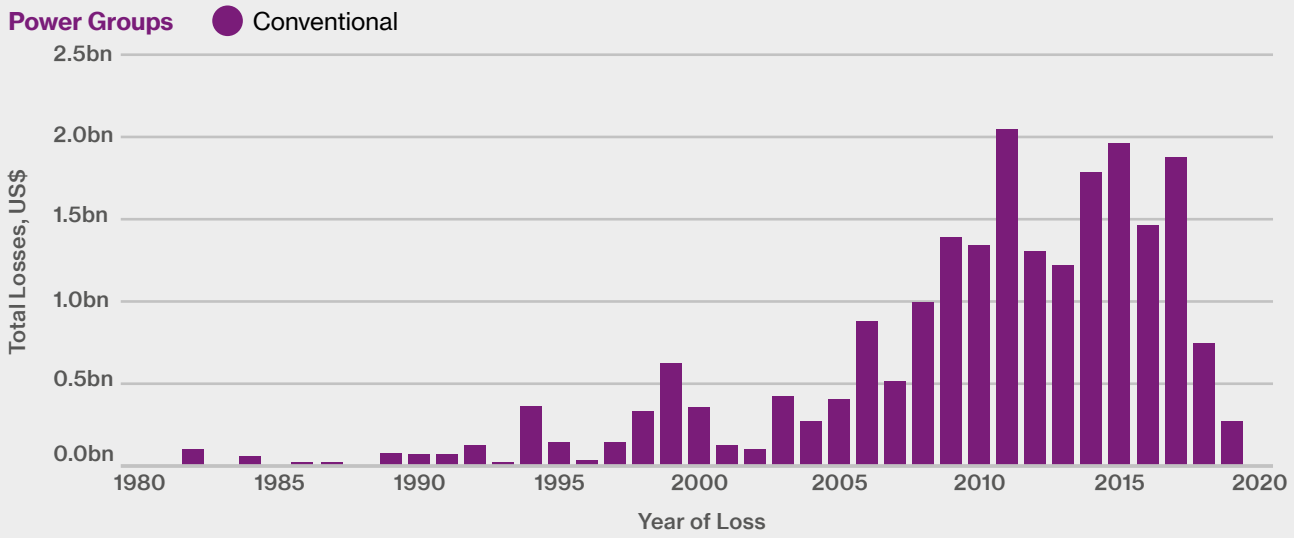


Fig 3: infrastructure power losses, 1985-2020 (Biomass, cable, substation, T&D lines)

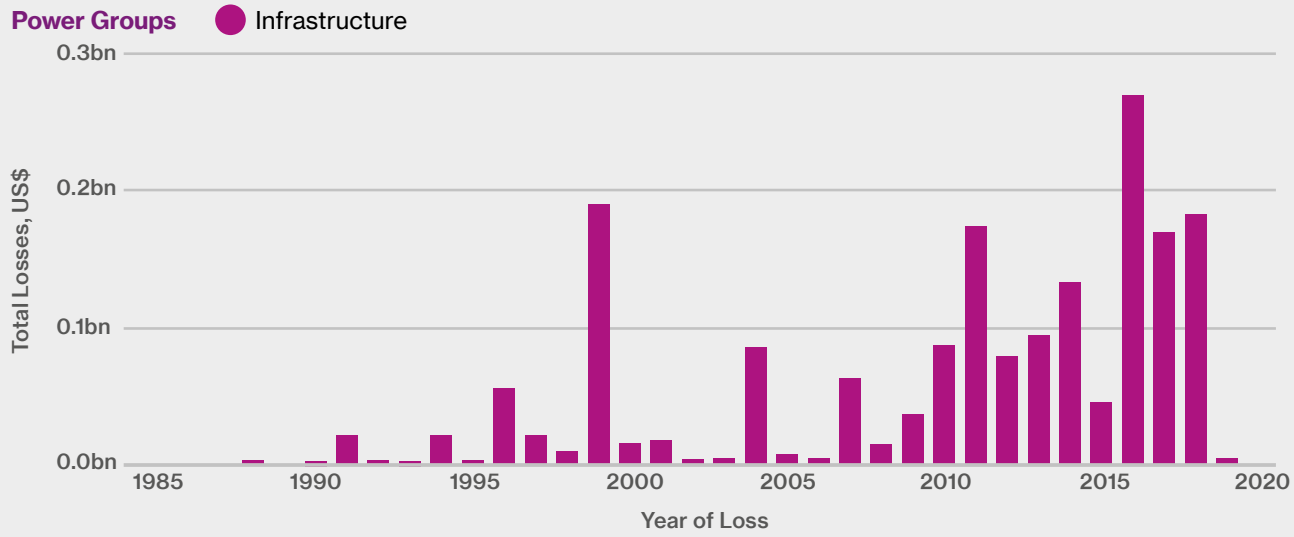
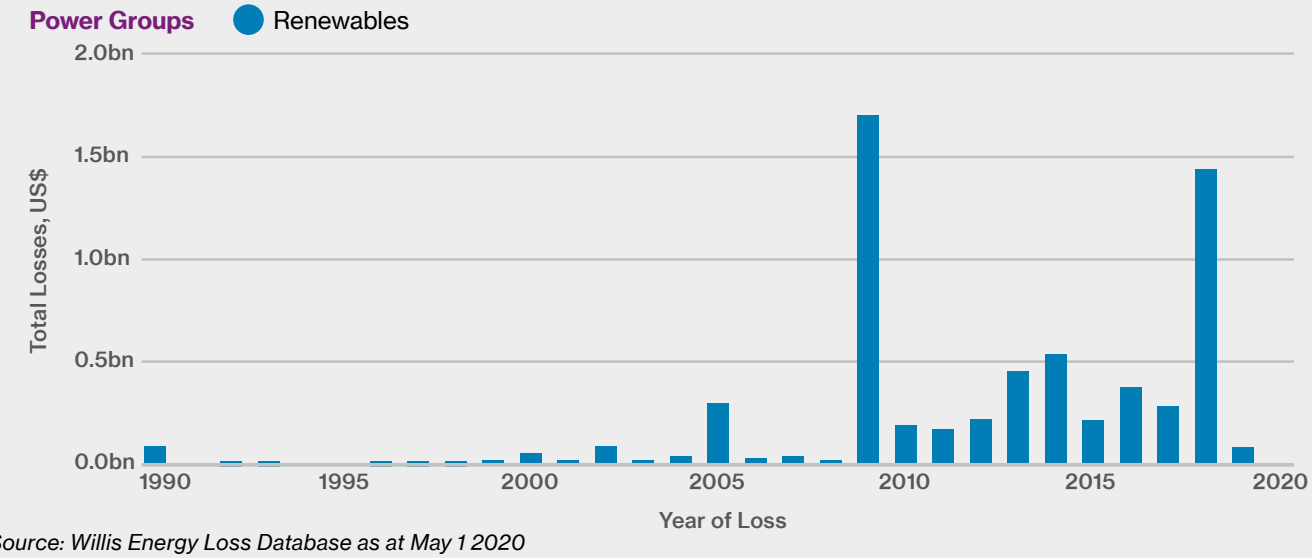
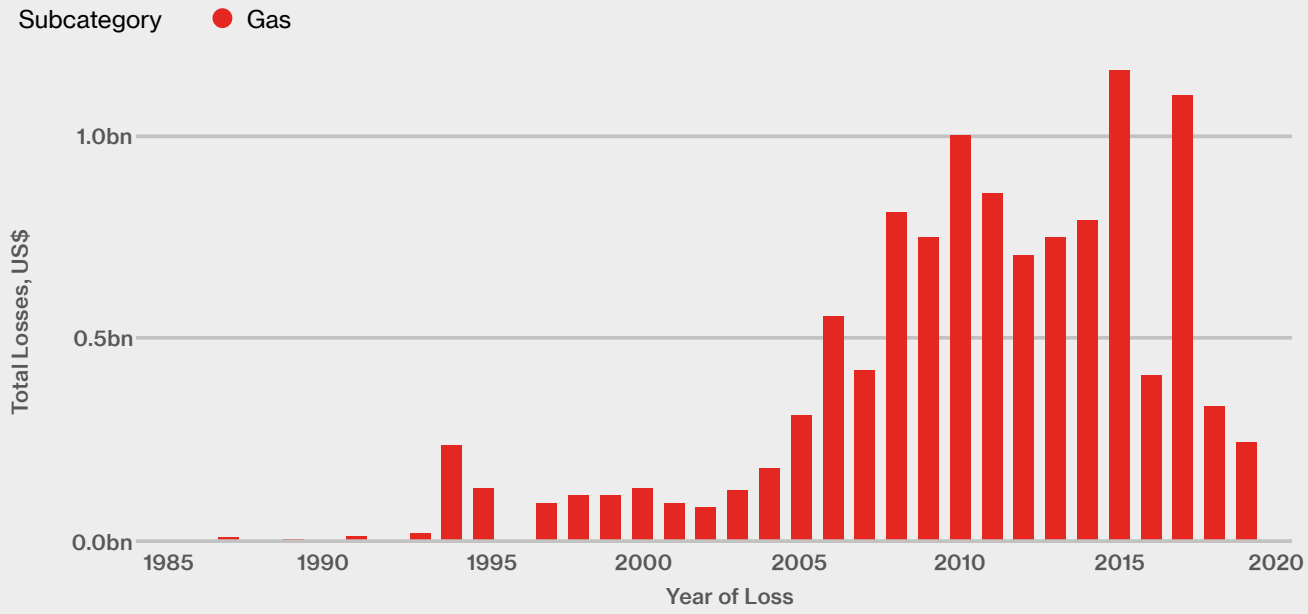


Fig 4: renewables power losses, 1990-2020 (geothermal, hydro, solar, tidal, and wind)



Source: Willis Energy Loss Database as at May 1 2020

Fig 5: gas-fired power station losses, 1985-2020



Source: Willis Energy Loss Database as at May 1 2020

From the charts in Figures 2-4 opposite, it can be seen that the majority of losses have come from the conventional power generation sector. The loss data has been further analysed to reveal that most losses are derived from gas-fired power stations.

The total infrastructure losses are significantly lower than the conventional losses but show a similar trend to the conventional sector losses.

Renewables losses appear to be totally uncorrelated with the other two sectors and have a much smaller total loss level.

Figure 5 shows the total loss in US$ for gas-fired power stations. This is a subset of the conventional power sector total losses displayed in Figure 2.

From an analysis of the loss data, it would suggest that a significant portion of power sector industry losses are occurring regularly on gas-fired power stations. As we have mentioned earlier, this does not appear to fit well with the postulate made by many articles in the field that state that increased automation results in a more efficiently run safe facility.

Given this suggested contradiction, we will review some key factors around gas-fired power station operations to see if this sheds any light of the situation.

Digitisation of conventional power stations

Two of the key areas that have seen significant increase in data capture and analysis are gas turbines and power transformers. These are examples of where predictive maintenance is becoming the standard operational practice that can impact both production and maintenance departments.

Gas turbines

Over the past two decades, manufactures have steadily increased the instrumentation and control equipment on their machines, which has significantly increased the telemetry amount that has been collected.

A typical power plant will produce two terra-bytes of data per day, which is highly valuable for tweaking general performance and predicting possible issues that are slowly developing within the gas turbine power train. The major gas turbine suppliers have been monitoring the operational data for the last two decades for clients who have purchased the monitoring option with the service agreement with the OEM.

OEMs would batch-process the information using a rules-based deviation alarm system to identify performance divergent from normal operations. For example, a deviation of compressor vane temperature might indicate fouling of the compressor or misalignment of the compressor section

of the turbine. Historically, the site staff would tend to spot the deviation and ask the OEM to review the data. The OEM would advise a solution that would allow a running regime until an outage where the issue could be corrected. This monitoring process, while often effective at preventing major losses, would often require an outage at short notice, which would be expensive to organise; furthermore, the loss of production may occur during a lucrative operational period.

The OEMs have now developed relationships with software companies to provide an earlier prediction of possible gas turbine issues. Algorithms are now used by advanced systems which calculate the rules base and modify it to accommodate load fluctuations and ambient temperature changes. This allows for a more refined rules base which can include rate of change as an alarm feature, which can be recognised by the algorithm system and not be noticeable as a trend by operator visual inspections.

For example, should there be a 5°C shift in temperature in a gas turbine burner, it could take over two months for a trained operator to notice the change. In contrast, an algorithm-based system would identify the trends and alert the operating company much quicker.

The other area of improvement is the ability to remotely tune a machine. In the past, pressure monitoring connections had to be made locally and the engineer and analyser had to fly to the site, which was restrictive and expensive. Now with the latest digitalisation software, switches can be operated by the site engineers to allow temporary remote access to the controllers to allow the tuning of the combustion process to take place. This results in a quicker solution for the client and a more timely intervention by the OEM to prevent long term damage occurring due to non-ideal combustion.

These two examples are relatively new additions to the tasks that remote OEM monitoring centres can undertake, over and above their more common tasks such as vibrations monitoring.

Power transformers

Transformer condition monitoring has been traditionally carried out by discrete testing or online dissolved gas analysis of the insulating oil. The trend over the last five years, with improved connectivity and digitisation, is the installation of complete transformer monitoring and supervision packages. The package available now includes high voltage bushing monitoring, which uses a capacitance tap on the bottom of the bushing; this allows the capacitance to be monitored online along with potential partial discharge activity. This in turn provides a real-time health indication of the bushing condition, which is improved when load current is measured and added to the supervision process.

The digitisation process is considered complete when temperature monitoring, traditionally monitored with manual records, is added to the supervision system. This then allows algorithms in the transformer monitoring system to provide warnings if the transformer is being over loaded, cooling system issues, and a condition monitoring system that will compare phases of the transformer to each other. The benefit to the asset manager is that long-term slow changing temperature and dissolved gas trends can be identified earlier before becoming noticeable to operators. This maximises the potential for investigation of the issue and correction before serious damage can occur.

Other factors shaping the risk landscape

There are other factors that influence power station operations and the potential for a loss event to occur. The following list is not intended to be exhaustive, but highlights the main topics to consider:

- **Loss of knowledge and experience** – the industry is losing experienced individuals to retirement, and these people are not being replaced. This is a long-term issue that has been a challenge for the industry for many years. Therefore a knowledge gap is developing in the industry, that cannot currently be completely covered by increased digital monitoring of operating assets.
- **Reliance on external knowledge** – this is partly due to the loss of facility knowledge, and to OEMs who have been developing enhancements to their client servicing beyond machine sales; as a result, an increasingly larger portion of operational analysis and know-how is effectively being sub-contracted to a third-party. This creates an uneasy reliance on this third party for their input.
- **Not actually using all the data being collected** – for all the activity around increased data collection, there is there is a high chance that this is not being fully used. This is surely a missed opportunity, which needs to be addressed to ensure the benefits of any future instrumentation/control investments can be fully realised.
- **Tighter design specifications** – the drive to fine-tune design specification and optimise capital investment leaves no spare capacity within the equipment, unlike older designs. This reduces flexibility and the ability of operating companies to maximise the production capability of their assets. So if these assets are stretched, typically they fail in some way.
- **Sub-contractor use** – reputable manufactures of power station equipment have increased their use of sub-contracting. These sub-contract companies tend not to have the same rigor built into their QA/QC processes as the parent manufacturer. As a result, overall equipment reliability is degraded.
- **Proto-typing** – there is still a view within the insurance community that due to the highly competitive market, the main OEMs are still conducting a portion of their gas turbine machine R&D on operating units. No amount of online monitoring will compensate for an unproven design and increases the potential for losses to occur.

Conclusion: digitisation is not a cure-all!

From this list of potential other factors that could well be contributing to losses in the sector, at the present time it is clear that increasing the digitisation of operating assets is not going to cover all these areas. Therefore, in analysing the current loss record and the challenges faced by operators, we would suggest that the benefits being claimed for adopting a greater digitisation strategy are slightly premature. Directionally, they are probably correct but either operators need to eliminate these other factors or the digitisation infrastructure, in some way, needs to be able to measure these factors.

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Cyber and the power industry: an evolving risk

Introduction

An evolving risk

The world's power systems have changed dramatically over the past decade, both by means and methods. Nations balance and trade power, under-sea and over-land, in ever increasingly resourceful ways made possible by advanced technology; in parallel, the power generation mix has evolved. Coal power plants - once the staple of base load power, and a key player in global carbon emissions – are being phased out in most major developed economies; their role in developing countries has been made uncertain, as international pressure grows to reduce global emissions. In their place, new power sources have plugged into the grid, developments driven by climate concerns and innovative enterprise. Gas, nuclear and hydro power plants provide large swathes of cleaner power, supported by many, often smaller scale, distributed renewable energy power plants.

A systemic risk

At the macro level the technology change is clear for all to see, and this has been supported by dramatic advancements at the micro level. There has been an integration of new automated, smarter and leaner technologies into utility processes – many internet-enabled. However, this has introduced a new type of systematic risk to the sector that risk managers, company executives and even national governments are waking up to – cyber risk.

All industries, not just power, have been victim to an advancement in the sophistication and number of cyber incidents. Hacks have become easier to build and simpler to obtain. This merging of technology, process, and people increasing the attack surface on both the micro and macro level.

This article does not intend to give an overview of the many incidents that have occurred, nor the different types of ransomware, malicious and destructive malware or social engineering techniques being utilized by cyber operators to gain access to IT and industrial control infrastructure. This has been written about numerous times, across many media.

Rather, this article intends to give participants in the power industry greater clarity over:

1. how both the insurance sector's traditional markets and its specialist cyber market is currently approaching the challenge of cyber risk
2. how companies in the industry should approach this issue so that they are cyber resilient in an intelligent manner

The insurance market approach

Just as cyber risk exists across many parts of a power company, it also a peril that is covered, often unintentionally, in many different lines of insurance; indeed, insurance portfolios such as Property, Casualty, Marine, Terrorism, and even D&O cover cyber exposures.

For insurers, this hidden peril is a concern; Lloyd's of London and large insurance companies have taken a cautious and a pragmatic approach. Much of this work has been driven internally to both understand and protect itself as the industry looks to clarify the intent of cover and allocate adequate reserve capacity should a large-scale cyber event occur.

Growth of regulatory concern

In parallel, regulatory concern has grown. In the first half of 2019, the Prudential Regulation Authority (PRA), directed that UK based insurers, including Lloyd's of London, begin formulating clear manageable and measurable action plans to address the cyber exposure in their portfolios[1]. Both the insurance market, and its clients will see much of the effects of this taking hold in 2020; insurer action has been swift in order to pre-empt the regulatory pressure clouding above them.

Silent cyber

Following on from the PRA directive, Lloyd's of London released a market-wide bulletin focused on the issue of silent cyber[2]. Silent cyber is non-affirmative cyber, i.e. where a policy neither expressly provides nor excludes cover and is simply silent as to its existence. The bulletin laid out a timeline for this to take effect; for First-Property Damage policies, inception on or after the 1st January 2020 should either clearly affirmatively cover or exclude cyber exposure, while for Liability the requirements are to come into effect in two phases during 2020/2021.

The difficulty here is that while organisations will obtain clarity over whether an insurer covers the peril or not, Lloyd's of London has not been prescriptive in which approach they should take and whether they should cover the risk or not; they have left that decision to individual syndicates in the market.

Complexity compounded

This complexity is then compounded by the different clauses available in the market that insurers may look to apply, either to the entire risk or, depending on the numbers of insurers on a programme, in a patchwork manner. Discussions must be had with insurers where they look to apply certain clauses, to drill down into why they are taking a certain stance and whether the wording achieves what they had intended. However, as the easiest approach they would likely look to exclude cyber in the first instance and then allow "carve back" to covers, subject to better understanding of the risk. This creates a complex minefield for both Insureds and their brokers to build a consistent and harmonised insurance programme.

The clause dilemma

Towards the end of 2019 it was made known in the market that the ever-present CL380 Cyber Attack and NMA Electronic Data 2914/15 cyber exclusions clauses (that many have become accustomed to) do not, by Lloyd's of London standards, go far enough in addressing the issue of silent cyber and so are therefore deemed not satisfactory in respect of their requirements on this issue.

As a result, in November 2019 the Lloyd's Market Association published a set of new model clauses for Property and Marine risks[3], which come in the form of an outright exclusions and one with provisions for buy backs such as Fire and Explosion from a cyber-attack. However, it should be noted that these are purely illustrative and can be adapted by a skilful wordings specialist to achieve different outcomes which do not conflict with the balance of the wording. Brokers are yet to see whether the wording will differ for the Casualty sector; however, a similar approach is expected.

IUA one step ahead

While Lloyd's provided their clauses recently, the International Underwriters Association (IUA) were one step ahead and released their own London Market model clauses in the summer of 2019. In similar fashion, the intention was to address the issue of non-affirmative silent cover[4]. As stated by the IUA, these come in the form of a "Cyber Loss Absolute Exclusion Clause" which provides market participants with an option to exclude, in the broadest possible manner, any loss arising from the use of a computer system, network or data – each of which is clearly defined. Meanwhile, a Cyber Loss Limited Exclusion Clause enables only the exclusion of losses directly caused by cyber events, rather than 'directly or indirectly'". The nomenclature of these clauses differs slightly from that of the Lloyd's clauses, adding to the difficulty.

[1] https://www.bankofengland.co.uk/prudential-regulation/letter/2019/cyber-underwriting-risk-follow-up-survey-results
[2] https://www.lloyds.com/~/media/files/the-market/communications/market-bulletins/2019/07/y5258.pdf
[3] https://www.lloyds.com/~/media/files/the-market/communications/market-bulletins/2019/07/y5258.pdf
[4] http://www.iua.co.uk/IUA_Member/Press/Press_Releases_2019/IUA_publishes_cyber_exclusion_clauses.aspx

Fig 1: Cyber solution categories

Source: Willis Towers Watson

There are several important considerations to point out here. From a cyber standpoint, property must be considered as two elements; the tangible and intangible. The former comprises the tangible assets such as the turbines, pumps, and transmission infrastructure. The latter comprises the non-physical intangibles as they are known encompasses the software and data underpinning the operations. Both may be impacted, and even damaged, by cyber-attacks. This first party data loss is an area which the traditional Property market generally has no intention of covering, unless the loss of this data comes from a physical peril that would generally be covered, i.e. Fire or Explosion. The loss of intangible without physical element is, however, offered in the specialist market.

Cyber markets see increased interest

As cover from physical damage from a cyber incident is more readily excluded by traditional Property markets, the Cyber markets now see increasing interest for this type of cover, and solutions are available.

Non-damage Business Interruption cover is the loss of gross profit resulting from a cyber incident where no physical damage is experienced. For power companies with heavy operational technology (OT) this cover should clearly include both the IT and the OT. A common scenario which this cover could respond for is the dreaded ransomware strike bringing operations to a standstill.

Third Party covers in the market are primarily focused on the potential liabilities surrounding the loss of third-party data. Third Party Liability cover for bodily injury and property damage is less readily offered by the market at this time.

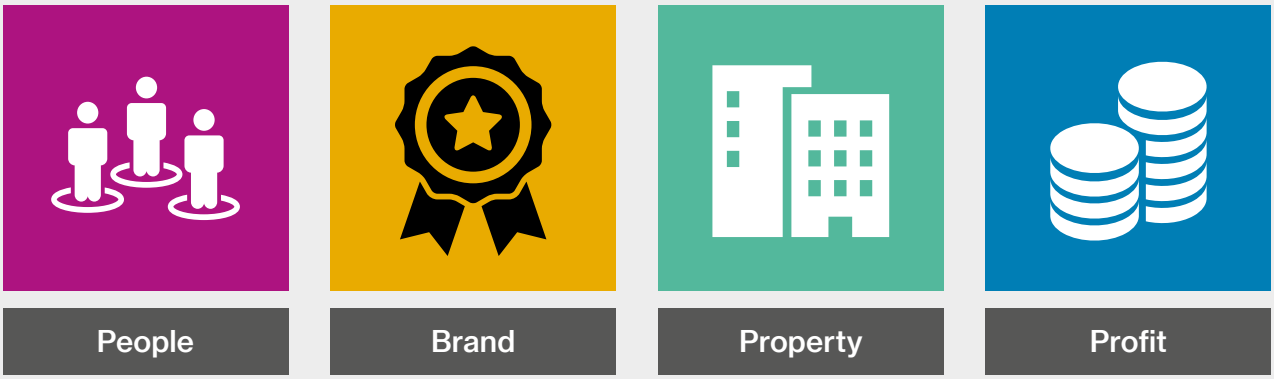
Finally, the incident response type solutions being offered allows cover for the event responders and their external experts, who come in to mitigate loss and to get companies back operating. It is important that this is matrixed in with the company's existing incident response and claim protocols.

Insurance capacity in the cyber markets

It is no secret that the capacity available in the cyber market is not even close to that provided by the traditional Property & Casualty (P&C) markets. Cyber towers are modest in relation to that created in those markets. In last year's Power Market Review[5], it was noted that the largest capacity available, which can only come about from intensive global co-ordination of the markets, is around US$600 million. This top capacity level is only possible for the areas that are personal data risk such as financial services and retail where cyber insurers have a relatively strong understanding.

[5] https://www.willistowerswatson.com/assets/pdf/power-renewable-energy-market-review-2019.pdf

Fig 2: Protecting your key assets



Source: Willis Towers Watson

In general, the cyber market has grown in a pragmatic yet cautious manner and there has not been an explosion of available capacity. Indeed, just as capacity withdraws and prices rise in the P&C markets, the Cyber market is experiencing its own degree of hardening.

Cyber risk for power is less readily underwritten by the markets' insurers. There is less capacity with deep knowledge of the sector; however, much work is underway to create new appetite. Those with appetite at present are clear that they require high quality cyber security risk information for risk to be transferred.

The question is often posed as to how much capacity is available for the power sector in the market, but there are too many different variables to consider. So perhaps this conversation should move instead towards truly quantifying, the key exposures (although a complex endeavour) – specifically what a cyber-triggered estimated maximum loss or maximum possible loss may look like, and how best to approach both the traditional and specialist markets.

Conclusion: approaching cyber intelligently

So, what should a power company do?

1. Have an open conversation with your insurance advisor about where cyber is in your current insurances and if this is expected to change at renewal
2. Identify any gaps in exposure and cover
3. Analyse these gaps relative to your business' vulnerabilities and stress test the potential impact of several cyber scenarios on operations
4. If material, work with your advisor to address whether these gaps can be addressed through your existing insurance providers or whether specialist solutions are required

Risk managers and power company executives now live in a digital world; they must protect their people, brand, assets and profit against cyber threat and be prepared to recover should something go wrong. But they are not alone, since all participants in the industry that make up the power supply are the building blocks to a cyber-resilient system. Everyone's goal is to keep the power running and the lights on.

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“Proactive or reactive?”: there is no question!

Introduction: do buyers have to wait for a loss?

The 14th century proverb “The proof of the pudding is in the eating” - and its meaning - will be well known to many readers of this Review; for many insurance policy holders this has historically been one of the criteria by which insurers’ and brokers’ performance following a claim made under an insurance policy has always been judged.

But is it really the case that an insurance buyer needs to suffer an actual loss to establish the proof of their pudding? And why would a buyer feel comfortable living by this standard, when there are numerous examples of policies that when put to the test have not served up the delights promised?

This old adage may still have some truth to it in terms of the ultimate test only coming following a loss. However, we are seeing ever greater value in a more proactive approach that demands steps be taken to ensure that all stakeholder parties work together from the outset to more comprehensively challenge the intent and requirements of the written contract. The objective is not only to understand the cover provided but to also to understand each party’s respective obligations in terms of the potential million-dollar question: “What happens if...?”

This question is also becoming increasingly relevant in a hard market, where the value of insurer relationships should rise and where the impact of disputes with a key risk partner can have greater implications for the longer-term health of an Insured’s programme.

We firmly believe that good claims management doesn’t happen by accident. The secret to success starts with a well-structured pro-active approach that focusses on the key claims stakeholders and a well-defined process, three key elements of which are:

- a firm foundation through an effective Claims Workshop
- a well-defined process through a clear Claims Protocol
- ensuring access to specialists is adequately funded through appropriate coverage provisions

Solid foundations through a Claims Workshop

Ultimately, the objective of policy holders and lenders when purchasing an insurance policy is to secure comfort and cover for when an unfortunate situation arises. So logically, it makes sense to want to understand the product being purchased and how it is likely to perform to maximise confidence in the transaction. In our experience, the most effective way of achieving this is through Claims Workshops.

As a result, we are finding more and more insurance buyers open to the idea of participating in Claims Workshops designed to stress-test the insurance policy with hypothetical claims scenarios designed to gain a better understanding of what is and what is not covered under their policy. By engaging in these discussions at the pre-placement and placement stages – hopefully well before any losses - many lessons can be learnt in terms of peculiarities of the business, as well as how the policy is constructed and the scope of cover to be provided; through this, we are able to check that our collective 'intent' is fully reflected in the proposed policy wording. Moreover, it can also assist in highlighting, where possible, limitations to cover such as sub-limits and how restrictive clauses may impact any ultimate recovery under the policy. We have found that this helps to effectively manage and set expectations in the event of a claim.

Not just for risk and insurance managers!

To maximise effectiveness and stake-holder 'buy-in', our preference is for the scenarios proposed to come not only from our expert Power claims and engineering specialists but also the key stakeholders who would rely on the policy to reinstate their position following a loss. This could include key members of the buyer's insurance, financial, commercial and technical teams, who will be more familiar with any financial, contractual or technical specifics of their business.

"We are finding more and more insurance buyers open to the idea of participating in Claims Workshops designed to stress-test the insurance policy with hypothetical claims scenarios."

Expectation management

We have also found that including representatives from this wider group in these discussions provides greater clarity over the expectations and responsibilities of each party in the event of a loss, enabling a full assessment of the What if? Why? and How? in the knowledge that preparation for a possible eventuality allows a more reasoned and coordinated response to a loss if it happens. Of course, it is not always possible to replicate an exact loss scenario but utilizing lessons learnt from similar claims can help to gain a better understanding of what can be expected in terms of policy response.

The exercise also raises the profile of onerous conditions, the failure of which to observe can result in insurers feeling compromised and claims settlements being impacted. In a more challenging environment, where flexibility can be eroded, this becomes ever more important.

Effective process through your Claims Protocols

A clear Claims Protocol document is essential to keeping this knowledge freely available to the insurance team and other key stake-holders; this should always be distributed and to be at-hand should it be needed.

Proactively engaging in the claims process at an early stage is not just advantageous to policyholders. It is important at the inception of a policy to work with an insured and insurers to compile a practical and working Claims Procedure Document or Claims Protocol which sets out a number of key points and processes so that when a loss does occur, all parties have a clear picture of the necessary steps to take and by whom.

The type of incident, circumstance, loss or damage which is considered material to the insurance cover and that requires notification will be noted in the policy wording as well as how to make the notification. It is important that this is correctly communicated in the Claims Protocol to ensure the responsible party for notifications does not invalidate a potential recovery.

There are wide and varying obligations for claims notification; some will be time bound from the date of the incident, others will require notification as soon as reasonably practicable after such information shall come to the knowledge of the Principal Insured. It is important too to ensure that 'knowledge' in this context is limited to parties who have a detailed understanding of the cover in place and are identified as having notification responsibilities.

If possible, the Claims Protocol should also include pre-agreed loss adjusters and experts that insurers stipulate are likely to be involved in the process, together with details of key contacts at the relevant stakeholders.

Importance of the right loss adjuster

This is particularly pertinent in the power sector, where losses can be high in both complexity and severity and where a quick response is essential to enable early decisions to be taken swiftly by the Insured. For power projects that benefit from project finance, it is imperative that claims are quickly addressed to maintain revenue streams in support of debt servicing. Expedition is also heightened when losses occur during periods of peak market demand when spot prices and possibly capacity payments (depending on profiling) will also be at their highest.

We continue to see further investment and consolidation of more specialised loss adjusters, experienced in handling these types of claims. This being the case, it is important to make sure that your loss adjuster understands not only your sector but by working with them, your business, how it is managed and its revenue streams. Where possible, time spent pre-loss with individuals who have been allocated to your programme to familiarise them with this is also valuable.

Helping manage pressures

In our experience, when a loss occurs there are many different internal and external pressures placed upon the Insured, including customers, contractors, lenders, shareholders and internal management, each with its own demands and expectations placed upon them in terms of what happens next and in what order.

The advantage of pre-agreeing the steps to be taken by all parties following a loss allows the necessary resources to be allocated to getting back to business as normal as quickly as possible. For example, inclusion of standard loss reporting forms, how to record the loss and how to monitor costs can all assist in streamlining the information flow in the initial hours and days following a loss. In particular, we have also found that claims protocols have proved extremely valuable for clients who have global portfolios of assets spread over various locations and time zones. Being able to provide a standard loss template to be completed in event of a loss can greatly simplify the process and ensure that the correct information is gathered as soon as possible.

The value of Claims Preparation Clauses

Claims Preparation Clauses are provisions within policy wordings that positively provide cover for the costs of additional clerical or professional services required to correctly evaluate and present a valid claim. These clauses are regularly omitted from insurers' own wordings; however, they are not uncommon in a softer market, as part of bespoke broker and client wordings.

As the market continues to harden, the clauses and their extent of application continue to come under scrutiny and pressure. Power claims, especially for consequential loss, can be time consuming and costly to prepare. They also greatly benefit from the attention of professionals who are experienced in preparing and presenting loss data in the format required by insurers. It is probably one of most nominal of clauses, but one with the greatest impact, particularly where losses include the unravelling of complex revenue streams on Power losses that involve indemnity periods that are impacted by a number of variables. A separate policy provision such as this that provide for the associated costs is therefore essential.

Conclusion: proactivity is the secret to successful claims management!

Of course, a proactive response to claims continues throughout the entire claim duration. Putting the right pieces of the jigsaw together at the early stage puts in place the scope for interim claim submissions and ultimately to work towards obtaining the right result in terms of final claim settlement amounts.

This can often involve a significant amount of time with the various stakeholders to understand, verify and challenge differing approaches to coverage and quantification.

We believe strongly that the insurance process is as much a partnership between the parties as it is a financial transaction and development of working guidelines and relationships with the key stakeholders is key to a more efficient claims process.

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"As the market continues to harden, the clauses and their extent of application continue to come under scrutiny and pressure. Power claims, especially for consequential loss, can be time consuming and costly to prepare."

Part four – the Power insurance markets in 2020

International Property: a swift transition to a truly hard market

Introduction

2019 saw a retrenchment of available capacity and the creation of deliberately centralised underwriting strategies in the International Power market, as it turned from being a market that had begun to harden from a soft base into a truly hard and challenging business environment from a buyer perspective.

Previous losses caused only temporary hardening phases

For the last two decades, Power market pricing had been on a softening trajectory year on year, punctuated occasionally with brief periods of hardening, such as the global financial crisis in 2008/9, the natural disasters in New Zealand and Japan in 2011 and the US hurricanes in 2017.

However, these losses never entirely changed the Power market dynamic. The resultant hardening phases proved to be temporary and were quickly erased, due to the oversupply of capacity and the global freedom to access it.

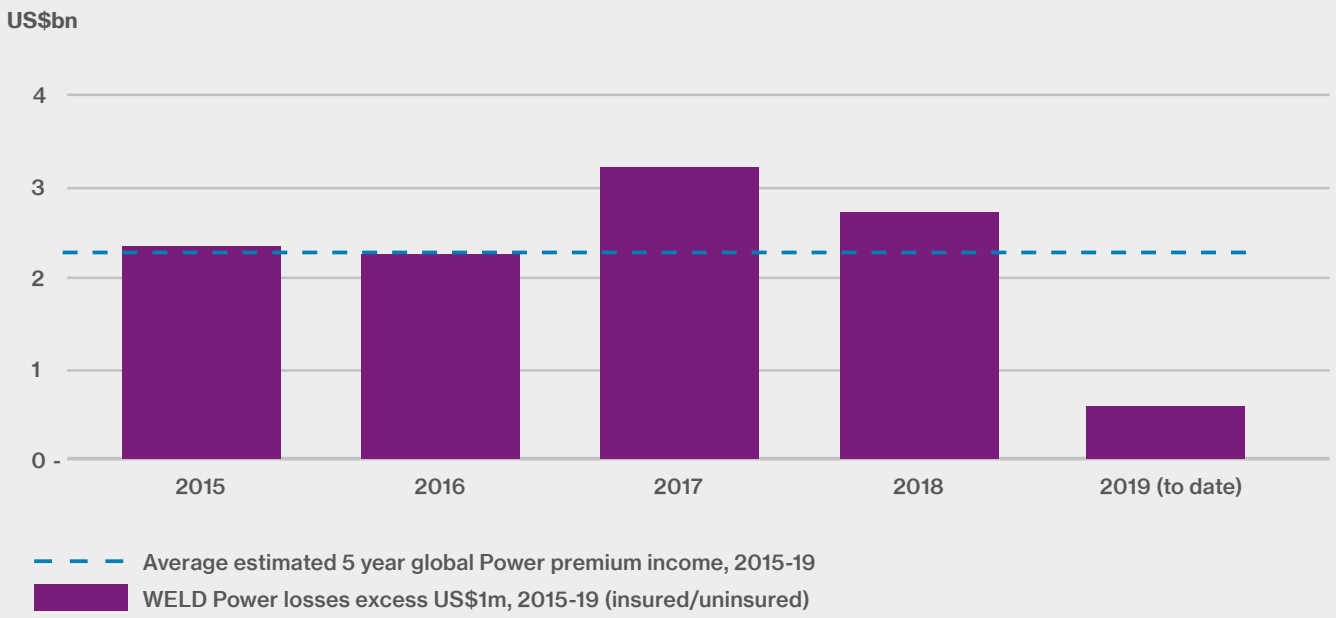
Apart from these short-term hardening periods, the market had experienced years of double-digit reductions; while this may be sustainable in a loss free environment, the sector has seen year on year deterioration in global losses, often surpassing or equalling the global premium available for the sector (see Figure 1 overleaf).

This has left insurers with a dwindling pool of premium to counter loss reserves; while the fluctuations of loss quantum has also increased in that time, the loss development pattern continues to bring more sustained challenges to the Power sector.

The hard market has lift-off

Market pricing for non-loss making, low catastrophe exposed business therefore accelerated from flat renewals during the last quarter of 2018 to mid-single digit percentage increases by mid-2019; by the end of the year the pace and variance of these rating increases had increased significantly. Insurers were able to close their new business budgets; in some cases, even their

Fig 1 - WELD Power losses 2015 – 2019 (excess of US$1m) versus estimated five–year average global Power premium income



It is very unlikely that the Power Gen portfolio has been profitable during the last five years – the figures for 2019 are still too immature to be germane

Source: Willis Towers Watson/WTW Energy Loss Database as of May 1 2020 (figures include both insured and uninsured losses)

renewal portfolios managed to hit and surpass their premium income targets for the year, as a result of the rate increases far surpassing what they had originally projected and agreed with management. Consequently, this provided further encouragement and momentum to the drive to increase rates still further at the beginning of 2020, as the available supply of capacity continued to reduce.

Capacity

Capacity retrenchment across the market

Global capacity for Power business has reduced in two different ways; firstly, some insurers have withdrawn from the sector entirely (the Hartford syndicate at Lloyd's being the most recent example) and secondly, we have seen a reduction in the capacity that the remaining insurers are agreeing to deploy.

Lloyd's review prompts syndicate reassessment

In line with the Lloyd's review into the sector, there has been a retrenchment of those syndicates that are able to insure this class. The General Property Lloyd's syndicates that have previously provided capacity to the Power sector have had their existing capacities largely reduced; in addition, more specialist underwriters that continue to support the sector have also reduced their deployable capacity. The overall global theoretical capacity has always been at a far higher number than the actual "realistically" deployed capacity, and as the Lloyd's review has pushed this figure lower, London market composite insurer appetite has also tempered the realistic capacity available to buyers.

15% reduction in global capacity at a stroke

During the past ten years, an average year would generally see a theoretical global capacity total of approximately US$3.5 billion, with a realistic capacity figure of approximately US$2 billion. Now in 2020, the total global capacity is approximately US$3 billion, with a realistic capacity figure of approximately US$1.5 billion. Insurers such as Axis, Mapfre Re, Neon, Hartford and Argo have closed their Power portfolios entirely in London, following the trend set by Pioneer, Priority and Aviva from previous years.

Fig 2: Power losses excess of US$50 million, 2015-19

Year of Loss	Industry	Type	Cause	Country	PD US$	BI US$	Total US$
2018	Power Renewable	Hydro	Collapse	Colombia	703,000,000	472,000,000	1,175,000,000
2015	Power Thermal	Gas	Faulty work/op error	Japan	103,000,000	448,000,000	551,000,000
2016	Power Thermal	Coal	Fire no explosion	Russia	330,782,000	205,362,000	536,144,000
2017	Power Renewable	Hydro	Windstorm	USA	330,782,000	165,100,000	346,000,000
2015	Power Thermal	Multifuel	Contamination	Saudi Arabia	189,000,000	0	189,000,000
2018	Power Thermal	Gas	Lightning + fire	Dominican Repub	72,000,000	115,000,000	187,000,000
2016	Power Nuclear	Nuclear	Impact	France	150,000,000	0	150,000,000
2016	Power Renewable	Hydro	Faulty work/op error	Colombia	25,000,000	120,000,000	145,000,000
2015	Power Thermal	Diesel/Oil	Fire no explosion	Guam	125,000,000	15,000,000	140,000,000
2017	Power Thermal	Coal	Fire no explosion	India	130,000,000	0	130,000,000
2017	Power Thermal	Gas	Supply interruption	Bahrain	25,000,000	100,000,000	125,000,000
2018	Power Thermal	Coal	Mechanical failure	Indonesia	12,300,000	112,000,000	124,300,000
2018	Power Thermal	Coal	Mechanical failure	Germany	120,000,000	0	120,000,000
2017	Power Thermal	Coal	Corrosion	Morocco	40,000,000	75,000,000	115,000,000
2019	Power Thermal	Gas	Mechanical failure	Algeria	70,000,000	30,576,000	100,576,000
2017	Power Thermal	Diesel/Oil	Fire no explosion	Mexico	76,900,000	16,200,000	93,100,000
2017	Power Thermal	Gas	Explosion no fire	USA	52,000,000	39,000,000	91,000,000
2015	Power Renewable	Wind	Faulty design	Germany	77,000,000	0	77,000,000
2017	Power Renewable	Hydro	Collapse	Georgia	75,000,000	0	75,000,000
2017	Power Renewable	Geothermal	Earthquake	Philippines	26,000,000	40,000,000	66,000,000
2018	Power Renewable	Geothermal	Misc	USA	8,000,000	57,000,000	65,000,000
2017	Power Thermal	Coal	Mechanical failure	Australia	8,000,000	55,000,000	63,000,000
2017	Power Renewable	Hydro	Flood	USA	62,000,000	0	62,000,000
2017	Power Thermal	Gas	Supply interruption	Pakistan	32,000,000	30,000,000	62,000,000
2015	Power Nuclear	Nuclear	Fire no explosion	France	61,933,870	0	61,933,870
2018	Power Thermal	Gas	Mechanical failure	Turkey	35,000,000	24,000,000	59,000,000
2016	Power Thermal	Gas	Flood	USA	53,500,000	5,300,000	58,800,000
2015	Power Thermal	Coal	Impact	Guatemala	56,000,000	0	56,000,000
2015	Power Renewable	Solar	Windstorm	USA	50,000,000	3,000,000	53,000,000
2017	Power Thermal	Power Thermal	Windstorm	France	27,000,000	26,000,000	53,000,000
2016	Power Thermal	Coal	Unknown	Romania	2,918,412	48,633,000	51,551,412
2015	Power Thermal	Gas	Mechanical failure	Algeria	19,545,000	31,836,000	51,381,000
2017	Power Thermal	Gas	Fatigue	UAE	50,419,000	0	50,419,000
2015	Power Thermal	Coal	Fire no explosion	Russia	50,000,000	0	50,000,000
2015	Power Thermal	Coal	Faulty work/op error	Australia	10,000,000	40,000,000	50,000,000
2016	Power Thermal	Coal	Fire no explosion	South Korea	50,000,000	0	50,000,000
2017	Power Renewable	Hydro	Flood	USA	50,000,000	0	50,000,000

Source: WTW Energy Loss Database as of May 1 2020 (figures include both insured and uninsured losses)

Fig 3: Hydro losses excess of US$1 million, 2015-19

Year of Loss	Cause	Country	PD US$	BI US$	Total US$
2018	Collapse	Colombia	703,000,000	472,000,000	1,175,000,000
2017	Windstorm	USA	180,900,000	165,100,000	346,000,000
2016	Faulty work/op error	Colombia	25,000,000	120,000,000	145,000,000
2017	Collapse	Georgia	75,000,000	0	75,000,000
2017	Flood	USA	62,000,000	0	62,000,000
2017	Flood	USA	50,000,000	0	50,000,000
2016	Flood	Chile	5,500,000	27,900,000	33,400,000
2017	Flood	USA	27,000,000	0	27,000,000
2017	Flood	Chile	5,700,000	20,720,000	26,420,000
2017	Explosion no fire	Colombia	25,000,000	0	25,000,000
2016	Faulty work/op error	South Africa	20,000,000	0	20,000,000
2016	Faulty work/op error	South Africa	20,000,000	0	20,000,000
2017	Subsidence/landslide	Costa Rica	18,000,000	0	18,000,000
2019	Subsidence/landslide	Georgia	12,000,000	4,700,000	16,700,000
2015	Fire no explosion	Nigeria	8,004,000	7,565,609	15,569,609
2019	Fire no explosion	Israel	7,500,000	4,500,000	12,000,000
2017	Flood	Chile	11,727,000	0	11,727,000
2017	Flood	Chile	1,700,000	8,700,000	10,400,000
2017	Flood	USA	10,000,000	0	10,000,000
2017	Flood	USA	10,000,000	0	10,000,000
2019	Flood	USA	10,000,000	0	10,000,000

A significant number of major hydro losses have been recorded by our database during the last five years

Source: WTW Energy Loss Database as of May 1 2020 (figures include both insured and uninsured losses)

Losses

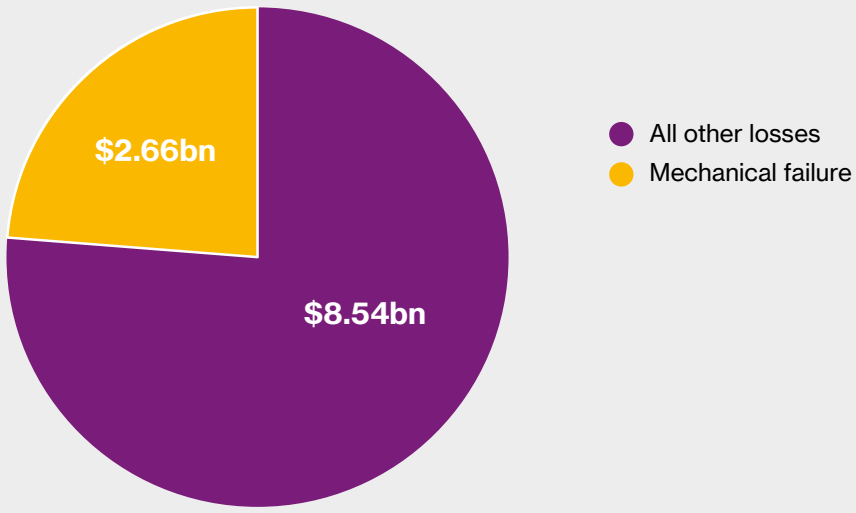
As can be seen from Figure 2 opposite, the sector continues to have a broad range of losses that are not solely down to risk management failures.

Hydro losses cause concern

In particular, the hydroelectric loss record has caused insurer concerns (see Figure 3 above). Hydroelectric power projects have been in the spotlight due to large claims, which have come both in the construction and operational phases with natural catastrophe perils being the common denominator.

The locations and landscape for a large proportion of these projects has high catastrophe risk exposure, so the importance of structural integrity, stability, maintenance and inspection regimes, as well as adhering to international codes and protocols, are critical to insurers. Insurers' willingness to deploy their natural catastrophe aggregates on hydroelectric plants in high risk catastrophe territories has reduced significantly, with carriers preferring to use these aggregates for risks they deem less volatile.

Fig 4: Power mechanical failure losses as a proportion of all Power losses excess of US$1 million, 2015-19



A significant proportion of Power losses over the last five years have been due to mechanical failure

Source: WTW Energy Loss Database as of May 1 2020 (figures include both insured and uninsured losses)

Machinery Breakdown losses

While not unaffected by natural catastrophe perils, a major risk for gas turbines in particular and the associated power trains is Machinery Breakdown (see Figure 4 above). Generally speaking, for gas turbines there are fewer vertical losses from natural catastrophe perils, but attritional losses have significantly concerned insurers over the years.

The variety of the root causes for these losses has produced significant technical and underwriting challenges for insurers; the technology suppliers are of considerable importance and much attention is paid to contracts in place between buyers and their suppliers, including factors such as shared sparing or onsite sparings. The increase in the turbine MW unit size now available, together with the unproven nature of certain technologies or technologies with known fleet issues, has seen a restriction in cover and higher deductibles required. Capacity will also be further restricted for technologies with known issues where OEM recommended upgrades/Technical Information Letters (TILSs) have not been acted upon.

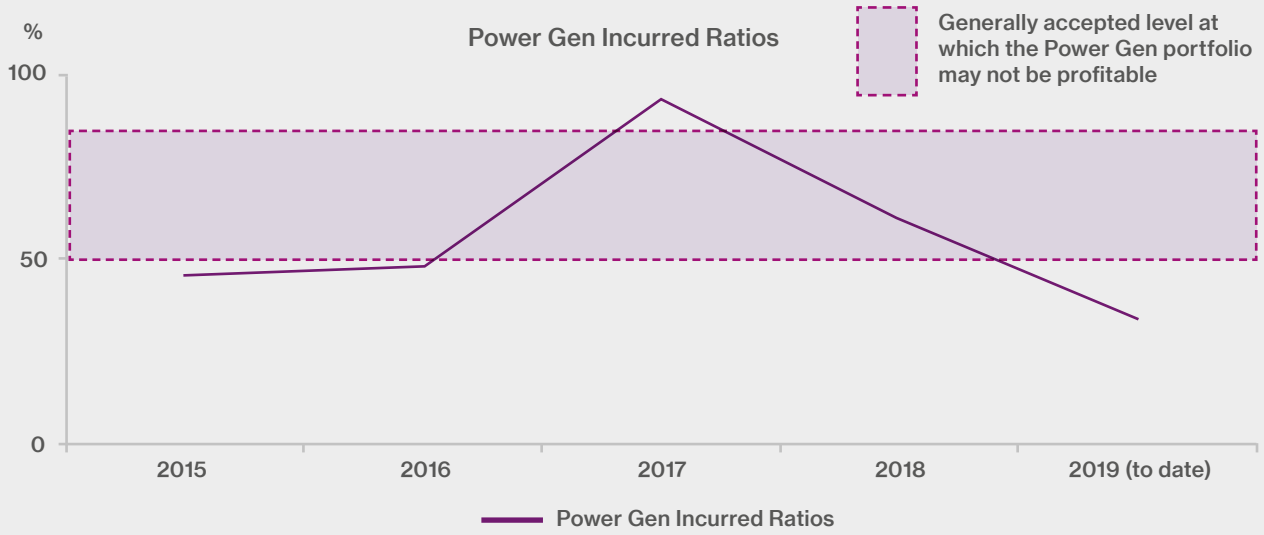
Profitability

Lloyd's Incurred Ratios tell their own story

The reduction in available capacity for the sector and the continued volatility of the loss record across all the occupancies has amplified scrutiny on insurers supporting the sector.

"While not unaffected by natural catastrophe perils, a major risk for gas turbines in particular and the associated power trains is Machinery Breakdown"

Fig 5: Lloyd's Power Gen portfolio Incurred Ratios, 2015 – 2019



While the 2019 figures are still too immature to be germane, it's clear that Lloyd's has lost money on this portfolio in 2017 and 2018

Source: Lloyd's Market Association Quarterly Loss Report Q4 2019- PG audit code

The statistics for Figure 5 above come from Lloyd's of London and show overall Incurred Ratios (i.e. received premiums versus paid and outstanding claims) for the Power Gen portfolio. As most readers will quickly deduce, an Incurred Ratio in excess of 100% (and probably in excess of 80%) guarantees portfolio unprofitability; however, due to the reduced premium income pool and the gradual escalation of operating costs, we now think that any Incurred Ratio within the shaded area of the chart (50-80%) is also likely to produce an overall underwriting loss.

From this chart we can see that while the 2015 and 2016 ratios are just underneath the shaded area, the ratios for both 2017 and 2018 strongly suggest overall portfolio unprofitability. Furthermore, although the ratio for 2019 currently sits below the shaded area, history suggests that the final 2019 ratio will almost certainly be excess of 50%.

History suggests an unprofitable portfolio for several years

Indeed, the percentage loss ratios for the majority of the lead insurers has been consistently in excess of 50% for the last decade, and during the soft market these high ratios were often due to the continual downward rating levels. With the rates annually falling anywhere from 10-20% up to 2018, albeit the brief periods of hardening, with average global annual losses being approximately US$2.5 billion, we can conclude that the global premium for the Power sector has been below the average annual loss amount for some time (see Figure 1 shown previously in this article). This has simply made it unsustainable for carriers to continue the downward curve on rating and to continue insuring the class.

Moving further into 2020, insurers are therefore under less pressure to insure all the business presented to them and are more selective than when there was a premium push in the soft cycle environment.

Rating level increases

The sector has, as discussed in the introduction, hit a hard cycle after years of downward pressure. Below is a summary quarter by quarter where rating expectancy has been on loss free business:

- **Q4 2019:** 10% rate increases were a starting point, with higher demand of 20% in some cases. The higher end of this was in part due to insurers having underwritten their income for the year and as such only continuing with risks where there was high return on capital.
- **Q1 2020:** The starting point had increased to 15%. With their treaty renewals in the main in place post 1st January 2020 and their business targets set, insurers quickly moved from a starting point of plus 10% on rate for loss free business to plus 15% on the same basis.
- **Q2 2020:** Most programmes saw rating increases of between 15-20%. At the time of writing, this has stayed relatively stable on a risk rating basis based on occupancy. The COVID-19 global pandemic has led to the global market place operating in uncertain times which has led to some unseen before challenges and variances in offers.

Other developments

Centralisation of underwriting authority

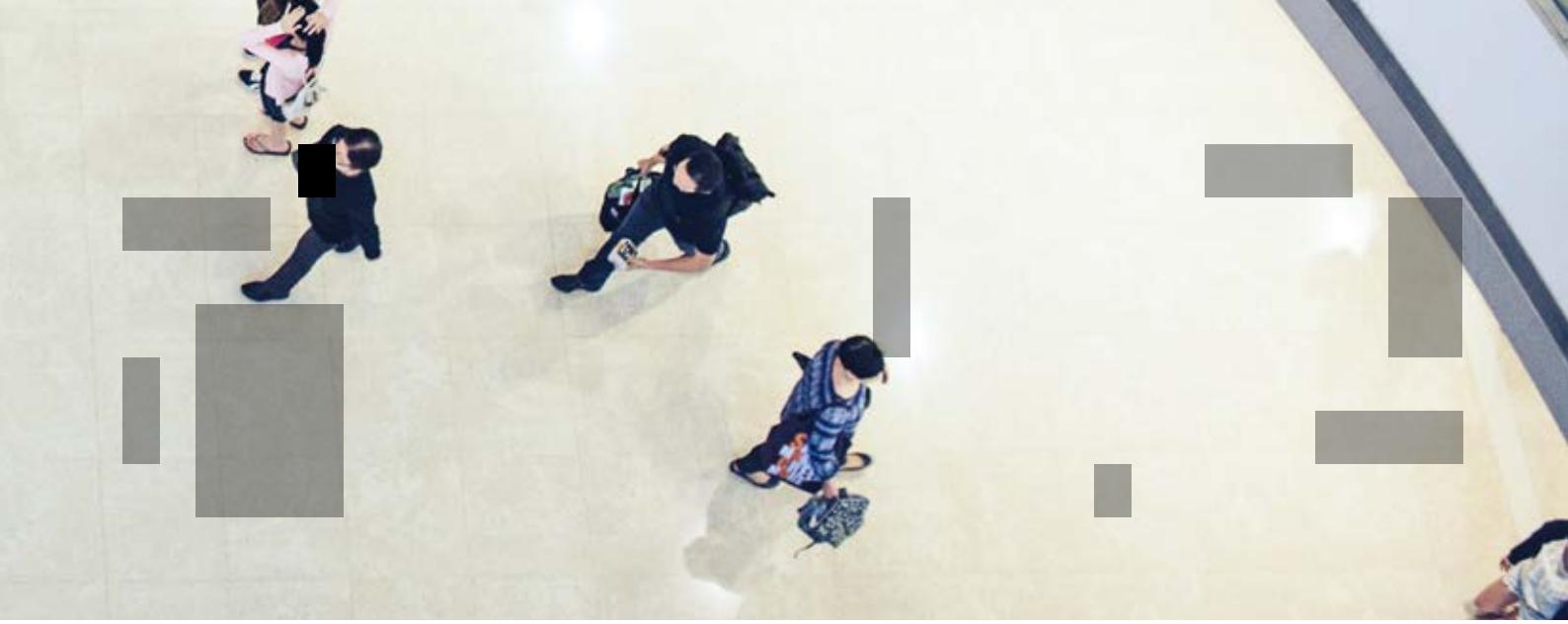
As we discussed in the 2019 Review, last year there was a push by insurers to synergise their offering globally in the sector. This has become more evident in recent months, with Power leaders becoming more consistent in their underwriting philosophy across their global offices. AIG has multi-tier approval levels set in place, while Zurich has a committee to review referrals from their global hubs, with the message shared and analysed between the various committees. Liberty has closed their US Power portfolio in the region and responsibility now sits solely in London, as it does for the MENA region. In previous years there has been a fragmented approach from insurers in different global hubs; while this didn't exactly duplicate available capacity, it has previously led to differing products being available due to the simple geometrics of a market dynamic and was endemic of a soft market cycle. The requirement for underwriters based in local hubs to be responsible for insuring the risks in their territory has reduced; in certain cases, these hubs have been closed to limit these insurers to one point of contact for the sector.

Review of coverages and contracts

During the soft market, terms and conditions remained relatively stable. A notable development, first evident towards the end of 2019 and at the start of 2020, has been the changes to the coverages offered by the market. Sub-limits and extensions are being reviewed more carefully and reduced or removed where they are considered too high or where insufficient underwriting information has been provided to support previous levels. It is therefore recommended that buyers carry out a review of key sub-limit levels ahead of renewal to ensure a better understanding of their actual needs.

Data protection coverages have reduced, with Lloyd's introducing the LMA 5401 (a total cyber exclusion) and a general restriction from the wider market of writebacks such as Machinery Breakdown on the NMA 2915 clause. There is an overall increased desire from lead markets for claims authority, with Claims Control clauses being demanded as opposed to the Claims Co-Operation clauses more often accepted during the softer part of the market cycle.

With regards to contracts, with a number of claims arising from avoidable man-made losses, more prevalence is given to the other third-party contracts, for example the contracts in place with original equipment manufacturers. Insurers are scrutinizing and requesting details of any onward agreements in place between the Insured and the manufacturer, with particular focus on warranties and indemnity levels. In certain instances, they are restricting the cover for third parties to onsite activities only and challenging 'subrogation waivers'.



Business Interruption waiting periods

Business Interruption coverage has always been a perilous component for insurers, with large portions of claims submitted arising from this exposure. Whilst the demand for the full split of values and the associated data is relatively unchanged, for buyers with more complex revenue streams (including exposure to spot market fluctuations) there has been a demand from insurers to increase the waiting period deductible where information is insufficient or to limit the daily amount or amount per MWh of lost generation that a buyer can claim.

Machinery Breakdown retentions

For self-insured retentions, Machinery Breakdown retentions remain relatively consistent compared to previous years, but all-risk and natural catastrophe deductibles have begun to be more scrutinised. Historically, increases in Machinery Breakdown retentions have mainly been due to the increase in MW output of the units being produced, prototypical units being produced and/or if there are any defects associated with the unit or fleet. However, natural catastrophe (nat cat) deductibles, which are often a percentage of declared values with a financial minimum and maximum, have seen both these minimum and maximum amounts increase. The all-risk retentions for non-nat cat or main plant equipment Machinery Breakdown that were previously available to buyers are now also being increased.

More selective underwriting

Considering the increased rating levels evident in the sector, insurers have been able to be more selective in the risk exposure of their individual portfolios. Diverse multilocation portfolios will be analysed based on the catastrophe exposure and a given buyer's variance in occupancy. There has been a reduction in the overall capacity available to write risks spread over multi-locations, geographically in high nat cat exposed territories, as insurers can achieve better return from less exposed risks. Insurers continue to insure assets located in heavily nat-cat exposed territories, but their preference will be to do it on an individual site basis and/or where buyers have significant self-insured retentions and/or limitations on nat cat coverage. Greater modelling by buyers of their portfolio's for nat cat exposure is recommended to ensure a better understanding of exposures and limits required and to support renewal negotiations.

Less appetite for complex risks

With regards to diverse portfolios, the market's appetite for the more complex risks has decreased accordingly. Buyers that have a portfolio of differing power plants, for example hydroelectric plants, coal fired plants, combined cycle gas turbines and power barges, will have access only to a more restricted pool of insurers. This will also apply to a diverse portfolio of manufacturers utilised by a given buyer, as insurers tighten down on their risk volatility. The coverage of operations such as Transmission and Distribution, which has in the main had a standard market limitation in place of one thousand meters from the generating site, will also be more heavily scrutinised for those buyers that have extended cover for this risk.

Outlook

Hardening trend to continue through 2020

With further global economic pressures apparent, especially from COVID-19, the reality is that the hardening market is set to continue for the remainder of 2020. While the back end of 2019 saw insurers expose the lack of capacity available due to their closing portfolios early by increasing rates exponentially, going forward there should be a more consistent market 'norm'.

Anticipated rate increases will have been mainly set through the January 1 treaty renewals and the extent to which increased reinsurance costs are passed on to the direct buyer. Double digit rate increases will continue as a starting point on loss free, well risk managed business; coverages currently in place will receive further scrutiny than in 2019, and third-party agreements with original manufacturers will also come under the spotlight.

Buyers to focus on lender agreements

Furthermore, buyers need to revisit agreements in place with lenders and the extent of the minimal requirements they have in place; for example, they should know which limits are 'nice to have' and which are non-negotiable. When entering into contracts with third party suppliers, buyers need to engage with their insurers to obtain agreement in advance of entering into any agreements to enable a seamless process.

Conclusion: be prepared!

It should also be noted that while the global Power market has hardened and underwriters will scrutinize risks still further, there still is a strong pool of insurers underwriting the sector who continue to support the industry and the clients within it.

That being said, perhaps the most important piece of advice we can give buyers at the moment is that you should work very closely in partnership with your risk intermediary to ensure you are driving an optimum risk management strategy. That means not only working with your broking team to enable them to negotiate optimum terms in the market, but also to engage with your risk intermediary's risk engineers, forensic accountants and analytics experts to ensure that every dimension of your strategy has been worked through thoroughly in advance of any negotiations with the market.

Furthermore, it is hugely important for buyers and their brokers to engage with their insurers as early as possible regarding the placement of their Power risk and provide risk management protocols and up to date underwriting information such as survey reports and detailed Business Interruption breakdowns.

In these challenging conditions, we think that buyers should also think very carefully about which market relationships they value as we think a relentless focus on price above any other factor may run the risk of backfiring – especially if a loss is incurred.

This means engaging early in the entire process. Especially under these unprecedented conditions, everything is going to take a lot longer than in previous years. We suggest that buyers use this time to develop more detailed underwriting submissions, ensuring that accurate values both for physical assets and business interruption are presented to insurers. And finally, the work to maintain a healthy, optimal risk transfer program should really continue all the year round. Keep in touch with your broker and ensure that the market is kept abreast of all significant developments within your organisation.

Only in this way will buyers offset the worst effects of the current hardening market conditions.

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North America Property: a challenging year for clients and insurers

Introduction: 2019 recap

Following years of unprofitability, 2019 saw a fundamental shift by Property insurers in their approach to underwriting technical and engineered occupancies, including (but by no means limited to) Power risks. Some carriers no longer write Power risks, while others have reduced their capacity.

In recent years, Power insurers have paid numerous attritional losses, some of which have been severe. Major losses have developed well above estimated reserve levels, and that development impacted 2019 results. In particular, wildfire losses have impacted both the Property and Excess Liability markets.

The retreat from risk

Insurers were particularly concerned because, for most, Property losses exceeded premiums in 2019, despite relatively quiet CAT activity and increased rates. Some insurers were able to limit their losses through efficient use of facultative reinsurance, but this will be significantly more expensive in 2020. Insurers that were nearly profitable took a surgical approach to reviewing each program, not only for price but also for both terms & conditions and risk engineering. Buyers should expect this disciplined approach to spread to all insurers, with underwriters only looking to write new business which improves their portfolio.

Insurers are exercising discipline not seen for many years, requiring higher rates, higher deductibles and reduced coverage terms. This “retreat from risk” makes it extremely difficult to insure some risks at any price. Consequently, it has become increasingly difficult for brokers to deliver renewal terms to buyers in a timely manner, as many renewals are going down to the wire or beyond.

Coal-fired and other assets struggle to access cover

Furthermore, it became extremely difficult to find coverage for coal-fired generation risks in 2019, as key insurers were driven to avoid these risks as a result of corporate sustainability initiatives. Those willing to continue underwriting coal-fired generation assets were being pressured by their reinsurers to exit this space; this trend is expected to continue through 2020 and beyond.

Some insurers also ceased writing Waste-to-Energy risks, due to poor loss history and risk control issues, so these risks also became difficult to place. Even renewable energy risks such as wind and solar, which have been competitively priced for many years, were seeing challenging renewals, particularly those located inn CAT-zones and/or involving troublesome technology or reliability issues for insurers.

Better news for gas generation assets

However, for gas-fired generation assets, significant domestic North American capacity remained, estimated at over US$3 billion for the right programs, although this dropped off significantly if the risk had extensive loss experience or catastrophe peril exposure.

2020: Property market continues to harden

Losses continue to mount

Power sector losses remained high in early 2020, with the result that some insurers continued to sustain overall underwriting losses. Some of these losses involved proven machinery where well-established "fixes" (upgrades) had not been installed, such as the 501FD3 units (without the enhanced torque tube which reduces the chance of cracking in the torque tube) and the 7FA (without the compressor pack upgrade). To date, insurers have continued to cover these non-upgraded units where other protection means are in place, such as strong maintenance practices, online vibration monitoring and where compliance with OEM guidance.

The insurer response

However, given recent losses, underwriters will now be more wary of insuring these non-upgraded units; where they do, they will require more conservative terms such as the LEG /1 defects wording, higher rates and increased retention levels.

Insurers continue to encounter problems with newer equipment, including the quick start aero – derivative/frame machines such as the LMS100, as well as F-Class and H-Class units, although some of the main problems with these units have been resolved.

Larger machines are expensive, presenting greater risk to insurers; indeed, insurers paid significant losses for early operating issues when recent large frame units were introduced. Insurers historically considered a new gas turbine unproven until several units in its fleet achieved 8,000 hours of satisfactory operating history. Given recent experience, insurers now wait at least until these units have satisfactorily reached a scheduled hot gas path inspection before considering them proven, at which time underwriting terms became less onerous. For example, insurers still consider H-class machines prototypical/unproven, with some seek deductibles as high as $10 million for Physical Damage and 120 days for Business Interruption for these units.

Some underwriter concerns regard not only the machines but also experience with specific OEMs and vendors. Insurers believe that vendor liability, transferred to the client in OEM contracts, should be transferred back to the source. For example, in their contracts with clients, Gas Turbine OEMs strictly limit their liability for overhaul work to a modest sum, say $500,000. Should the OEM inadvertently leave tools behind in a machine during maintenance, the Property insurer could be responsible for a substantial property claim, with no ability to subrogate against the OEM/vendor. Insurers suggest that relieving Property insurers of this contractor liability would benefit clients and carriers alike.

Rates continue to firm as deductibles increase

Through Q1 2020 rates continued to firm, and we expect this trend will continue throughout and potentially beyond 2020 as insurers need to generate an underwriting profit or risk being shut down. Some have ceased underwriting Power risks, while others are at risk of suffering the same fate should their portfolios remain unprofitable. Buyers should expect higher equipment deductibles (PD & BI), as well as clawing back accommodations made in the soft market, as well as limit reductions and some coverage restrictions.

The Impact of COVID-19

Staff reductions at Power Gen sites

COVID-19 has impacted the US Power Gen industry in many ways. With less travel and the shutdown of many businesses and other facilities, demand for power is down, reducing prices. Power Gen plants have reduced staff at their sites to key operating personnel; some have fully or partially furloughed non-essential staff and executives. Scheduled maintenance has been reduced and/or delayed beyond established norms, increasing risk of failure. Getting maintenance done or acquiring and installing replacement parts is more challenging; consequently, there is an increased likelihood of loss, and a potential delay in identifying and responding to any loss events that do occur. More on the risks of COVID-19 relating to power plants is discussed in Jamie Markos' article in this publication.

Are Power Gen Property programs affected?

COVID-19 has, of course, impacted the insurance marketplace as well. With offices closed, client meetings, carrier engineering visits and claims updates are proceeding virtually instead of in person. From a coverage perspective, COVID-19 is a virus; hardly the type of peril typically thought of as triggering "All-Risk" property insurance coverage. While some property policies provide modest coverage for Communicable Disease, Event Cancellation, etc., most property policies were not intended to cover pandemics.

Nonetheless, some buyers have filed claims for lost revenues as a result of the pandemic; unsurprisingly, insurers generally believe such claims are without merit, a scenario which might potentially lead to expensive court battles[1]. Separately, the US Federal and State governments have proposed legislation to require insurers to pay Business Interruption claims associated with the virus under their property policies. Insurance executives believe any such legislation would violate the contracts clause in the US Constitution and could bankrupt affected insurers in months. In any case, the possibility that insurers may need to pay claims for the pandemic certainly adds to the stresses within the Power marketplace.

Separately, consideration is underway to develop a government backstop for future pandemics, to help insurers to offer coverage for this peril going forward akin to the Terrorism Risk Insurance Act (TRIA) of 2002 and the legislation that succeeded it.

"Through Q1 2020 rates continued to firm, and we expect this trend will continue throughout and potentially beyond 2020 as insurers need to generate an underwriting profit or risk being shut down."

Key insurers

Key Property insurers for the Power sector in North America include the following:

- AIG
- Allianz
- Associated Electric & Gas Insurance Services (AEGIS)
- FM Global
- Munich Re
- SCOR
- Swiss Re
- Zurich

FM Global continues to predominately offer 100% of capacity needs, while AEGIS is often willing to increase line sizes for their members and OIL continues to offer significant capacity to its members. AIG no longer offers a single carrier solution for its Power Gen clients, but still strives to lead programs and provide engineering as a quota-share player. Zurich also continues to offer significant capacity and can lead programs. Munich Re and Swiss Re continue to offer significant capacity, but no longer strive to lead. Both Liberty Specialty Markets (LSM, formerly LIU) and The Hartford (formerly Navigators) no longer write US power generation business, with The Hartford out of all Downstream operations completely (LSM continues to write Power business through their Bermuda and London operations). Other insurers are similarly struggling, and potentially could exit this space should their performance not improve. No new capacity has yet entered the space, though Nuclear Electric Insurance Limited (NEIL) offers Property coverage for their Members' non-nuclear assets and will sometimes offer capacity to non-members as well. Ample capacity remains available to complete Property programs, but clients have fewer options and less leverage than in recent years.

[1] http://search.ambest.com/texis/search/redir.html?query=onslaught&pr=BINA&prox=page&rorder=500&rprox=500&rdfreq=500&rwfreq=500&rlead=500&rdepth=0&sufs=0&order=r&u=http%3A//www3.ambest.com/ambv/bestnews/newscontent.aspx%3Faltsrc%3D108%26refnum%3D224999&m=0&p=2

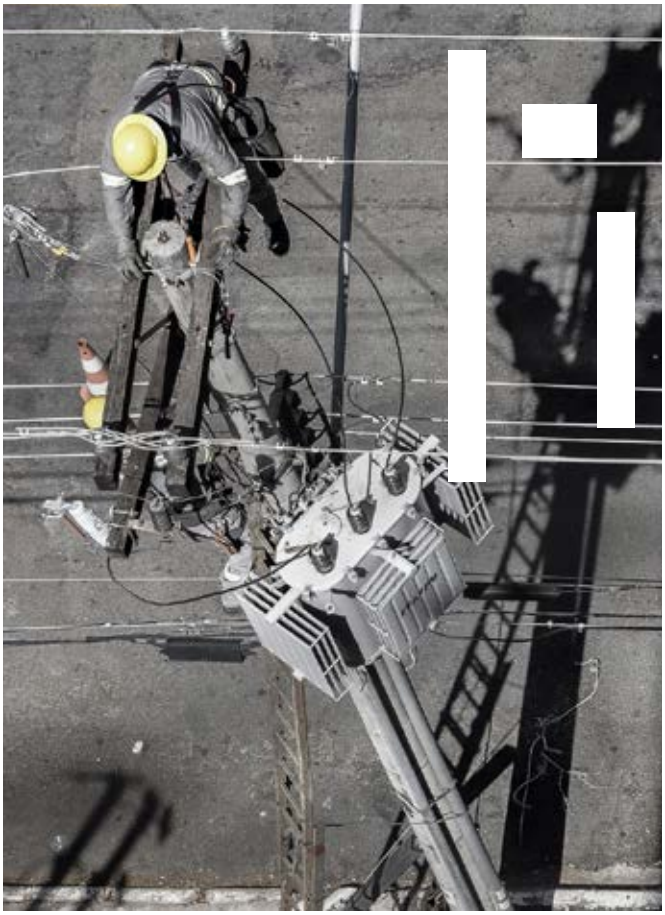
Liability coverage & Wildfire risk

Casualty and Excess Liability markets firmed significantly in 2019, with many carriers reducing their available capacity with significant capacity reductions. Rate increases of at least 5% - and up to 10% and higher - are now "normal" for loss-free risks; these trends have accelerated over the course of the year and will continue through 2020. Investment-linked securities (ILS) remain available to supplement wildfire coverage in E/L policies, albeit at high cost given recent loss history. Clients need to demonstrate to insurers why they believe their exposure to wildfire is well managed to secure any coverage, while insurers are also concerned about the impact of litigation financing, which has caused more severe claims development than in past years.

Cyber

Some studies suggest that utilities are among the industries that are most often targeted for a cyber-attack. Government officials concede that foreign components in the US electrical grid may present a hidden threat, prompting federal oversight of utility purchases going forward and a plan to root out embedded gear thought to be compromised[2]. Property insurers universally exclude cyber coverage, but most US insurers continue to provide coverage for ensuing loss. With few exceptions, explicit provision of any cyber coverage has disappeared from the Property insurance marketplace; any coverage provided is designed to cap exposure to a modest total to avoid court battles. Other insurers such as AIG can offer optional cyber coverage in their Property policies for additional premium, underwritten with the help of their cyber team.

US insurers continue to provide coverage for ensuing damage, following cyber events, but will want to limit such coverage to Fire and Explosion only. Insurers are seeking to remove coverage for ensuing damage following Machinery Breakdown. We are also seeing some insurers imposing absolute cyber exclusions, and this trend is expected to continue to spread. Underwriters continue to strive to specifically exclude "Soft cyber" in their renewal policies and encourage buyers to purchase their stand-alone cyber policies to protect against this exposure. More Power Gen firms are buying stand-alone cyber coverage, to ensure they have the coverage rather than rely on attempting to find coverage not explicitly provided under their other policies.

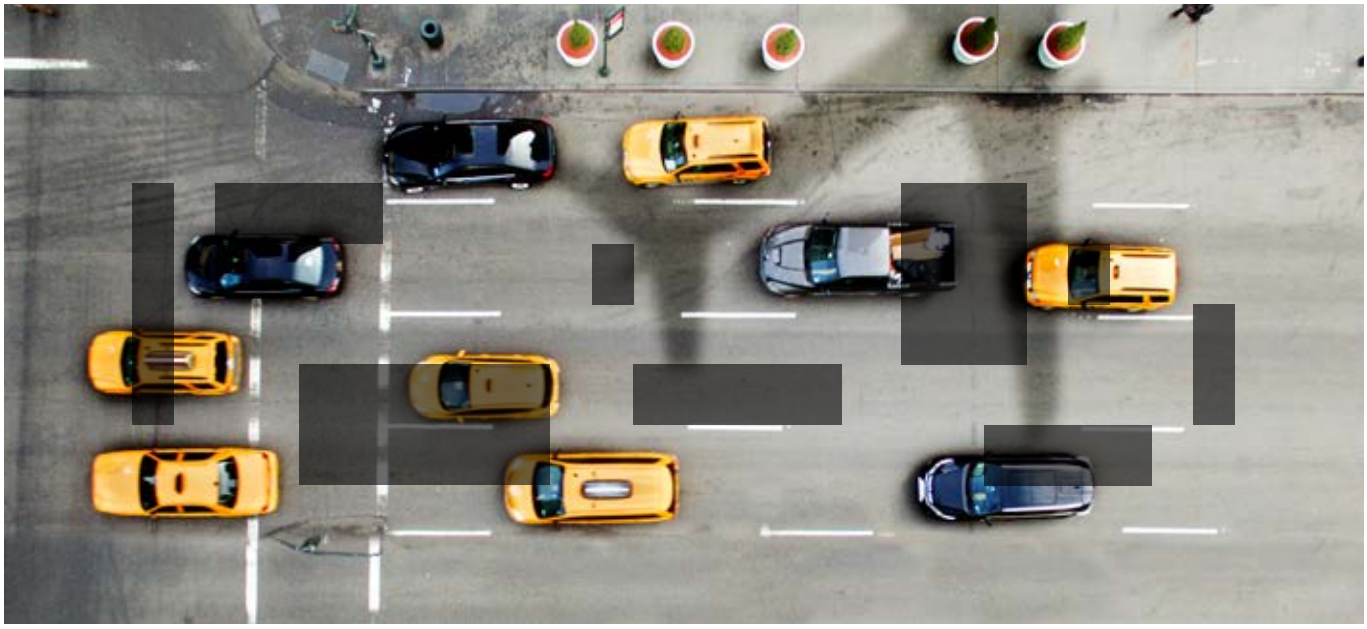


Conclusion: renewal expectations need to be managed

For Property renewals, buyers without losses can expect rate increases of 20-25% or more, up from 15-20% in late 2019. Those with losses and engineering issues should prepare for higher rate increases, possibly as much as 200% or even more. Buyers should expect insurers to pay more attention to values reported, particularly with respect to Business Interruption. In addition to the above, in order to return to underwriting profitability, insurers will seek to reduce nat cat limits and increase deductibles and pull back terms and conditions surrendered during the soft market. In some cases, these terms do not meet lender agreement requirements, and steps need to be taken to renegotiate these agreements, or to purchase additional coverage (DIC nat cat coverage or deductible buydown insurance) in order to comply with the terms of the agreements.

"For Property renewals, buyers without losses can expect rate increases of 20-25% or more, up from 15-20% in late 2019. Those with losses and engineering issues should prepare for higher rate increases, possibly as much as 200% or even more."

[2] https://www.wsj.com/articles/u-s-moves-to-block-imports-of-some-power-equipment-11588346518?mod=searchresults&page=1&pos=2



Renewal planning

Significantly more time, effort and planning are needed in negotiating property renewals in 2020 than in years past. Insurers are being inundated by submission activity, overwhelming underwriters and their engineers. Buyers should take steps early in the renewal cycle to demonstrate to insurers that their risk is one that they will want to insure, and plan early to provide more information and spend more time marketing their program than previously. They should work hard to ensure that their program is in the marketplace at least 60 days before renewal, with a much more detailed submission than in previous years, including provision of:

- Evidence of the buyer's dedication to protecting and maintaining their sites and equipment by sharing management programs, maintenance budgets, safety metrics, etc.
- Detailed explanations of how Property and Business Interruption values were derived, with backup details as appropriate
- An update for insurers on the buyer's business, including a discussion of the company culture and safety philosophy, as well as an explanation of any loss events that have occurred and any steps taken to minimize the likelihood of recurrence
- Detailed responses to all insurer engineering recommendations, reflecting:
  - all outstanding human element recommendations completed or resolved, with status reflected and completion dates (or target dates) noted
  - a "Risk Improvement Plan", prioritizing which capital improvements will be addressed and completed, and when
  - A note of where quotes have been or will be obtained, and where alternative solutions are planned

Providing well thought-out responses is critical, particularly for recommendations that have not been addressed for years. Additionally, buyers should plan on meeting with insurers, in person or virtually, ideally after underwriters have had time to review the detailed submission; at that meeting, they would have the opportunity to answer any underwriter questions. More than in past years, and with the aid of their broker, buyers should also canvas the international retail and wholesale insurance/reinsurance marketplaces and consider approaching Bermuda, London and Asia as well as facultative reinsurers.

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"Significantly more time, effort and planning are needed in negotiating property renewals in 2020 than in years past. Insurers are being inundated by submission activity, overwhelming underwriters and their engineers."

International Liabilities: a more technical – and selective – norm

Introduction

The second half of 2019 saw a palpable change in market dynamics for the International Liability market and this momentum, compounded by a challenging treaty renewal season, has been carried forward into 2020. To this end, the further deterioration of underwriting performance, driven by a series of losses and rising social inflation costs, has prompted insurers to reconsider reserving adequacy and shifted the previous mandate for 'top line' growth to stronger underwriting discipline.

Focus on technical rating and benchmarking

Consequently, we have seen a much greater focus on technical rating and benchmarking as part of the underwriting process. The impact of this is much more significant for Excess of Loss placements which are often deemed to be more significantly under-priced, according to insurer rating models. On the other hand, primary placements are being subjected to more measured increases, with insurers tending to apply base rate increases of 10% to 20% prior to factoring in further rate adjustments for poor loss records and/or historic under-pricing. This said, with the full impact of COVID-19 still unknown at the time of writing, it is likely that underwriters will be under even greater pressure to deliver rate increases to their management and consequently average base rate increases could be more pronounced in the second half of the year.

Capacity deployment reconsidered

The stronger underwriting discipline being applied is also leading to a growing trend for insurers to reconsider capacity deployment at renewal, and often limit or reduce line sizes on programmes where there is a perceived catastrophe-risk exposure. The impact of this is mitigated for programmes which require less capacity but for those buyers that purchase more significant limits (such as European Hydropower placements) the lack of arbitrage can serve as a further factor in pushing up costs.

The combination of all these factors, coupled with the substantial increase in new business flow to the London market this year, is resulting in a much more selective approach from underwriters in terms of what type of risks they are willing to write and – importantly – how prepared they are to negotiate.

Coverage considerations

In tandem with insurers' focus on rate and capacity deployment, much greater attention is also being paid to policy coverage and, depending on the premium adequacy of the risk, insurers may look to rule out soft market coverage extensions in a bid to achieve – or at least get closer to – rate adequacy.

For example, underwriters are now taking a firm position on cyber coverage and ensuring it is either excluded from policy wordings or provided on an affirmative basis, although there remains some inconsistency in the clauses preferred by insurers.

Failure to Supply exposures continues to be a key consideration for insurers, with exclusionary language commonplace. However, Injury/Damage writebacks can often be negotiated back into the clauses if the rate is adequate.

The most recent coverage development, deriving from the COVID-19 pandemic, is the introduction of Communicable Disease exclusions. Whilst at the timing of writing this is very much an evolving landscape, the responses from insurers have varied, ranging from blanket exclusions for all forms of communicable diseases to some insurers preferring to abstain from applying any exclusionary language altogether.

Exposure challenges

While Power business continues to be within most insurers' general underwriting appetite, specific appetite for coal exposures amongst company insurers continues to decrease, and consequently the pool of insurers available for risks that have a significant exposure to coal is more restricted than in previous years.

Notwithstanding this, it is still possible to place meaningful limits for coal-exposed insurance risks although buyers who have hitherto not purchased significant limits will find their options more limited. This is because some of the insurers who can continue to write coal exposures are unwilling to increase their exposure to coal further by writing new risks and will only consider renewing existing policies. Where insurers are able to write coal exposures, there is a much greater emphasis on understanding buyers' ESG position; a forward thinking and strong approach to ESG often forms part of the prerequisites for insurers being able to participate on coal-exposed programmes.

In addition to coal, Transmission & Distribution and Bushfire exposures continue to make up the complement of most challenging Power placements, with certain insurers not willing to provide cover at all and others only willing to consider providing cover on the basis of a particular attachment point or territory. The recent bushfires in Australia are likely to exacerbate these underwriting challenges further.

Market capacity

Whilst in theory the global capacity for International Casualty risks remains high at approximately US$3 billion, the realistically available capacity is ultimately closer to a around a third of this amount. This notable delta is due to several key factors including insurers':

- unwillingness to deploy their maximum theoretical capacity
- minimum and/or preferred attachment points
- requirements to only provide coverage on a designated form (e.g. Occurrence Reported rather than Losses Occurring)
- application of minimum rates that are economically unviable in the context of overall insurance programme costs
- lack of appetite for specific aspects of the coverage requirements

Marketing tactics

While the current market is not without its challenges, there remains a vibrant appetite for Power risks and sufficient capacity to maintain an element of competitive pressure on rates in the majority of cases. However, market capacity contractions will naturally result in a reduction in the number of programmes that are over-placed than we have seen in previous years.

Restructuring programmes is still an effective strategy for mitigating the impact of ongoing market dynamics and vertical placements are sometimes an essential method of driving down layer prices to achieve overall premium targets.

Ultimately the provision of good quality and robust underwriting information, ideally in the form of a comprehensive underwriting submission, is key to evidencing effective risk management and unlocking the best possible terms from the market. In conjunction with this, it is essential that brokers begin initial renewal conversations with the market as early as possible in order to both flush out potential renewal issues and also enable sufficient time for underwriters to review the risk, particularly given the increasing necessity to source new capacity to renew expiring limits.

Separately, the value in maintaining long-term insurer relationships continues to be increasingly important, given the effect it can have on mitigating knee-jerk reactions to technical pricing. However, this needs to be balanced with the benefits of buyers diversifying their insurance panels to ensure they are not left overly exposed to a significant change in underwriting approach from a single insurer.

"Ultimately the provision of good quality and robust underwriting information, ideally in the form of a comprehensive underwriting submission, is key to evidencing effective risk management and unlocking the best possible terms from the market."

The net effect

In summary, and notwithstanding the considerable amount of capacity still available for Power risks, buyers should be prepared for the upward rate momentum that we witnessed in the second half of 2019 to continue into 2020 and for underwriters to take a much firmer stance on risks that do not fall within their underwriting appetite. Consequently, brokers will need to be more creative in their marketing approach and utilise their experience and market relationships to greater effect to mitigate the impact of these market conditions.

In terms of insurers, the London market is likely to continue to be used in a lead capacity role for the majority of multi-layered Power programmes, although the largest programmes are likely to face a significant challenge when it comes to maintaining existing limits as the pressure of market contraction and reduced capacity deployment takes effect.

Overall it is clear that it will take more than the six or so months of a 'hardened' market for conditions to settle. In the meantime, buyers should seek to ensure that the broker appointed to represent them in the market is equipped with the industry experience, technical knowledge and market relationships sufficient to obtain the best possible terms from what remains a challenging environment.

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North American Excess Liabilities: an apprehensive market climate

Introduction: a tough 2019

Power and utility insurance buyers had a tough year of it in 2019; outside of the mutual insurers, those buyers were in the same market as all buyers of large complex Excess Liability programs. 2019 ended with little hope for sanity in 2020, and by the end of February, so many external forces were at play as to portend an increasingly difficult renewal process for all. The factors are all there: underwriters demanding increased premium levels, the loss of capacity in withdrawals from North American business or a reduction capacity offered, the market segment being battered by the "nuclear losses" of the last several years, unsettling investment positions, the impact on society of COVID-19 and the general barriers in working remotely.

"Nuclear" losses fuel apprehensive market climate

Perhaps the force behind the consternation in the market have been the losses which, while not all relating to the power and utility industry, became "nuclear" events to the same underwriters who write the specialist industry portfolio. These included significant losses from catastrophic events, including wild fires in the US and Australia, tailings facility failures in South America and named windstorms throughout the globe. These "nuclear" events were then combined with gas-related explosions and "active shooter" losses to create disastrous sets of underwriting figures; taken together, claim amounts from these events are likely to have exceeded US$1 billion.

Added to this, these same insurers were hit with repeated and expanded verdicts that resulted in Auto Liability losses and even Premises and Operations Liability losses. From the deep pockets of corporate defendants who had little - if any - participation in the liability negligence, came significant awards of tens of millions of dollars – not to mention the staggering defense expenses that went with each action.

The outlook for 2020

We expect Power and Utility Excess Liability renewals in 2020 to grow increasingly more challenging as the year progresses, continuing the pattern seen during the second half of 2019. We expect the Mutual insurers to challenge rate adequacy for a measured increase in premium. We may see Excess Liability rates/premium increase in excess of 10% or more, and this will come concomitantly with a loss of overall capacity. To illustrate, AEGIS members were generally obtaining 3-4% premium increases at end of 2019 for clean risks, which increased to 10% 2 months ago and, as this Review went to press, AEGIS was generally looking for 12% increases. Underwriters' positions on power and utility Excess Liability business will garner management's attention and scrutiny.

Policy conditions review

The market will continue to gauge the coverage afforded for Cyber Liability in its Excess Liability policies and will look to limit the breadth of Pollution Liability coverages in Excess contracts. It would also seem likely that the market will move to some sort of pandemic/communicable disease exclusionary wording. Losses arising from west coast wildfires and dam facilities will cause a review of conditions; it is noted that the capacity for Wildfire Liability is under intense pressure.

Capacity will continue to constrict - attachment points will have to be reconsidered

Starting with capacity, AEGIS and EIM will continue to offer large amounts of core capacity, often the largest limit provider on individual excess liability structures. Overall capacity will continue to reduce further in 2020; insurers who will still deploy more than $50 million will expect to have their capacity priced properly. Buyers will once again see meaningful insurer participations within their total program limits begin to refuse to offer renewal capacity, and the shifting and back-filling around the vacancies will create difficult coverage anomalies.

In Bermuda, while the overall theoretical capacity may not have shrunk that much for North American business, there is a difference between what capacity is advertised and what will be offered and utilized in practice; we have seen reductions in deployed capacity from AIG, AXA XL, Argo Re and others. Companies that have taken the strongest stance on premium increases include AXA XL and Chubb.

Underwriters are reconsidering their attachment points; renewal negotiations will have to deal with this dual dynamic of individual insurers' reduced capacity offers and the trend towards increasing attachments points. This is of particular significance to the integrity of Liability program towers written on a claims-made or occurrence-reported basis.

"Buyers will once again see meaningful insurer participations within their total program limits begin to refuse to offer renewal capacity, and the shifting and back-filling around the vacancies will create difficult coverage anomalies."

Conclusion: your renewal strategy will be critical

As we have advised in other publications, be prepared for a stressful process, for buyers, underwriters and brokers alike. We have moved a number of our clients to a renewal process that runs throughout the year, recognising the importance of well purposed off-cycle meetings and updates and facility/asset tours. With the new working dynamic of the remote workplace for so many of the participants in the process, it is recommended to initiate the renewal process at least 180 days from renewal, as buyers need to determine the impact of shrinking capacity and moving attachment points, retentions, stress points on coverage/conditions and, of course, cost expectations.

The role of analytics is becoming increasingly important, and oftentimes can be used to investigate options for layer cost and structuring, limits and advanced benchmarking. Although multi-year, or longer than annual terms may be desirable as the market continues to harden, the market is not offering these, at least not without the opportunity to re-rate and assess at an anniversary date.

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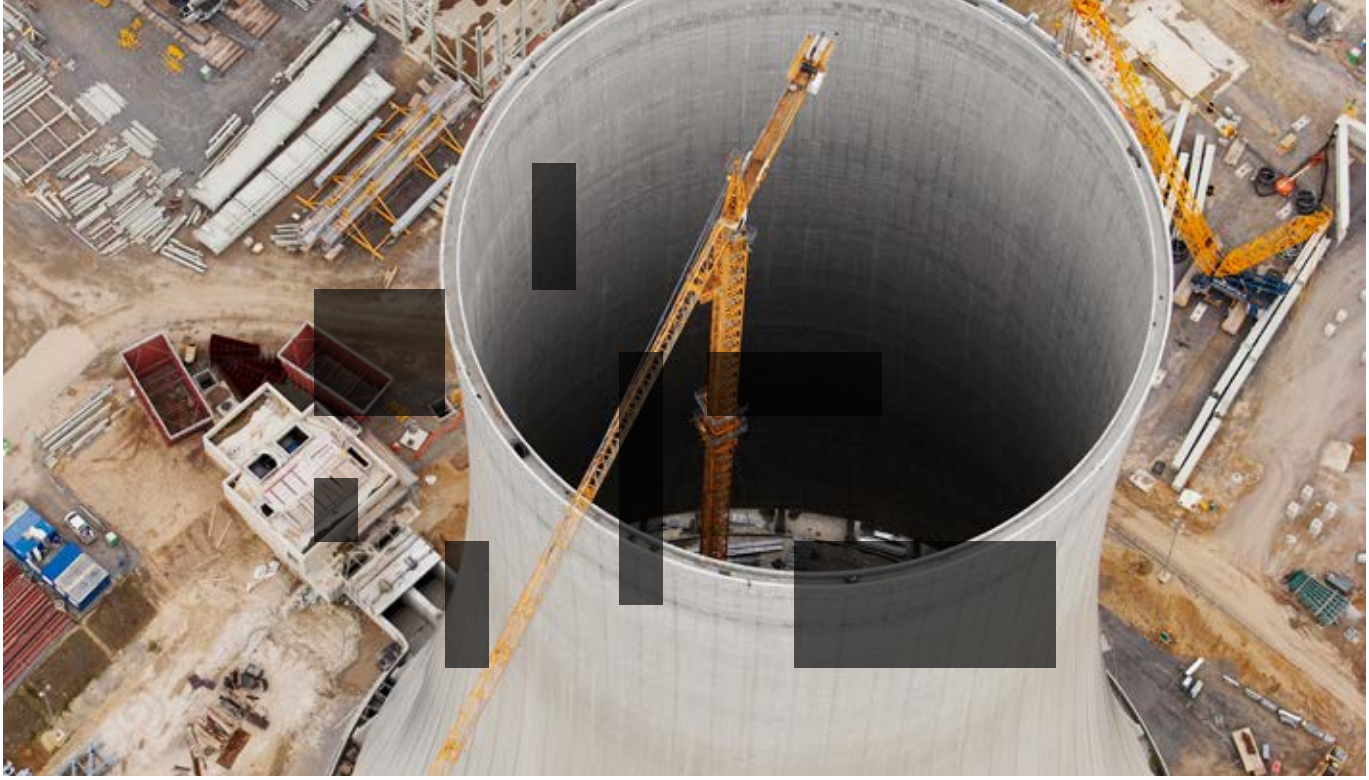


Construction: the hard market is happening!

Introduction

In 2019, rates increased on average by 75% across the global Power Construction market. Rate reductions are now non-existent, as insurers continue to push for price increases. Deductibles have also increased, by up to 100% for the critical areas of technology risks, commissioning and natural perils. Coverage continues to be scrutinised by all reinsurers, especially Defects (Design, Workmanship and Materials), Corrosion, Cyber and Flooding. Underwriters are also becoming more selective over offering the wider coverages obtained within the broader broker wordings when being presented with a new large-scale power project.

Global capacity impacted

Global capacities have been hit by power plant volatility and this has impacted a number of markets. Natural catastrophe events are likely to increase this decline and we are seeing individual rate increases in exposed locations. One of the most noticeable changes has been the reduction in capacity from the Lloyd's Consortium, from US$350 million to around US$185 million. 2020 treaty renewals produced a further shake up in capacity, with global Probable Maximum Loss (PML) capacity reduced to approximately US$3.5 billion; however, this is based on best risk, terms, appetite and location.

Revision of underwriting practices

Many major insurers, including AIG, Allianz, Chubb, Munich Re, Swiss Re and Zurich, have severely revised their underwriting practices and principles with a view to reducing exposure. As a result, reduced line sizes are now being offered on power projects by these key insurers. Furthermore, they are now basing their line sizes on Total Insured Values (TIVs) rather than PMLs, which has resulted in much reduced line sizes being offered.

Hydro plants

The recent high-profile hydro claims continue to have an adverse impact on the insurance market appetite for new and existing hydro projects. Furthermore, due to the nature of these projects they are often located in areas that have an increased natural catastrophe exposure. As a result, there is a significantly restricted market for new projects, with those insurers still able to consider a new risk only doing so with more restricted terms on offer.

Key considerations

Key considerations remain for insurers when considering a new hydro project. In particular, underwriters will want to have a detailed understanding of the monthly mean and maximum river flows and the corresponding river heights over a period of at least 25 years, in order to calculate the maximum flood return period. Furthermore, it is often the case that hydro plants will have large diameter tunnels constructed as part of the project. Regardless of the method of tunnelling proposed for the project, underwriters will seek to restrict insurance cover for loss/damage to tunnels under construction either to a percentage of the original linear construction cost (usually 150%) or a monetary limit of liability but less than the total value of the entire tunnel construction value.

All of the above contribute to the challenges that developers of Hydro projects face when approaching the insurance market for Construction insurances.

Fossil fuel – coal and gas fired plants

The evolution of gas turbine technology appears to be showing no signs of slowing down, with the introduction of bigger and more efficient machines. With bigger machines potentially leading to higher replacement values, insurers are keen to maintain a minimum threshold when it comes to the level of deductibles to be applied to large frame gas and steam turbine generator sets. Combined with the hardening of the Power Construction insurance market, this has resulted in a higher minimum threshold than what has been available previously. Insurers also continue to seek increased levels of reassurance on the robustness of the warranty provided by the Original Equipment Manufacturer.

Coal loses pace

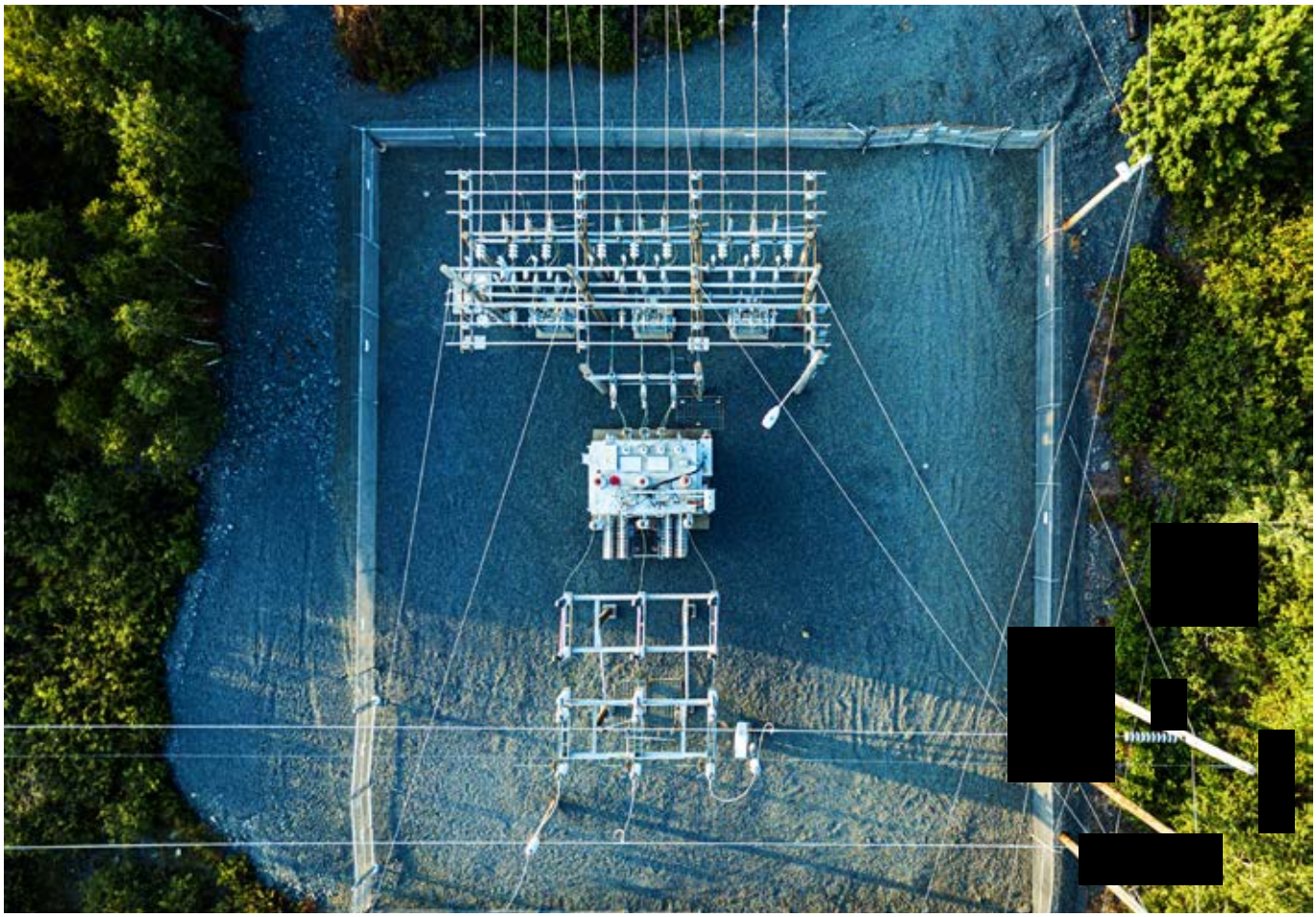
Coal continues to lose pace to gas in some parts of the world, due to growing environmental concerns. Although it is still a major (if not dominant) fuel for power in some parts of the world, the insurance market for new coal power projects is dwindling, with several insurers now turning away from the coal fired power generation sector as a whole. This in itself is resulting in a hardening of terms from insurers as the capacity for such projects diminishes.

QA/QC programme vital

When considering a new risk, insurers continue to seek evidence of a robust and comprehensive QA/QC programme, including a focus on Positive Materials Identification (PMI) and a detailed understanding of the planned inspection programme for the project. Adherence to internationally recognised industry fire protection codes, standards and guidelines will also be at the top of the underwriter's list when first evaluating the risk.

Nuclear plants

In recent years, the development and construction of new nuclear power plants has been limited; however, worldwide capacity is steadily increasing, with around 55 reactors currently under construction in 15 countries, the highest concentration of projects is in China, India, Russia and the UAE. There are selective cases of major investment and technology being provided by overseas companies, which has assisted with the continued development of new plants as well as upgrades and life extensions to existing facilities.



Capacity and appetite contraction

In line with the rest of the Construction insurance market, there has also been a contraction in the level of capacity and appetite for this sector. With various markets exiting and others becoming increasing cautious, the scope of cover available has been restricted within the last 12 months. Unlike in previous years, Delay in Start-Up (DSU) cover is no longer being offered at commercially acceptable terms and many more restrictions/exclusions in cover are now being imposed (e.g. LEG2 instead of LEG3 Defects coverage).

Scrutiny at placement stage

The estimated construction period of nuclear power plants are increasingly being scrutinised by insurers at the placement stage. This is a result of many existing projects requiring lengthy extensions, which can run into years or even decades. Many insurers are now only offering relativity short "automatic" extension provisions, in order to manage their own exposure to this complex sector.

Cost increases limit capacity

With such delays being common, many projects are also experiencing significant costs increases, which on average can add up to 18% to the original estimated construction value. This has also influenced the amount of capacity that individual insurers are prepared to provide at inception. In consequence, the number of insurers required to support individual projects has increased, resulting in higher average premiums now being requested.

As with many large-scale power generation projects, technological evolution is seen on the majority of new nuclear construction projects and therefore OEM warranties and insurability remain a critical factor for all insurers.

Conclusion - underwriting information quality remains key

As the insurance market for Power Construction continues to harden, the presentation of high-quality underwriting information still remains paramount to enable brokers to secure optimal insurance terms and coverage for their clients developing new projects. Brokers in the Power Construction insurance sector that can offer a large team of specialist power engineers who keep abreast of all key developments across the main power generation sectors, are best placed to assist buyers, and by doing so continue to support developers of new power construction projects in these challenging times.

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"As the insurance market for Power Construction continues to harden, the presentation of high-quality underwriting information still remains paramount to enable brokers to secure optimal insurance terms and coverage for their clients developing new projects."

Global Power market round-up: the spread of hard market dynamics

Beijing

A flat market, unlike its international counterpart

In 2020, insurance premium rates for local power plants China are basically flat, as they were for 2019. As the economic trend in China continues to slow down, competition within the Chinese insurance market is becoming much fiercer than in 2019. If a programme has no significant losses and/or other material changes in 2020, the Chinese power insurance market will continue to be profitable; most profit will be earnt from underwriting coal-fired power plant programmes.

Appetite for coal-fired plants

By the end of September 2019, coal-fired generation capacity in China was about 1,030GW, and combined cycle gas turbine power capacity was about 88.93GW[1]. Most of coal-fired power plants with capacity less than 300MW have been closed in China. Chinese underwriters are pleased to provide capacity for coal-fired power risks; the average Combined Ratio for coal-fired and gas power plants was about 50%, and most claims were less than US$10million. The range of gross premium rates of coal-fired power plants is around 0.01%~0.03%; depending on the comprehensive loss ratio and the risk management practices, this might decrease slightly in 2020.

The situation for combined cycle gas turbine power plants in the Chinese insurance market is similar to that of coal-fired power plants, with the exception of F class and upper classes gas turbines, because of a lack of reinsurance treaty support for most Chinese insurers.

In-house Power brokers dominate

The Chinese Power insurance market is dominated by Power in-house brokers, with more than 12 now in business; it's worth noting that the in-house brokers of the top five Chinese power companies charge higher commission above the market level.

Profitable hydropower portfolio

For hydropower plants in China, total installed capacity was 310GW until Aug 2019, with no new large size hydropower projects being built in China during 2019. The Hydropower insurance portfolio's profit was good in 2019, including the underwriting of both operational and construction phases with no large losses sustained.

Stable market for nuclear

At the end of September 2019, nuclear power installed capacity in China reached 48GW. 47 nuclear power reactors are in commercial operation, with technology from France, Russia, Canada, USA and China. Third generation nuclear reactors of EPR and AP1000 were all running well. There has been no record of any losses for these units during 2019. The premium rate was stable in 2019 and will be expected flat in 2020.

More interest in international operations following "One Belt, One Road"

As many Chinese power companies are merging overseas power assets following the 'One Belt One Road' strategy, Chinese insurers have provided more and more capacity for overseas Power business with Chinese interests and

[1] https://www.researchgate.net/publication/242691798_Demand-Side_Management_in_China's_Restructured_Power_Industry_How_Regulation_and_Policy_Can_Deliver_Demand-Side_Management_Benefits_to_a_Growing_Economy_and_a_Changing_Power_System

have supported these companies by providing competitive reinsurance premium rates. However, Chinese insurers lack international treaty support for Business Interruption (BI) and Terrorism risks. If BI cover is required, Chinese insurers have to obtain reinsurance support from the international market.

More appetite for non-CIA business?

For overseas power business without any Chinese interest, no more than five Chinese local insurers are able to provide capacity, given the market's internal restrictive underwriting policy. Because of a lack of treaty reinsurance treaty support, Chinese insurers maintain a conservative stance due to the limited risk situation information and the related loss control (risk management) measurements, and so write this business on a net retained basis. The premium rates offered by the international market are quite attractive compared to Chinese market local rates. At the end of the COVID-19 lock down in China, we have seen that certain Chinese insurers are actively seeking to write larger shares on non- Chinese interest abroad (CIA) business in order to maintain premium income levels.

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"As many Chinese power companies are merging overseas power assets following the 'One Belt One Road' strategy, Chinese insurers have provided more and more capacity for overseas Power business with Chinese interests and have supported these companies by providing competitive reinsurance premium rates."

Dubai (and the wider Middle East)

In 2019, much like the rest of the world, the Dubai Property market for Power risks went through a period of correction. Buyers, having enjoyed favourable conditions for many years as part of the ever-softening phase of the market cycle, had become accustomed to competitive market conditions and so continued to expect rating reductions year on year.

2019 – a seller's market

Instead, 2019 proved to be a seller's market; after several years of poor regional underwriting results, insurers had decided that rates had hit the bottom and an adjustment was needed. Underwriting guidelines were clamped down and many International leading insurers therefore were only in a position to apply technical rates. Underwriter hands were tied with the introduction of a more stringent review process, and commercial considerations began to feature less and less. As a result of this, we found that some clients that had previously enjoyed lower rates than their peers due to excellent risk management were being heavily affected, which meant that, while percentage increases were not consistent, rating levels were becoming increasingly more so.

It's only just begun...

By the end of 2019, this adjustment had only just begun in many cases, with lead Power underwriters appreciating the budgeting restraints of power companies, meaning that they were simply nudging the rates closer to technical. However, the current feeling from many international insurers is that we are not yet there; the strategy has therefore been in some cases to get back to technical levels over the next several renewal phases. This strategy not only eases buyers' pain but also bridges the gap between current conditions and the underwriting technical rate.

Shake-up in regional capacity

In terms of regional capacity, there was a degree of shake up in 2019, with Swiss Re closing their operation in the DIFC and moving the underwriting function for their MENA book back to London. LIU also moved their underwriting function for Power business back to London which suited their global strategy. ACR ceased trading in this market and moved to Singapore, while Arig Bahrain also ceased underwriting operations.

US$1.5 billion still available from the region

Despite this trend, there is still in excess of US$1.5 billion of Power capacity available from international reinsurance markets in Dubai, with AIG, Allianz, Chubb, Zurich, Axa XL, RSA, Samsung and Korean Re, together with back-

up capacity from the indigenous market; this means that regional programmes can still be comfortably fully placed in the local market. One small win for the region was that 2019 saw the introduction of the MGA Aspire UW, offering $25 million of Chinese capacity that can write non-Chinese interest abroad (CIA) excess of loss business on a follow basis.

Indigenous (re)insurers take advantage

The indigenous (re)insurance markets, being ADNIC, IGI, Oman Insurance, Kuwait Re, EIC, Africa Re, Al Koot, GIC, MISR, Al Ain Aliya, Elseco and ARMA (the last two being MGAs), that would act as follow capacity for the most part, have been taking advantage of the improved market conditions. However, we find that when they are able to lead, they can be more sensitive to commercial considerations for regional clients. ADNIC especially have become very active, writing internationally domiciled business and have taken advantage of the declining regional capacity, providing alternative quotes for many layers and in some cases quota share. They have even begun to write Gulf of Mexico natural catastrophe business on a case by case basis, preferably on an excess of loss placement. As a result, we saw an increased trend in regional client programmes going to tender during 2019; when times are tough, risk managers have to justify their roles and so we don't see this trend slowing down in 2020.

Time to redesign your programme?

Brokers are therefore required to find new ways to keep within buyers' budgeted premium spends. The norm now is for programs to be restructured and redesigned, and a global marketing strategy is required in order to retain business and finish placements. Now that premium spends are higher, there is an emphasis from international brokers to add additional value through excellent service and enhanced offering, including analytics, claims function, risk management and engineering; this development may lead to smaller local brokers being unable to compete.

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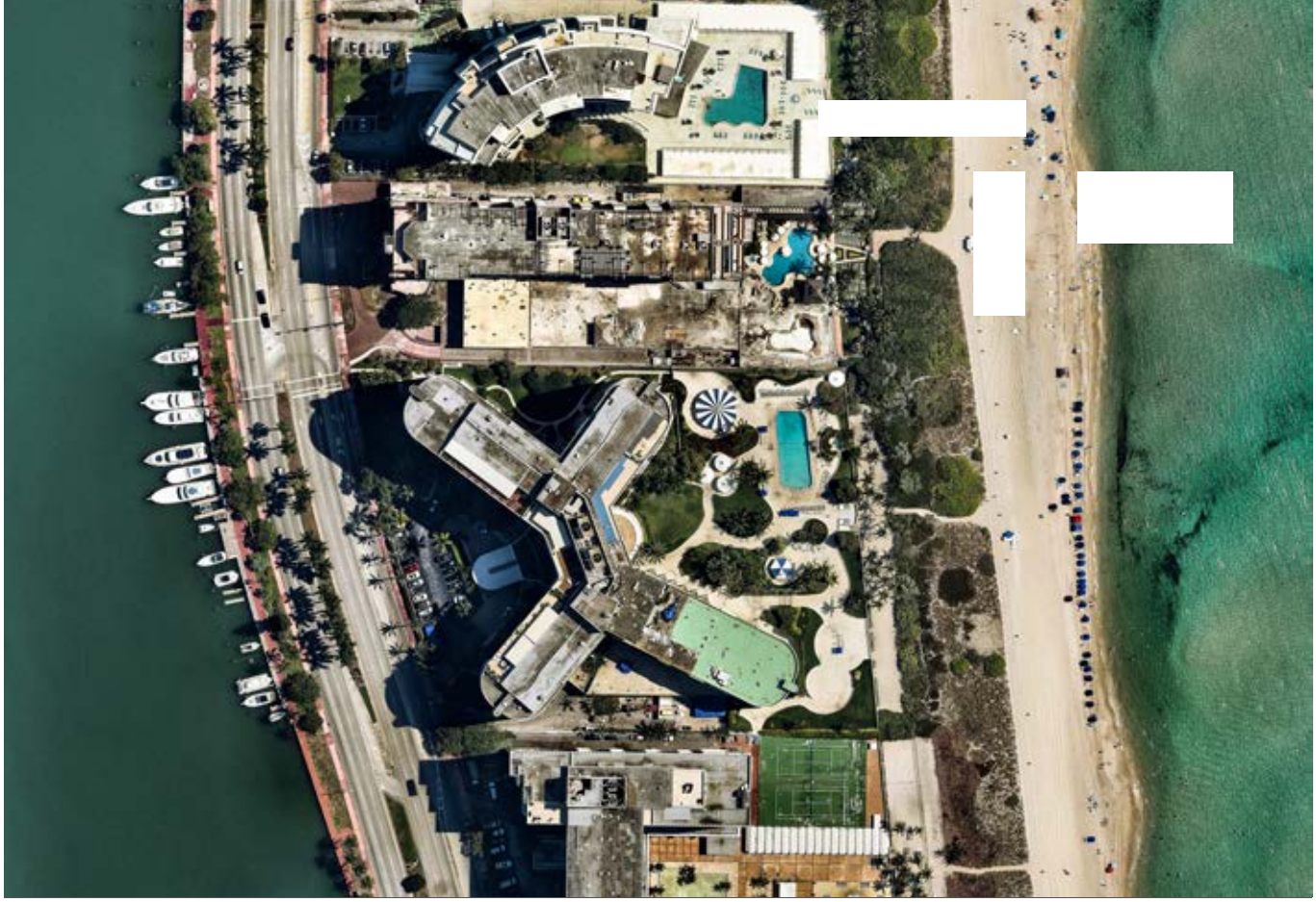

Latin America

Hydro continues to dominate

Large hydro projects have long been the dominant source of power generation in Latin America and this remains the case, even much of the attention for new capacity development has shifted to solar/wind and smaller hydro projects. Thermal power mainly gas fired, but also fuel oil and coal maintains an important part of the Power Gen mix, while gas fired projects continue to be developed.

Hardening process follows international suit

The Latin American facultative reinsurance market continues to be concentrated in Miami, with other underwriting hubs within the region itself, mainly in Brazil and Colombia. The main players remain subsidiaries of major reinsurance providers: AIG, Chubb, Munich Re, Swiss Re Corso, Swiss Re Fac, LIU, CV Starr, Allianz, Scor, AXA-XL and Hannover Re.

The Latin American Power market has started to harden substantially, following suit with the global trend. There is a tendency to decrease line sizes and focus on nat cat limits. Asian markets (especially Chinese insurers) can provide additional capacity.

Loss free programs can expect rating increases ranging from 15% to 20%. Some insurers are taking harder positions than others; a rule of thumb is that quality of underwriting information and timely preparation of the renewal submission continues to be key to any successful renewal.

Local capacity required for smaller programs

In respect of minimum capacity, some important players require a minimum project value of US$250 million. This means that for smaller stand-alone projects, local capacity will often have to be sought to complete the placement.

Market developments

Important market developments include:

- Lloyd´s is to open an office in Miami
- Office closures include Brit, Argo and Aspen Re
- All the global insurers that have deployed a coal restriction have included the Latin America region in their remit; as a result, stand-alone coal power plants in countries such as Colombia have seen an important reduction in available capacity
- Machinery Breakdown cover is being scrutinized more closely
- Low RMP diesel is being excluded by some insurers, given the recent frequency of breakdowns
- There are additional capacity restrictions for dams, for which the most significant insurers will only deploy limited capacity (usually single digit lines) and require more information than at previous renewals

Engineering

Engineering continues to play a dominant role. As any kind of power generation project has very specific technical aspects, insurers are increasingly very well informed about these aspects as they have their own engineers to follow up any technological developments. To balance this, it is therefore even more important for buyers to take advantage of their broker's in-house engineering expertise to act of their behalf as a suitable counterweight.

Business Interruption values

Due to the changing Power market environment as a result of the COVID-19-driven decrease in demand, it is of huge importance that clients obtain guidance from their brokers as to how to adapt BI values in the current environment and make sure that they remain prepared for more changes when demand for Power rebounds as the regional economy re-emerges from the current crisis.

Outlook

Further down the line in 2020, we expect the Latin America power market to continue to harden and scrutinize quality and loss experience of accounts. Challenges lie ahead, but with timely preparation, buyers should ensure that their broker is confident of continuing to provide adequate insurance solutions that are tailored to their respective power generation/distribution portfolios.

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"Due to the changing Power market environment as a result of the COVID-19-driven decrease in demand, it is of huge importance that clients obtain guidance from their brokers as to how to adapt BI values in the current environment and make sure that they remain prepared for more changes when demand for Power rebounds as the regional economy re-emerges from the current crisis."

Singapore

2019 – Asia's first glimpse into a hardening marketplace

The global insurance market experienced a devastating stream of catastrophic losses in late 2018, with the worst being the Harvey, Irma and Maria Hurricanes. According to Swiss Re's Sigma, global insured losses from disaster events in 2017 were US$144 billion, the highest ever on Sigma's records[1]. As a result, underwriters around the world received directives from insurers' head offices to increase rates to stabilize profitability. This increase was successfully achieved throughout Europe and Australia but not in Asia, due to an abundance of new capacity. In our region we were able to achieve flat renewals, especially for clients who had demonstrated excellent risk quality and where natural catastrophe exposures were minimal.

Although the 2019 global insurance markets did not experience the same devastating catastrophic losses as 2018, the total (insured and non-insured) losses from natural catastrophes reached US$150 billion last year, out of which the global insurance market insured almost a third (US$52 billion), according to Munich Re[2]. The Power Gen market was further impacted by large losses caused by machinery breakdown (gas turbines) and fires/explosions, causing significant insurance market departures. This combination triggered a steady increase in rates by all markets as the year progressed. More insurers (both small and large) reduced their capacity, closed their Power Gen portfolios and, in some instances, closed the entire offices (for example, the downgrade of Trust Re at the end of 2018 and the acquisition of ACR by Catalina Holdings and voluntarily withdrawal from rating Services of AM Best and S&P at the end of 2019).

Recent rating increases in the Asian market

The Asian Power Gen market closed off 2019 with a minimum of 7.5% to 20% rate increases on well-managed loss-free risks without natural catastrophe exposure. However, the upward momentum of market correction has continued into 2020; first quarter renewals this year have been challenging and difficult to complete for programmes without adequate rate increases. Insurers have grown stricter in their requirement of adequate rate increases and are holding back their capacity in pursuit of opportunities with pricing that meet their minimum requirements.

Impact of COVID-19

Many of the challenges met in 2020 so far have generally been in line with expectations; however, the COVID-19 crisis has been entirely unprecedented. Fortunately, the Power Gen industry is viewed as an essential service, so we are not seeing the same impact on this sector as others such as Aviation, Hospitality, Travel and Events.

Although power plants may have experienced operational restraints caused by restrictions of number of people on site (i.e. split team arrangements), it has not brought operations to a standstill as the industry is necessary to keep powering the countries. The COVID-19 impact on the Power Gen industry has been largely felt by Contingent Business Interruption (CBI) losses as a result of closure by government authorities and prevention of access. This impact on the Power Gen industry has been reasonably manageable for buyers and insurers for the time being; instead we are seeing a larger impact on power plant projects under and/or due for construction as a result of scheduling restraints and massive delays.

[1] https://www.researchgate.net/publication/242691798_Demand-Side_Management_in_China's_Restructured_Power_Industry_How_Regulation_and_Policy_Can_Deliver_Demand-Side_Management_Benefits_to_a_Growing_Economy_and_a_Changing_Power_System
[2] https://www.munichre.com/en/company/media-relations/media-information-and-corporate-news/media-information/2020/causing-billions-in-losses-dominate-nat-cat-picture-2019.html

If there are losses suffered by either operational or construction power projects during this period, the COVID-19 restrictions will have a much larger impact as they cause significant delays in timelines. These delays may start with the deferred arrival of loss adjusters on site, which may then escalate further by triggering a domino effect on later works such as transportation and installation. The result of this domino effect could lead to increasingly significant BI claims as these timelines continue to be delayed.

Responding to the crisis, insurer management now have strict requirements for their underwriters to exclude cover across all lines of business. While the LMA 5393 Communicable Disease exclusion is the clause being used most often, many key insurers are strictly imposing insurer-specific forms of wording for COVID-19 and/or Communicable Disease exclusion. As in the case of similar crises in previous years which have led to standard Asbestos Exclusion, Nuclear Exclusion and War Exclusions, we should not be surprised to see a standard exclusion as a result of COVID-19 being imposed after this crisis.

Outlook for rest of 2020

At the time of writing, midway through Q2-2020, we are seeing a continuation of similar premium expectations where well-managed loss free risks without natural catastrophe exposure require a minimum of 10% to 25% rate increases. Loss-free risks that have natural catastrophe exposure require a further 15% to 30% increases as a result of large natural catastrophe losses that have driven up pricing levels substantially. Risks affected by smaller losses are seeing increases ranging from 15% to 50% and anywhere up 100% and even 200% if impacted by larger losses, depending on the power plants' risk management and exposure to natural catastrophe. The majority of insurers have strict instructions from their senior management not to accept long-term agreements in preparation for these impending rate increases. The only exceptions made are those long-term agreements that have adequate rate increases built into them, with break and review.

Market capacity for coal continues to shrink

Owners of conventional coal powered plants will see an even more stringent market environment in 2020 than the general Power Gen industry. The ever-increasing departure of significant coal market leaders and shrinkage of international capacity has left behind a vacuum that is driving a much more aggressive rate increase and reduction of cover. Coal plants, which require full limit cover, will pay much higher premiums for the limited capacity available. The high value natural catastrophe cover, which was available in the past, is now significantly reduced due to these strict coal restrictions and what is available is being priced upwards accordingly. As the "Extinction Rebellion" movement continues to add pressures on our remaining insurers to shrink their coal appetite, it will become increasingly difficult to complete large placements, even at the higher prices. It is therefore more important than ever for coal plants and mines to engage with their brokers and insurers early to develop alternative insurance solutions.

Conclusion: differentiation is key to sustainable insurance solutions

The insurance market is now income-driven rather than capacity-driven, and underwriters are focusing on bottom line. Current market rates are considered unsustainable and insurers are willing to walk away from programmes that are seen to be unprofitable. There is a greater focus on risk quality; it is therefore even more critical for power plant owners to provide more detailed underwriting information to set themselves apart. Through their brokers, buyers should engage closely with their insurers to demonstrate commitment and drive towards long-term growth with each other. At the same time, differentiation is encouraged through the implementation of valuable risk advisory services provided by internationally recognized broker engineers and insurers, to achieve an improved risk profile and, ultimately, a better result for buyers in respect of insurance terms and coverages.

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