

ESG: transforming energy's risk landscape

Energy Market Review 2020





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Table of contents

Introduction..... 2

Part one – ESG risk management implications for the energy industry

ESG, climate change and the energy risk landscape: a transformation in the making 6

Enhancing your ESG response: the strategic role of the risk manager 23

ESG: an energy industry perspective from the Canadian oil sands..... 31

Part two – risk management issues

Multi-risk optimisation: an approach to hardening insurance markets..... 46

Geopolitical risk: dealing with Newton's Third Law in the energy sector 51

Drones: dangerous or beneficial?..... 57

Seeing the value: why accurate valuations are critical for energy risk managers 61

Oil Insurance Limited: an excellent underwriting year..... 64

Part three – the Energy insurance markets in 2020

Convex's Paul Brand: London's still the place to deal with complex energy risks..... 68

Zurich's Ben Kinder: how to differentiate yourself in today's Liability insurance market..... 73

Upstream: artificial management "floor" keeps rating levels stable..... 78

Downstream: unenviable choices as the hardening continues..... 91

Liabilities: the hard market has truly arrived..... 103

Construction & Engineering: unprecedented times..... 110

Terrorism & Political Violence: a shift in focus..... 113

International round up: a centralisation of underwriting authority..... 115

Market Capacity Figures

The figures quoted in this Review are obtained from individual insurers as part of an annual review conducted in January each year. They are solicited from the insurance markets on the basis of securing their maximum theoretical capacity in US\$ for any one risk. Although of course this capacity is offered to all buyers and their brokers, the individual capacity figures for each insurer provided to us are confidential and remain the intellectual property of Willis Towers Watson.

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:

ESG Environmental Social Governance

PD Physical Damage

BI Business Interruption

OEE Operators Extra Expense

LNG Liquefied Natural Gas

PMD Performance Management Directorate

S&P Standard & Poor's

Introduction

Welcome to our Energy 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.

As societies adapt their ways of life to cope with this virus, I'm sure you will understand that it is a little premature at this stage to comment on the long-term effects of COVID-19 for either the insurance and energy industries. However, I can advise that Willis Towers Watson has a special page on our website devoted to COVID-19¹ 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.

To cap it all, the energy industry is already reeling from an oil price war which we very much hope will be short term in nature. The cost of crude has fallen to lows not seen for almost two decades as Russia and Saudi Arabia slashed prices and ramped up production in a fight for market share. There are now emerging signs of a price war truce, as the OPEC+ producers agree to re-enter talks to stabilise production.

Be that as it may, the effects of this price war on the energy industry are obvious; reduced capital expenditure, a reduction of exploration and production activities, lower refining margins, lower BI valuations. And, of course, this will have a knock-on effect on premium income levels for an insurance market that remains unprofitable for most lines of business other than Upstream, where even in this market premium income levels remain well below historic norms.

This being said, there is no doubt the world will eventually recover from COVID-19 and the energy industry will recover from the oil price war. But there is one issue that is here to stay on a permanent basis and that is climate change, and the transformed risk landscape that now confronts the energy industry. It's our theme for this year, because 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.

We have therefore dedicated the first part of the Review to the issue of Environmental Social Governance (ESG) and the risk management implications for the energy industry. In my view, ESG is rapidly becoming the single most important business driver of the decade, not just for the energy industry but for business and commerce in general. Margaret-Ann Splawn, who is a climate policy finance and investment consultant, sets the scene with a detailed analysis of how ESG is transforming the energy industry risk landscape; our experts from the Willis Research Network then show how energy risk managers have a vital strategic role to play in quantifying climate change risk, as well as improving their company's ESG footprint. Finally in this section we include an outstanding article written by Michele Waters of Cenovus who sets out how her company is responding to its own ESG challenges.

From an energy insurance market perspective, there is no denying that the last 12 months have been challenging ones for the energy industry and their brokers. The underlying market dynamics which have led to today's hardening market conditions and which 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.

However, it continues to be a tale of two markets. To sum up:

- **Capacity:** once again the Upstream market has bucked the general market trend, as theoretical amounts are now at another record level, US\$8.730 billion, from US\$8.100 billion in 2019. The reverse is true, however, for Downstream, where capacity has declined for the second successive year, down to US\$5.978 billion from last year's US\$6.428 billion. Moreover, these theoretical figures tell only half the story; insurers are increasingly being forced to adhere to maximum percentage line sizes to satisfy their reinsurance treaty requirements.

- **Losses:** the extraordinary run of benign loss years in Upstream continues, with only three losses in excess of US\$100 million during 2019. Again, the Downstream market figures could hardly be more contrary; once again a significant number of losses over US\$100 million were recorded by our database for 2019, with one major loss significantly above US\$1 billion.
- **Rating levels:** If it was not for the almost universal insistence by insurer management that no reductions can be countenanced by their underwriters, it is our view that the Upstream market would already be re-softening. As it is, rating increases are still very modest (2.5-5% on average) compared to Downstream, with increases well in excess of 20% for virtually every type of programme, and significantly more for refinery and petrochemical business. The Liability portfolios, both North America and International, have been similarly impacted.
- **Profitability:** The Upstream market remains profitable in overall terms, but we do have a couple of caveats: premium income levels are still low by historical standards, and certain sub-sectors of the Upstream market such as Offshore Construction, have been hit by attritional losses. For Downstream and Liability insurers, their portfolios remain firmly in the red and the long road back to profitability looks rocky indeed.

Finally, we are delighted that Convex's Paul Brand and Zurich's Ben Kinder have agreed to talk to us about the challenges they both face in their respective senior underwriting roles and hope that their interviews in this edition of the Review provide an opportunity for our readers to gain a deeper insight into underwriters' minds at this challenging time in the market cycle.

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



Graham Knight is Head of Global Natural Resources, Willis Towers Watson.

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



Part one -
ESG risk management
implications for the energy industry



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

Introduction: why the energy 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 energy 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 energy companies, their stakeholders and other corporates around the world used to be based purely on profit. Indeed, the financial meltdown of 2008 has been blamed by many on both corporate greed and government incompetence; both government officials and Wall Street executives are said to have ignored warning signs and failed to manage the risk properly.

Now in 2020, it is becoming increasingly apparent that, as well as profit, ESG ratings are also going to be an important driver for energy industry stakeholders - lenders, insurers, shareholders, regulators – and even consumers. Indeed, it’s likely that the money will increasingly follow those energy companies with the highest proven ESG credentials. Fundamentally, don’t forget that 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 energy 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 energy businesses have to have a significant ESG footprint.

Is ESG climate change’s “Lady Luck”?

Luck is what happens when preparation meets opportunity, said Seneca. The world needs some luck right now because to me it feels like governments, policy makers and businesses – including some from the energy industry - are gambling with it in their response to the issue of climate risk.

I would suggest that the climate crisis today – and the lack of preparation for it across the globe - smacks of the incompetence of managing the risks that led up to the 2008 financial crisis. Back then it was up close and personal, as I traded credit default swaps for the number one rated interdealer broker at the time.

The gap between the science of climate change and the underwhelming policy and business response grows larger as the world heats up. It’s a gamble - I grew up in Las Vegas, so I know that the house always wins.

However, it’s my view that “Lady Luck” is showing up - in the form of the increasing profile of ESG criteria. It’s gaining impact, traction and momentum. Increasingly, ESG

criteria and investment are becoming business imperatives as well as decision-making tools. You can’t manage what you can’t measure, and you should see this as the first ripple from the stone that has been dropped into the water. The financial markets don’t want a repeat of 2008 and want to know you’re managing your risks effectively.

Today, the climate crisis is close to me as I consult with various businesses, governments and organisations on climate policy, finance and investment. This article is my personal view on the changing risk landscape facing the energy industry.

For some businesses, it’s easy enough to transition; however for the energy industry, with such a heavy carbon-intensive footprint, it’s going to be a whole lot harder, despite the huge opportunities being created in clean energy. Already, investors are now challenging companies’ spending on new fossil fuel production more frequently and are increasingly using their voting power to demand action.

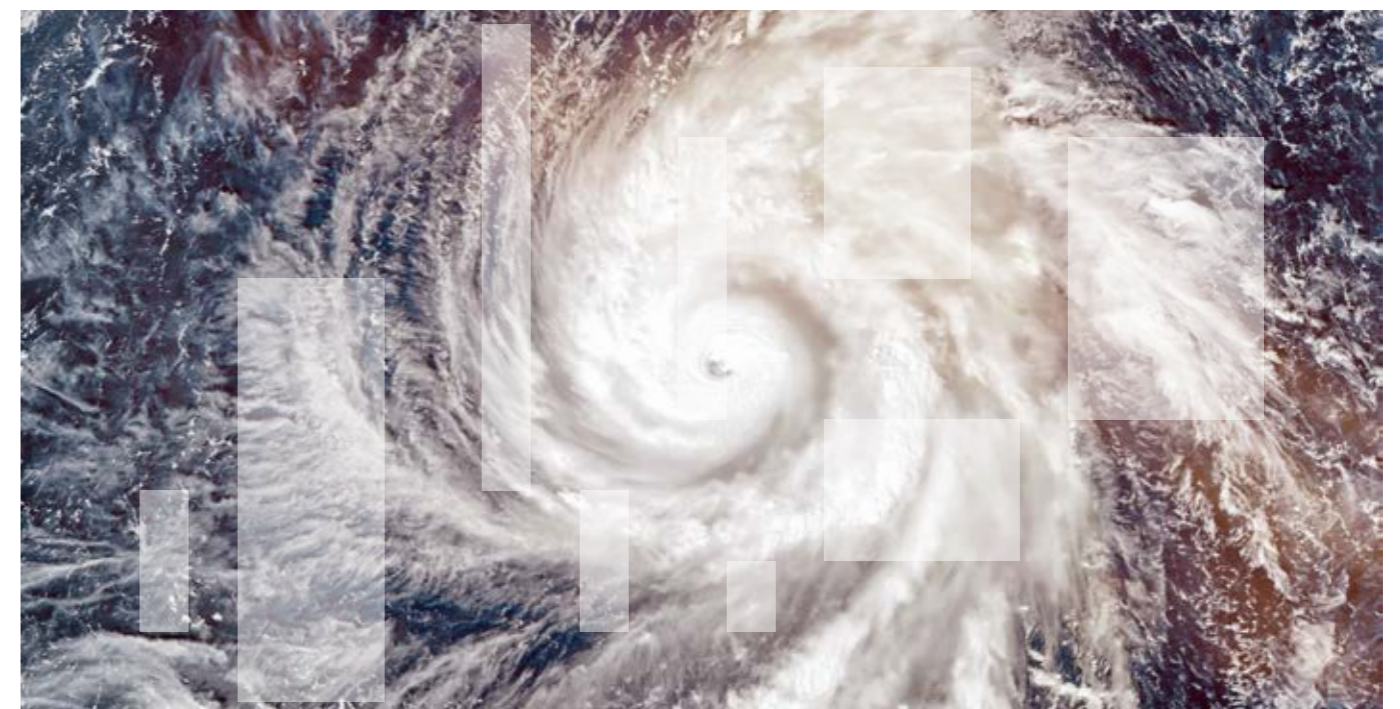
It follows that prudent risk management is at the heart of managing this transition – both now and in the long-term future. But to what extent has the energy industry begun to quantify its exposure to climate risk?

The purpose of this article is to provide an overview of developments that will impact the energy industry across the globe. It will discuss the gap between the science and policy response to climate change; it will examine the

response of regulators, lenders and investors. Finally, it will provide a high-level summary of the consequences for the energy industry as the world shoehorns ESG into strategy, business and investment decisions.

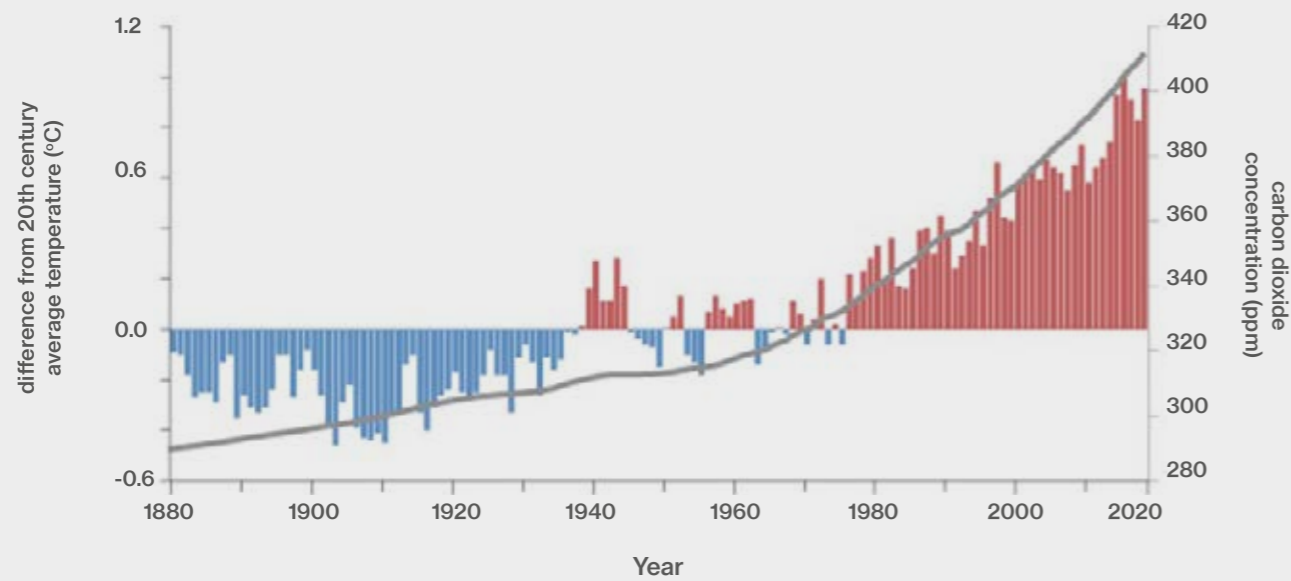
IPCC: who they are and what they do

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/research/Lexicon/Term?term=ESG>

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

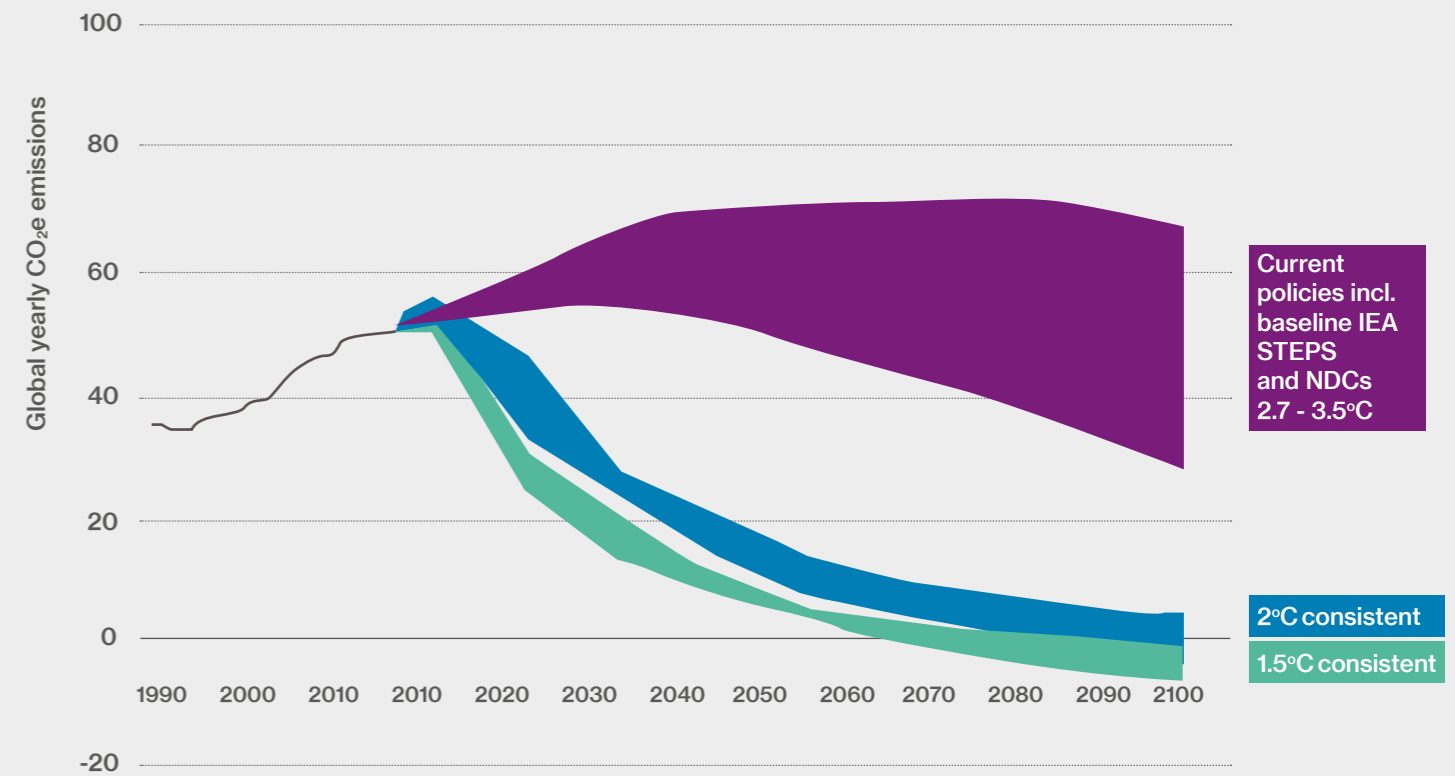
What the science is telling us

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.

In my view, 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 setting: current policies fail to get even close to 2 degrees, let alone the Paris Agreement ambition of well below 2 degrees



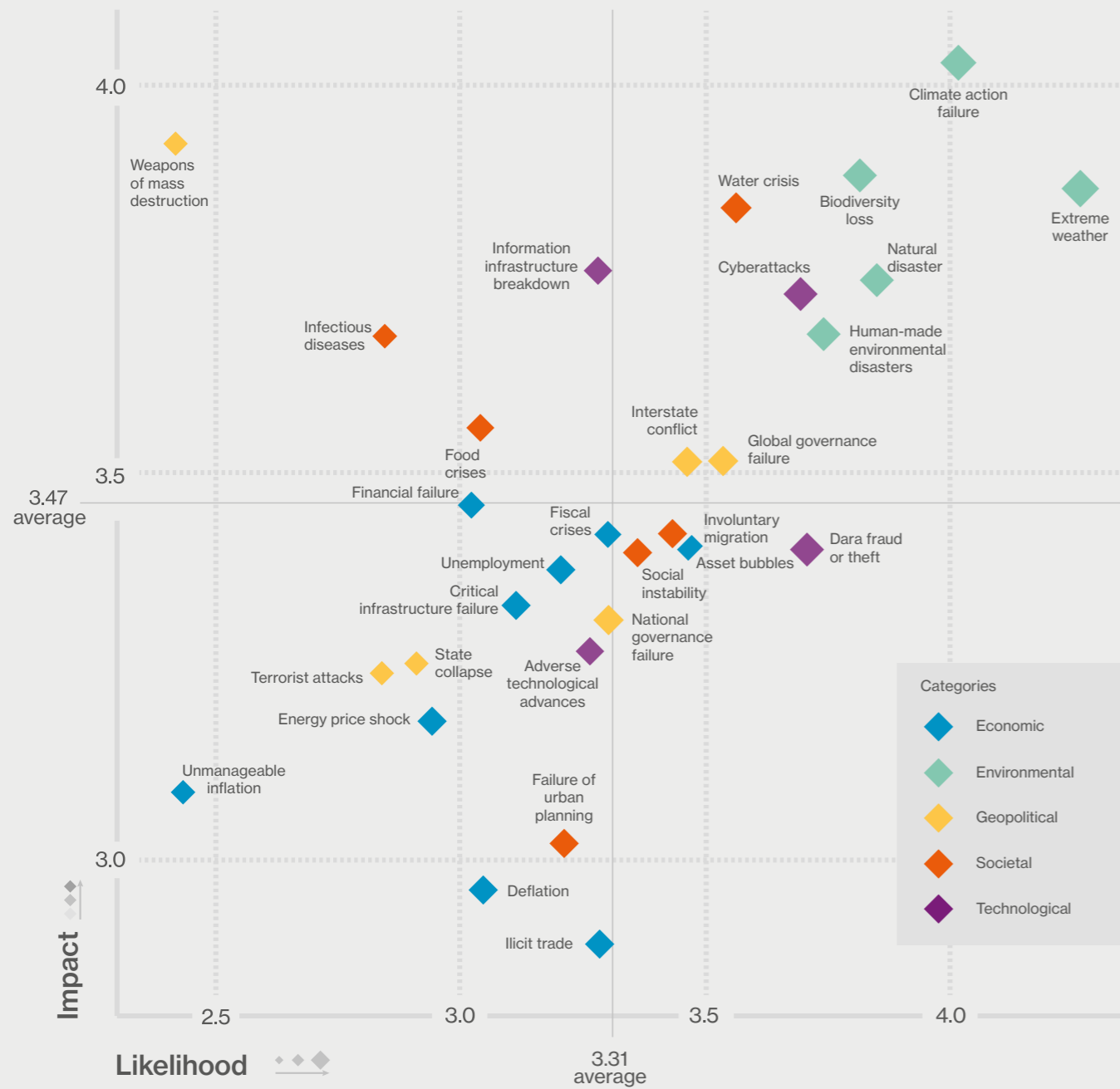
Source: Climate Action Tracker, Dec 2018 update
<https://www.unpri.org/download?ac=9833>

In 2018, the IPCC produced a special report on Global Warming of 1.5°C². 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.

Figure 2 above shows where global current policies are versus where we need to be for a 1.5°C or 2°C scenario. IEA is the International Energy Agency and NDCs are Nationally Determined Contributions, which are countries' material climate commitments.

² <https://www.ipcc.ch/sr15/>

Fig 3: 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

The effect on the energy industry 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 counterparty risk. There is now a sharper focus on environmental threats over the next ten years, and energy 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 3 on the previous page – remember this is a survey asking them what issues are crossing their desks.

In summary: business and finance leaders know that the likelihood and impact of environmental threats to the energy industry 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 energy industry. Let's discuss each in turn.

“There is now a sharper focus on environmental threats over the next ten years, and energy industry leaders know it.”



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 Texas oil company is worried about hurricanes; an energy company in California has to manage droughts; permafrost melting and potential

methane releases are concerns if you are conducting Exploration & Production operations in the Arctic. The concept of prudent expenditure is relevant to forecast normal operating conditions but it's difficult to create an expenditure forecast assessment for extreme weather events; 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.

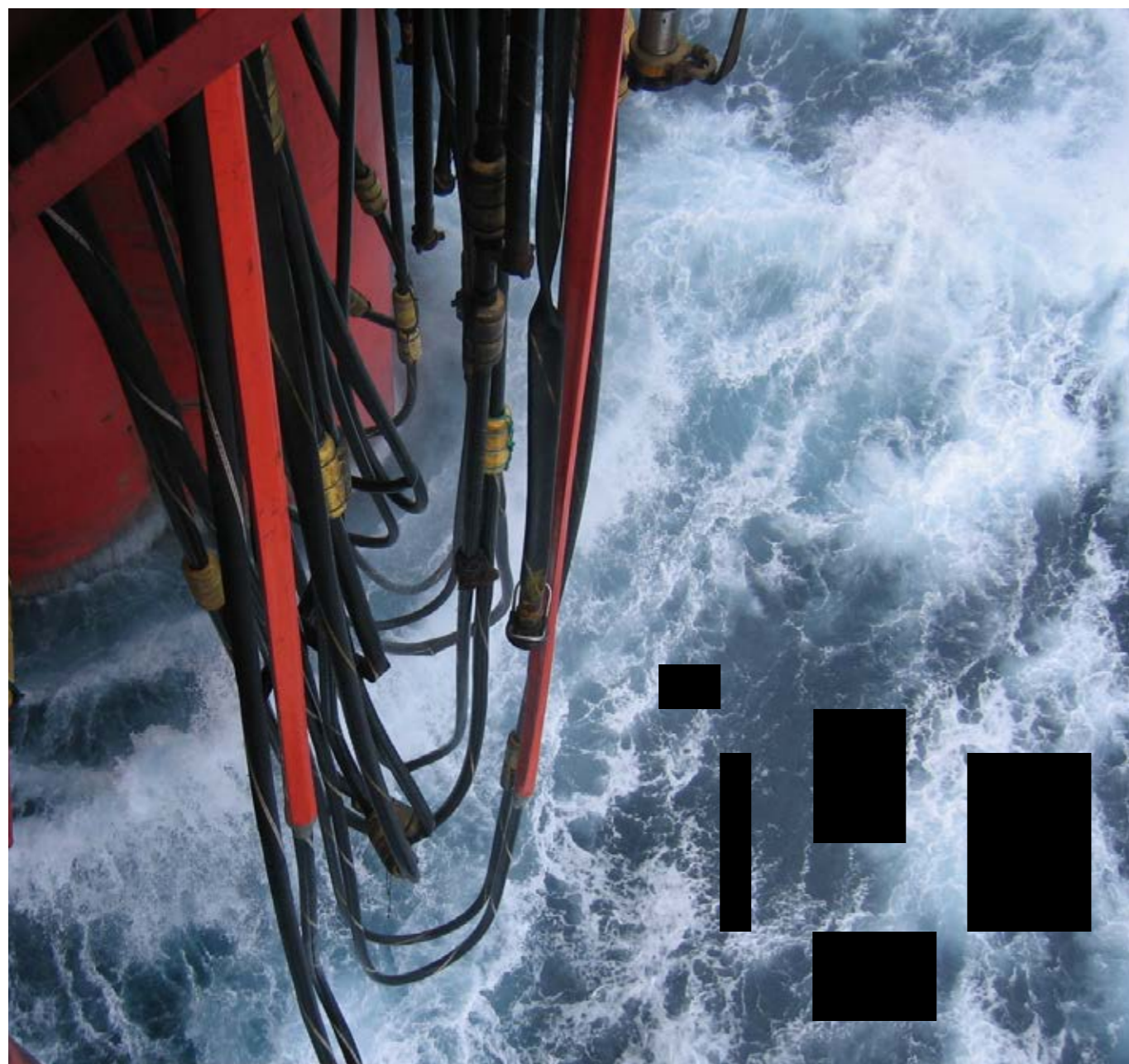
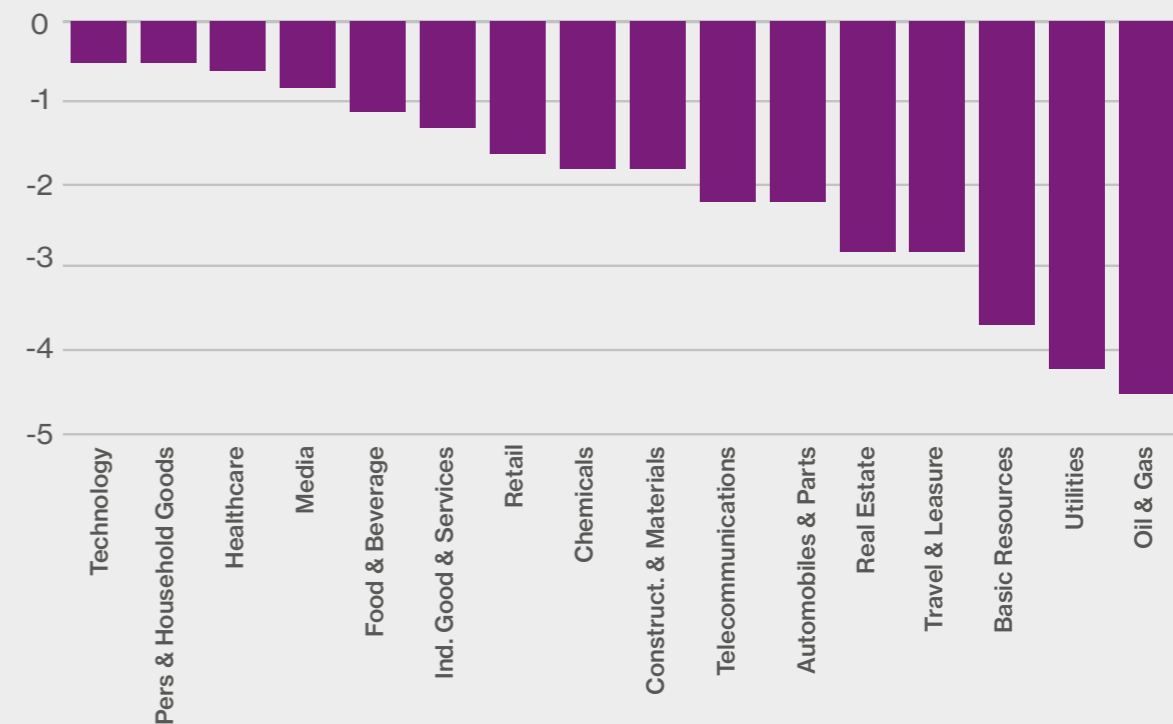


Fig 4: Adjustment of companies' total value for physical climate risks (%)



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 available 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)

Business Interruption

The energy industry will also face an increasing number of Business Interruption (BI) scenarios and environmental issues such as pollution or pipeline spills, are often overlooked according to the Allianz Risk Barometer 2019.³

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 4 above.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/>

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. For example, it's been estimated that fossil fuel companies risk wasting \$1.6 trillion of expenditure by 2025 if they base their business on emissions policies already announced by governments instead of basing it on international climate goals.⁶ Creating an effective climate risk mitigation plan is proving difficult for the energy industry, but it is not impossible.

The elephant in the room: burning fossil fuels

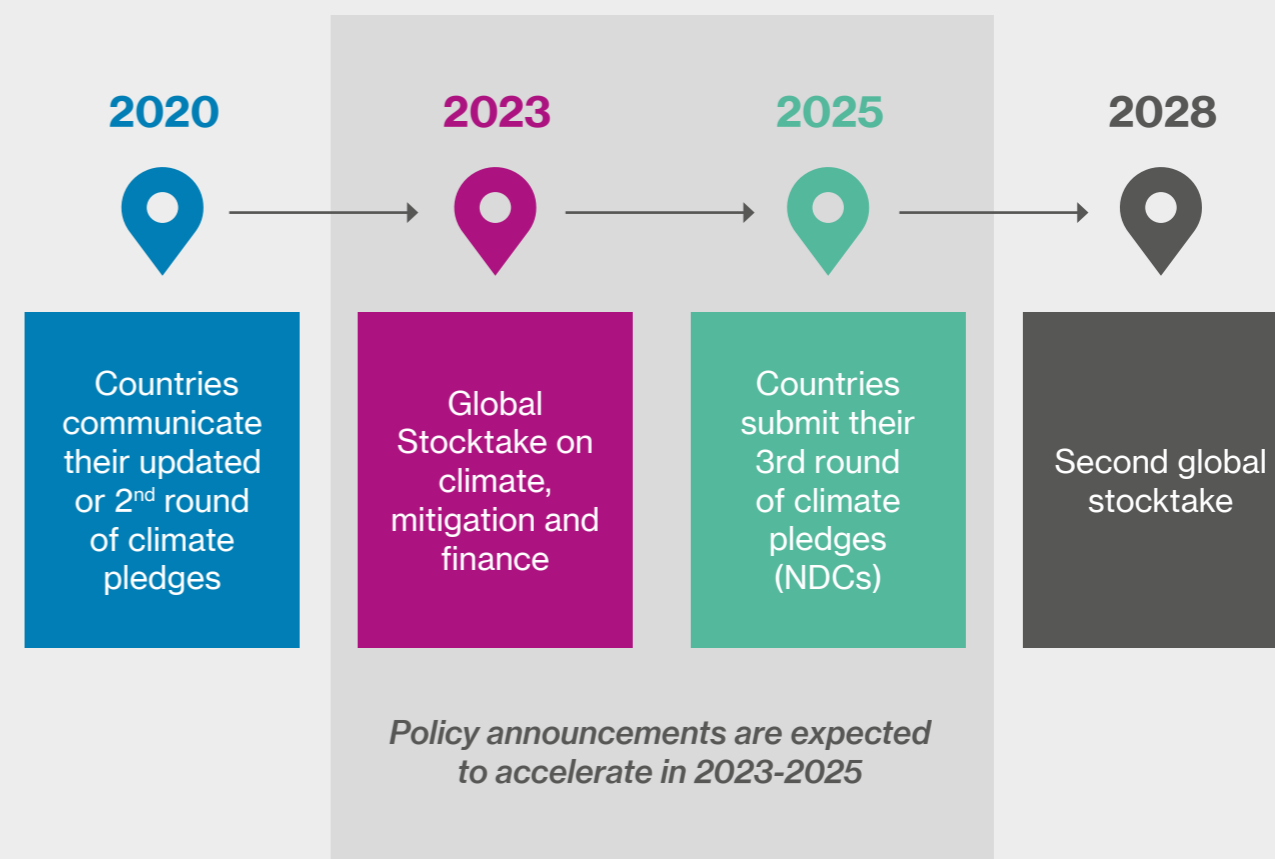
Furthermore, there is now a major elephant in the room: energy companies are still figuring out how their current business models, based on burning fossil fuels, can be transitioned for a more sustainable and Paris Agreement-compliant, low carbon world.

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 CO₂. This means that oil and gas companies have a “double whammy”; they need to invest heavily in new fields while their traditional revenues and margins are under pressure.

Upstream extraction is becoming more and more expensive, while renewables are becoming more price competitive due to both subsidies and technological innovation. “The advantages of speed and convenience enjoyed by the oil industry today are time-limited...and will be subject to fierce competition from a cheaper, cleaner fuel source” said BNP Paribas Mark Lewis in his Wells, Wires and Wheels report.⁷ Former Governor of the Bank of England Mark Carney took it a step further when he recently told the UK's Channel 4 news: “Companies that don't adapt, including companies in the financial system, will go bankrupt, without question.”⁸



Fig 5: The Paris Agreement's “ratchet mechanism” increases the likelihood that governments will strengthen policy by 2025



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

Oil and gas companies cannot pivot their business models easily. Hydrogen is being presented as a potential game changer for oil and gas companies as natural gas contains methane (CH₄) that can be used to produce hydrogen but the integration of it into the world's energy systems is complicated and will require new infrastructure. 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 in Figure 5 above, the task is will only become more challenging as policy continues to tighten.

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.

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

⁶ <https://www.carbontracker.org/energy-firms-risk-wasting-1-6-trillion-ignoring-low-carbon-transition/>

⁷ <https://docfinder.bnpparibas-am.com/api/files/1094E5B9-2FAA-47A3-805D-EF65EAD09A7F>

⁸ <https://www.channel4.com/news/mark-carney-capitalism-is-part-of-the-solution-to-tackling-climate-change>

Part 3: liability risk

Fossil fuel companies are already facing the physical and transitional risks of climate change and now they have to confront a third in the form of liability lawsuits.

The Center for International Environmental Law took a comprehensive synthesis of the available evidence, then evaluated and concluded that major carbon producers can and should be held accountable for climate impacts in their 2017 report entitled *Smoke and Fumes: The Legal and Evidentiary Basis for Holding Big Oil Accountable for the Climate Crisis*⁹. There are a growing number of legal cases in the US by cities and local governments that draws attention to coastal communities who are vulnerable to extreme weather and sea level rise¹⁰. They are seeking damage from several major oil companies for damage to infrastructure, roads and rising tides.

“There are a growing number of legal cases in the US by cities and local governments that draws attention to coastal communities who are vulnerable to extreme weather and sea level rise.”



New litigation is using science-based evidence

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 rise¹¹. “The industry has profited from the manufacture of fossil fuels but has not had to absorb the economic costs of the consequences; the companies are now being called to account for their conduct and the damages from that conduct”, says Harold Koh, a professor in international law at Yale Law School¹².

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 action¹³. 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 behaviour¹⁴.

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:

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

⁹ <https://www.ciel.org/reports/smoke-and-fumes/>

¹⁰ <https://www.reuters.com/article/us-oil-climatechange-rhode-island/rhode-island-sues-major-oil-companies-over-climate-change-idUSKBN1JS28M>

¹¹ <https://insideclimatenews.org/news/04042018/climate-change-fossil-fuel-company-lawsuits-timeline-exxon-children-california-cities-attorney-general>

¹² <https://insideclimatenews.org/news/04042018/climate-change-fossil-fuel-company-lawsuits-timeline-exxon-children-california-cities-attorney-general>

¹³ <http://www.lse.ac.uk/GranthamInstitute/publication/global-trends-in-climate-change-litigation-2019-snapshot/>

¹⁴ <https://climate-laws.org/>

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.”¹⁵ 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 private sector led Task Force on Climate-related Financial Disclosure (TCFD), is now widely endorsed by more than 1,000 companies, financial firms, governments and other organisations. It sets out recommendations designed to help companies disclose decision-useful information about their exposure to climate change.

The TCFD is generally voluntary, although climate disclosure has become mandatory in France, and financial regulators around the world have it on their agendas and are considering their options. 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 and it integrates the recommendations of the TCFD.

The UK has gone a step further with their first Green Finance Strategy released in July last year that will require finance to be linked to sustainable and resilient growth and some calls for climate reporting to potentially become mandatory in the UK by 2022. But legislation for mandatory disclosure is not the only way to go to drive change; indeed, Mark Carney has discussed creating pathways to make TCFD mandatory, for example through securities regulation disclosure standards or listing requirements¹⁶.

“How do you take decisions when faced with the uncertainty of climate change, knowing that your data is incomplete?”

Increasing action by investors and the banking sector

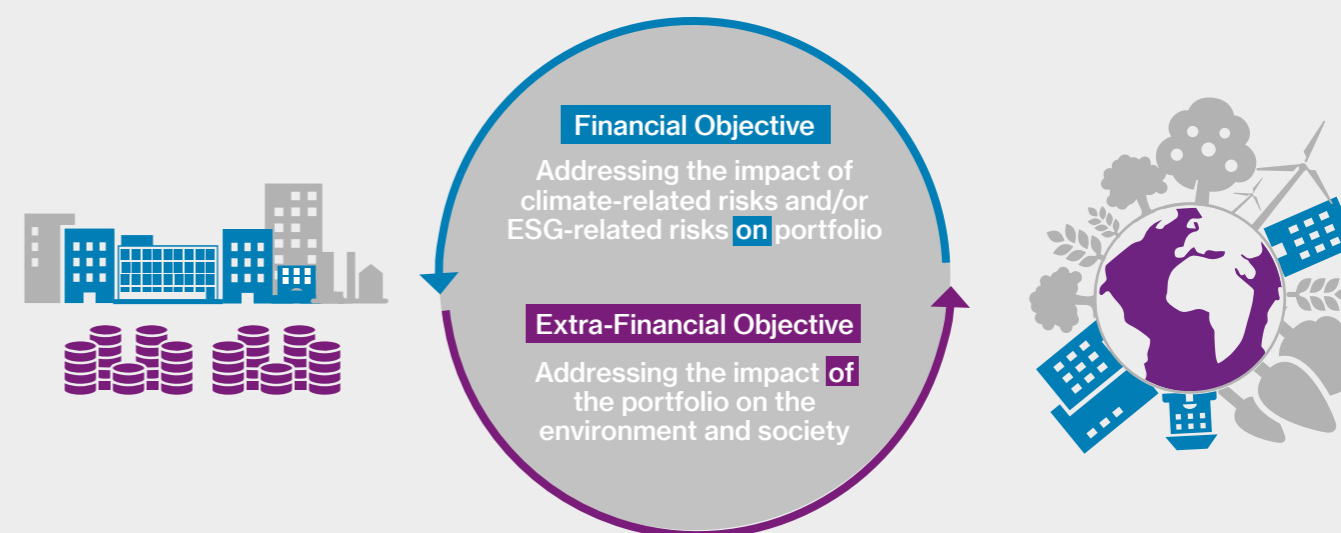
During 2016 to 2018 ESG investment grew 34%, representing \$30.7 trillion in assets, according to the Global Sustainable Investment Alliance.¹⁷ The growth of sustainable and ethical investing continues to rise, with new funds being developed alongside ESG products and services. The overall rationale 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. This view points to one of the reasons why the TCFD is supported by so many organisations; while it can be hard to compare and verify the claims of disclosure, agreeing a common set of global reference points on climate-related disclosures is one of the steps to helping investors allocate capital more effectively.

Shareholders are increasingly aware of the influence financial institutions have in the energy transition. Investor led initiatives, such as the Principles for Responsible Investment with investors representing over \$80 trillion in assets, look to hold investee companies accountable to failures in embedding ESG into investment. Investors are increasingly putting pressure on banks to end the financing of fossil fuels and some banks are responding with targets. For example, BNP Paribas is looking to phase out all financing to the outstanding loans to companies related to thermal coal by 2030 in the EU and 2040 for the rest of the world¹⁸.

Boston Common Asset Management, a leader in global sustainability initiatives, says that more action needs to be taken by banks as fossil fuel producers will become worse credit risks since their business models are not fit for the future.¹⁹ Continuing to lend to fossil fuel producers puts more credit risk onto bank balance sheets; it leaves them exposed to potential stranded assets and defaults.

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.

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 society²²

Source: <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. The Bank for International Settlements released a paper in January of this year of the role of central banks in relation to climate-related risks and included what they call “Green Swan” risks, defined as “potentially extremely financially disruptive events that could be behind the next systemic financial crisis”.²⁰

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 63 members and 12 observers across five continents²¹. 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. This is the chance to get ahead of the game.

¹⁵ <https://twitter.com/mikebloomberg/status/425738442803511296?lang=en>

¹⁶ <https://uk.reuters.com/article/us-climate-change-boe-carney-interview/carney-says-business-must-come-clean-quickly-on-climate-idUKKBN2080TU>

¹⁷ http://www.gsi-alliance.org/wp-content/uploads/2019/06/GSIR_Review2018F.pdf

¹⁸ <https://www.petroleum-economist.com/articles/corporate/sustainability/2020/financial-institutions-go-green>

¹⁹ <http://news.bostoncommonasset.com/wp-content/uploads/2019/11/Banking-on-a-Low-Carbon-Future-2019-11.pdf>

²⁰ <https://www.bis.org/publ/othp31.pdf>

²¹ <https://www.ngfs.net/en/about-us/membership>

²² <https://www.ngfs.net/sites/default/files/medias/documents/ngfs-a-sustainable-and-responsible-investment-guide.pdf>



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 released a discussion paper in December 2019, with the objective 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 This includes a wider scope of stress testing, broader participation, extended modelling horizon, integrated climate and macro financial variables and counterparty-level modelling expectations. 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.

Conclusion: consequences for the energy industry

Physical and transition risk

The costs of physical impacts and business disruptions can be considerable and the transition risk of physical assets becoming stranded is a real concern. Oil and gas companies are risking \$2.2 trillion in stranded assets by 2030, yet virtually every oil major is betting against a 1.5°C world and they continue to invest in projects that are contrary to the Paris Agreement, warns a 2018 report from think tank Carbon Tracker²⁴.

If this is combined with governments taking a tougher stance on carbon emissions, it can be seen that the energy industry is faced with paying for their carbon externality while holding onto the soon to be obsolete assets that are generating them. 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 economy²⁵.

What is becoming evident is that climate risk is not fully priced into the portfolios of banks, investors and pensions and this is alarming. Governments are not acting forcefully enough on climate change as their policy action is insufficient to drive significant change; fossil fuel subsidies actually increased half a trillion from 2015 to 2017, according to an International Monetary Fund report²⁶, and the Paris Agreement’s ‘ratchet mechanism’ means that policy announcements are likely to happen, starting in 2023 with the Global Stocktake.

The financial consequences on the value of oil and gas companies in the future points to them being negatively impacted by these upcoming low carbon policy measures. The global financial system and the energy industry must make a faster shift towards the alignment of climate security and sustainable development.

Liability risk

Climate change litigation continues to see a rise in the number of cases and geographic expansion, including in low and middle-income countries²⁷. While establishing a causal link between a place-based source of emissions and climate damages can be difficult, new cases are using science as evidence. This growing trend of litigation cases against energy companies has just got started and the financial, plus 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.

“What is becoming evident is that climate risk is not fully priced into the portfolios of banks, investors and pensions and this is alarming.”

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://carbontracker.org/oil-and-gas-companies-approve-50-billion-of-major-projects-that-undermine-climate-targets-and-risk-shareholder-returns/>

²⁵ https://www.oliverwyman.com/content/dam/oliver-wyman/v2/publications/2019/feb/Oliver_Wyman_Climate_Change_Managing_a_New_Financial_Risk1.pdf

²⁶ <https://www.imf.org/en/Publications/WP/Issues/2019/05/02/Global-Fossil-Fuel-Subsidies-Remain-Large-An-Update-Based-on-Country-Level-Estimates-46509>

²⁷ <http://www.lse.ac.uk/GranthamInstitute/publication/global-trends-in-climate-change-litigation-2019-snapshot/>

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. It also presents the energy industry with opportunities to adapt and modify their business models. Low carbon growth could deliver economic benefits of \$27 trillion by 2030 compared to business as usual, according to a New Climate Economy report²⁸; this means opportunities for the energy sector too. However, each passing year of inaction increases the risks of unabated climate change and propels us towards the subsequent economic, societal and fiscal shocks on the horizon.

Transitioning to a zero-carbon economy for the energy industry is extremely complex, with lots of moving parts. ESG criteria, investing, standards and reporting just might be our “Lady Luck” to save us from the greed of the 2008 global crisis but it’s my view that 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.

To conclude: as stated at the beginning of this article, prudent risk management is at the heart of this piece. For energy companies to remain going concerns 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 energy risk landscape.



Margaret-Ann Splawn is a climate policy, finance and investment consultant. She is a member of the Energy, Sustainability & Climate taskforce of the B20, the official G20 dialogue with business and Active Private Sector Observer for developed nations at the UN Green Climate Fund.



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 Davos¹.

Doing nothing is not a viable option, particularly in the energy 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.

The strategic role of the risk manager

The good news is that risk managers can be proactive in response to 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 a changing climate over many decades. As we explain in this article, there’s never been a better time for risk managers to bring together a system-wide perspective and play a critical strategic role in guiding the Board’s response and pivot from risk to opportunity.

²⁸ https://newclimateeconomy.report/2018/wp-content/uploads/sites/6/2018/09/NCE_2018_FULL-REPORT.pdf

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 risks², or the Chairman and CEO of Black Rock discussing climate risk and referring to a fundamental reshaping of finance³, 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 energy 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.

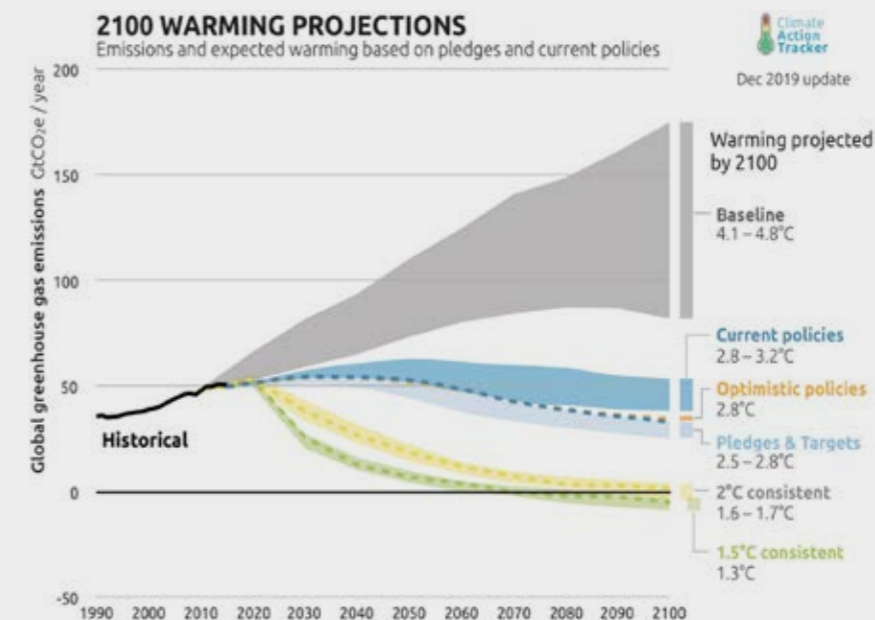
“There’s never been a better time for risk managers to bring together a system-wide perspective and play a critical strategic role in guiding the Board’s response and pivot from risk to opportunity.”



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 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) report⁴, 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 (CO₂), 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 (interglacials, such as our pre-industrial climate). In fact, palaeoclimatological evidence shows that the last time CO₂ 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. CO₂ 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 changing⁵.

The rapid increase in CO₂ 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 world⁶.

⁴ <https://www.ipcc.ch/sr15/>

⁵ <https://www.climate.gov/news-features/understanding-climate/climate-change-atmospheric-carbon-dioxide>

⁶ 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 2015⁷, 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 energy 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 last⁸.

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 an energy company understand its 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 energy 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.

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 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.

“These three channels of climate risk are highly relevant to the energy sector and are already having a meaningful financial impact.”

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.

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 3 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 risk⁹. 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 are now preparing climate stress tests¹⁰, 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. 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 2°C’ goal of the Paris Agreement on climate change¹¹. 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 energy, 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.

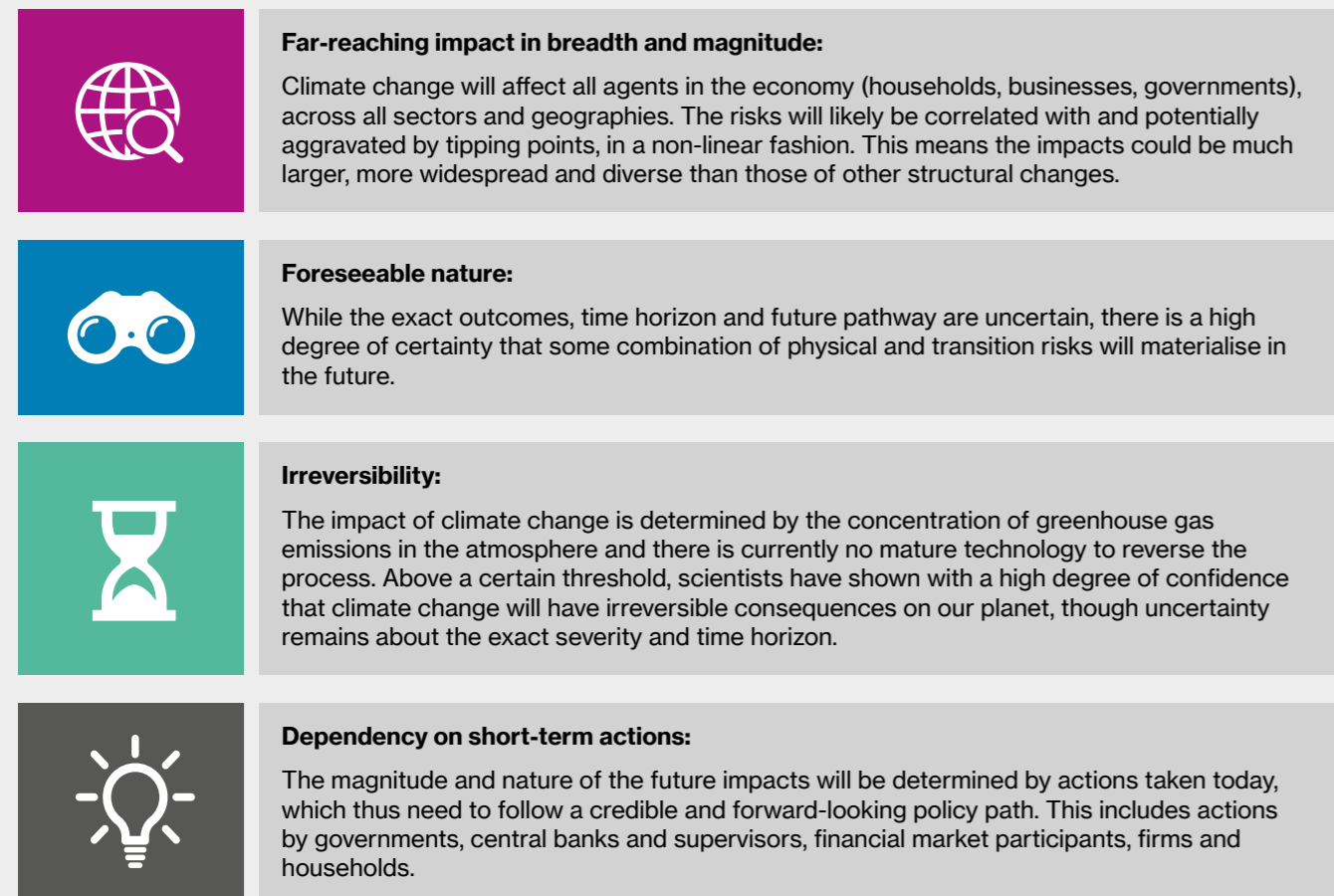


⁹ <https://www.bankofengland.co.uk/prudential-regulation/publication/2019/enhancing-banks-and-insurers-approaches-to-managing-the-financial-risks-from-climate-change-ss>

¹⁰ <https://www.bankofengland.co.uk/-/media/boe/files/speech/2020/the-road-to-glasgow-speech-by-mark-carney.pdf?la=en&hash=DCA8689207770DCBBB179CBADBE3296F7982FDF5>

¹¹ See, for example, <https://www.unepfi.org/net-zero-alliance/> and <https://www.unepfi.org/banking/bankingprinciples/>

Fig 3: The distinct characteristics of risks from climate change



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

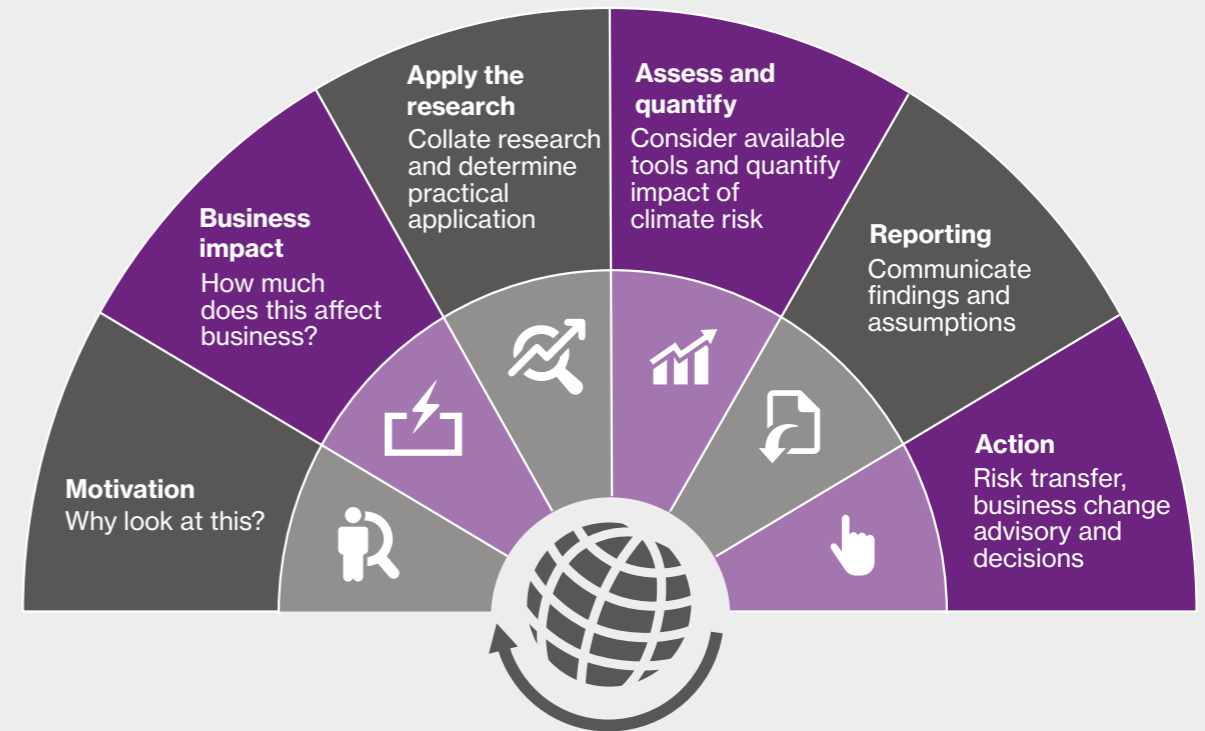
Climate Quantified brings together our deep weather and climate analytical experience from the (re)insurance and investment markets, our extensive academic, research and institutional investor relationships, and our multi-discipline expertise and capabilities in a fully integrated service offering.

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 Network¹² to support open climate and natural hazard research, insights from our Thinking Ahead Institute¹³ to influence change in the investment world and our founding role, with the World Economic Forum, in the Coalition for Climate Resilient Investment¹⁴.

¹² <https://www.willistowerswatson.com/en-GB/Insights/research-programs-and-collaborations/willis-research-network>
¹³ <https://www.thinkingaheadinstitute.org/>
¹⁴ <https://www.willistowerswatson.com/en-GB/Insights/trending-topics/climate-risk-and-resilience>

Fig 4: 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 scenarios – i.e. 2030, 2050, 2100

– can help to make the impacts of possible future climates more tangible. Knowledge fosters understanding, and then action. Your company will also be much better prepared to respond to increasing expectations of 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. 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** and reporting, 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. 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 proactive, 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 energy 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.



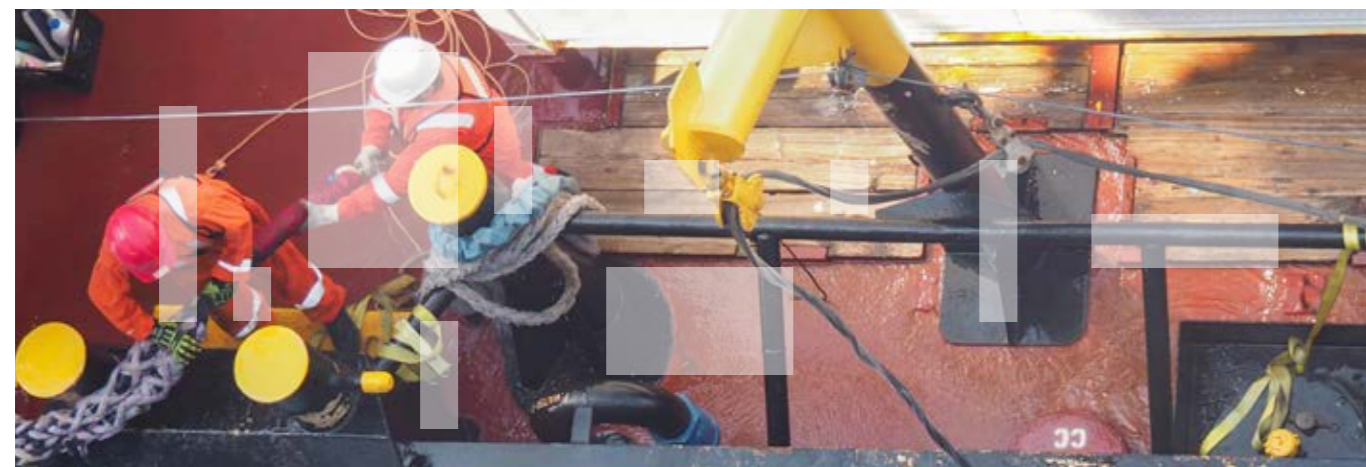
Matt Scott is a Senior Director in the Climate and Resilience Hub at Willis Towers Watson in London.



Geoffrey Saville is Weather and Climate Risks Hub Leader for the Willis Research Network at Willis Towers Watson in London.



Lucy Stanbrough is Emerging Risks Hub Leader for the Willis Research Network at Willis Towers Watson in London.



ESG: an energy industry perspective from the Canadian oil sands

Introduction

It comes as no surprise that investors, insurers, banks and lenders increasingly demand strong environmental, social and governance (ESG) performance from the companies that they do business with. This becomes even more prevalent when those companies – or entire industries – are tied to greenhouse gas (GHG) emissions.

This scrutiny is a new reality for the oil and natural gas industry, and rightfully so. But can all the players in all the producing countries be painted with the same brush?

The short answer is no. The long answer deserves a closer look and starts by looking at the need.

Demand is growing

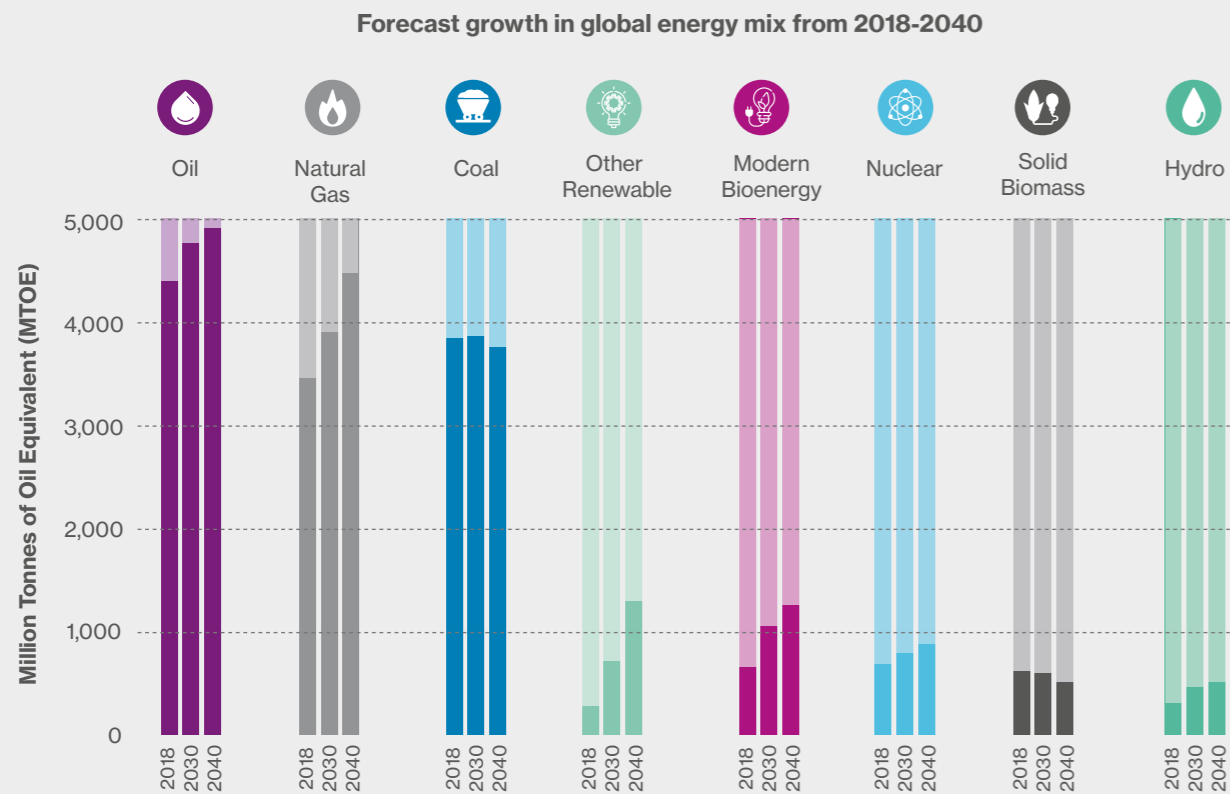
So far in 2020, our industry has faced some new challenges, including unprecedented turmoil in the equity and commodity markets related to the COVID-19 pandemic and exacerbated by the oil price war between Saudi Arabia and Russia. While the current macro-economic environment is expected to have a significant continued negative impact on near-term global oil demand, the

longer-term demand outlook remains strong. Led by a growing middle class in the developing world, long-term forecasts tell us that the demand for energy will continue to rise as the global population increases and more and more people worldwide join the middle class. On the one hand, that means a greater need for renewables. And, according to all credible forecasts, it also means oil will remain a significant part of the future energy mix, alongside other forms of energy, for decades to come.

While not the focus of this article, the misconception that renewables or 'clean tech' have the potential to outstrip the need for oil is worth mentioning. In *The "New Energy Economy": An exercise in magical thinking (2019)*, Senior Fellow with the Manhattan Institute, Mark P. Wells, investigates the movement to replace hydrocarbons. His examination highlights that "scientists have yet to discover, and entrepreneurs have yet to invent, anything as remarkable as hydrocarbons in terms of the combination of low-cost, high-energy, stability, safety and portability" of this energy source. He goes on to argue that "the physics of energy...illustrate why there is no possibility that the world is undergoing, or can undergo, a near-term transition to a new energy economy."

¹ Manhattan Institute, New York, NY, United States of America (2019)

Fig 1: Oil's role in meeting energy demand growth



As the global population is expected to rise to nine billion by 2040, oil is expected to continue as the largest source of energy at 27%

Source: International Energy Agency 2019 World Energy Outlook, Stated Policies Scenario

So while reducing and managing global GHG emissions is a must, the numbers also tell us that it's not feasible for the world to abandon fossil fuels overnight.

In fact, according to the International Energy Agency's "Stated Policies Scenario", oil is expected to account for 27% of the total energy mix in 2040² (see Figure 1 above) – not surprising, given forecasts that the global population is expected to rise to nine billion people in that same timeframe³.

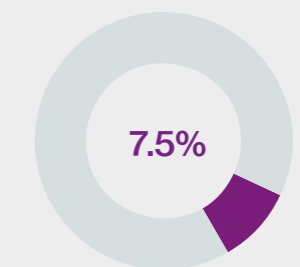
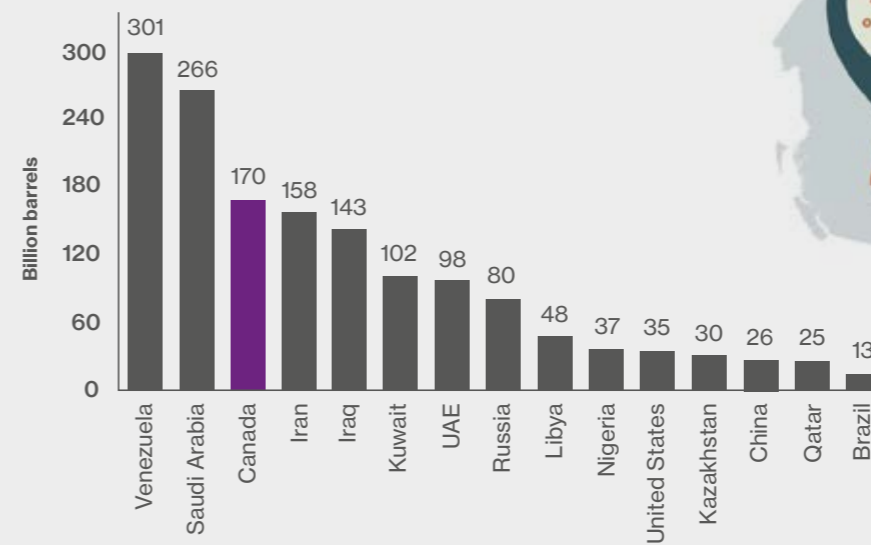
Given the projected demand for oil in the coming decades, the next focus naturally turns to the source. How much is there, can it be reliably accessed and how much will it cost? And so on.

To add to the complexity, because ESG measures are more important to the global community than ever before, the world also wants assurance that there is accountability on the part of the oil and gas industry to develop the resource ethically and responsibly.

For that reason, there is a compelling argument to be made that Canada should be the energy provider of choice for meeting that growing demand.

Fig 2: Canada's untapped resource potential

Global crude oil reserves by country



Canada's oil and gas recoverable reserves developed to date

Source: BP Statistical Review of World Energy, June 2018

A long history, a significant opportunity

In Canada, the oil and gas industry has been a reliable supplier of energy, both domestically and internationally, for over 150 years. The country has the third-largest reserves in the world, and of the 170 billion barrels that can be recovered using today's technology, 96% are found in the oil sands in the western Canadian province of Alberta (see Figure 2 above). To date, only 7.5% of those reserves have been developed.

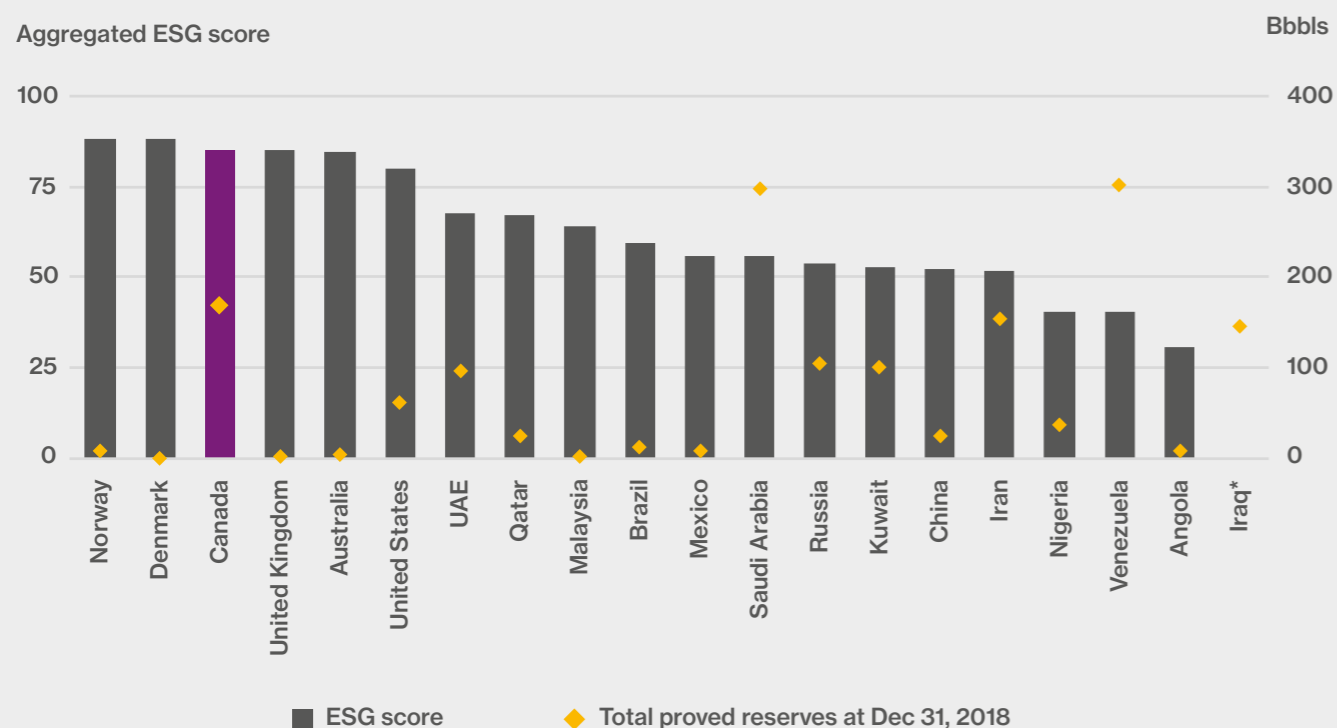
It's also worthwhile to note that only one-fifth of the world's oil reserves are accessible to private sector investment. Of that, 56% are found in Canada's oil sands.

Ample, available supply aside, we also know that if Canada doesn't help meet the world's demand, that demand will be met by other oil producing jurisdictions that are likely to have much lower ESG standards than Canada. In fact, Canada has a tremendous opportunity to continue demonstrating and leading as a responsible energy producer.

For Cenovus, and the country's oil and gas industry overall, that means continuing to develop new technologies and ways of operating that could help develop the resource in a manner that is both low cost and low carbon.

²<https://www.iea.org/reports/world-energy-outlook-2019>
³<https://www.un.org/en/sections/issues-depth/population/index.html>

Fig 3: Aggregated ESG scores and reserves of selected oil producing nations



More Canadian barrels are in the world's best interest - there is now an opportunity for high ESG-ranked Canadian barrels to displace lower ESG-ranked barrels

Note: * Complete aggregated ESG data unavailable for Iraq.

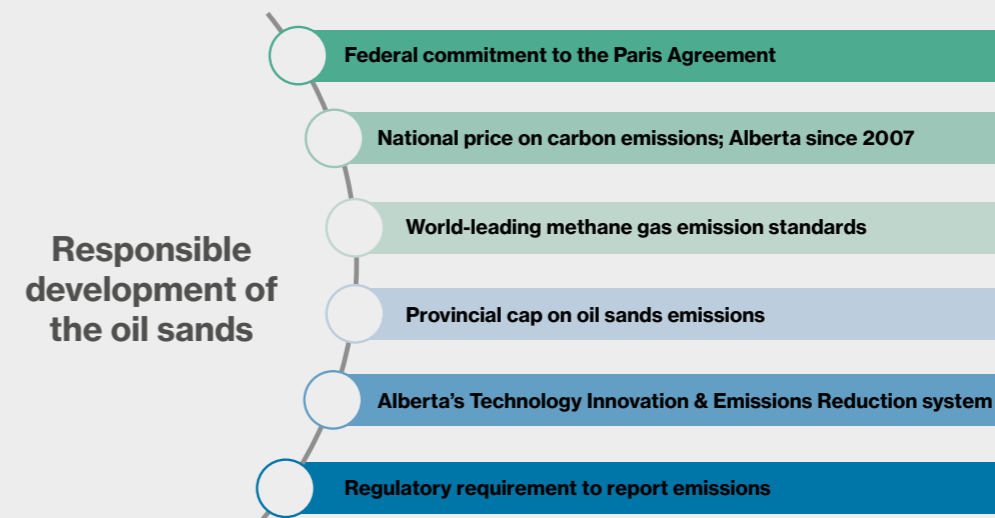
Sources: ESG Scores - aggregation using an equal weighting (1/3) for each of Yale Environmental Performance Index, Social Progress Index and World Bank Governance Index. Reserves - BP Statistical Review of World Energy 2019 based on government and published data.

Strong environmental standards, robust industry regulations

Just one of the reasons Canada has such a high global ESG ranking (see Figure 3 above) is the strict regulatory environment in which it operates (see Figure 4 overleaf). In fact, the country's oil sands industry adheres to some of the most stringent environmental policies and rigorous regulatory regimes in the world.

"Ample, available supply aside, we also know that if Canada doesn't help meet the world's demand, that demand will be met by other oil producing jurisdictions that are likely to have much lower ESG standards than Canada."

Fig 4: Oil sands development requires a stringent regulatory environment: a snapshot of Canada's regulatory environment and international commitments



When it comes to GHG emissions, Canada's oversight is unmatched

Source: Cenovus

This framework, in part, explains why a 2019 international Ipsos survey⁴ indicated that people prefer to get their oil from Canada over other countries globally. Digging a little deeper, there's good reason for that.

Alberta was the first jurisdiction in North America to introduce carbon pricing for industrial emitters. Now called the Technology Innovation and Emissions Reduction (TIER) system, proceeds are used for new and cleaner technologies to reduce emissions through measures such

as improved oil sands extraction methods, as well as research and investment in carbon capture, utilization and storage.

But TIER is just one of the many provincial and federal policies, programs, laws and directives within which Canada's oil sands producers operate. Another example involves the recently announced Government of Alberta directive⁵ that will see a 45% methane emissions reduction from 2012 levels by 2025.

⁴ Ipsos survey commissioned by the Canadian Association of Petroleum Producers (2019). <https://www.newswire.ca/news-releases/canada-continues-to-be-the-world-s-preferred-supplier-for-oil-and-natural-gas-ipsos-international-survey-897974271.html>

⁵ Reducing Methane Emissions, Government of Alberta news release. <https://www.alberta.ca/climate-methane-emissions.aspx>. Additional details on Alberta's methane emission reduction efforts are provided by the Canadian Association of Petroleum Producers. <https://www.capp.ca/explore/methane-emissions/>

Comparing GHGs

Comparing GHG emissions globally can be challenging because other countries are not as open and transparent with their environmental reporting as Canada, so a lot of assumptions need to be made with any sort of analysis.

Traditionally, oil sands companies have been labelled as being among the highest – if not the highest – emissions producers worldwide. But that’s simply not the case in Canada, as we show in Figure 5 overleaf.

Through a predecessor company in 1997, Cenovus was the first to commercialize a made-in Alberta breakthrough extraction technique called Steam Assisted Gravity Drainage (SAGD) that dramatically increased the amount of oil that could be recovered from the oil sands. SAGD processes involve pumping steam deep underground to extract the crude oil or bitumen in place (or in-situ) without disturbing the surface land. Now the predominant production technique in the deeper reservoirs of Canada’s oil sands, the GHG intensity of the average SAGD barrel is only slightly higher than the average barrel produced globally.

Cenovus has reduced its per-barrel GHG emissions intensity by about 30% since 2004, but the work isn’t done. Through technology development efforts, combined with bold targets announced in January 2020⁶, Cenovus continues to focus on ways to reduce emissions intensity, water and land use even further.

It’s also important to note that Cenovus’s reservoirs and SAGD production techniques are in line with the global average at its Foster Creek facility. And at Christina Lake, one of the most efficient projects in the industry, the emissions intensity is lower than the average barrel refined in the United States.

All this information and more opens the door to tremendous opportunities, while demanding the record be set straight on the environmental performance of Canada’s oil sands.

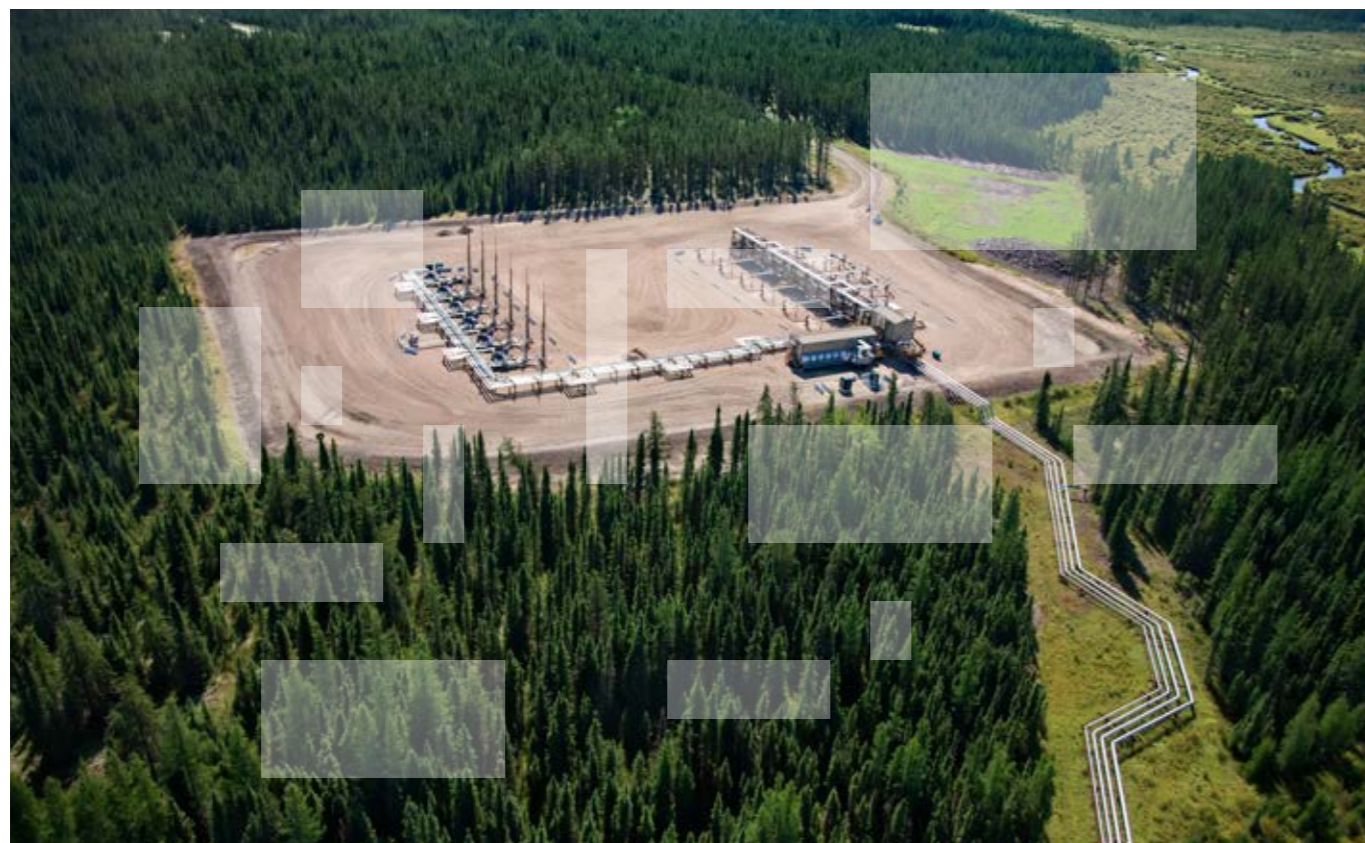
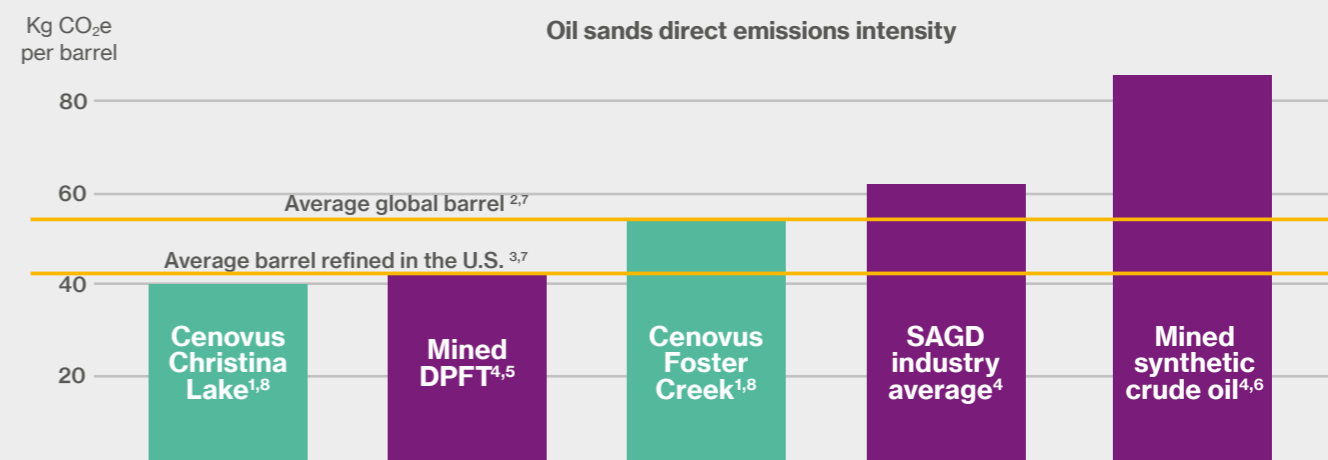


Fig 5: Oil sands direct emissions intensity, kg CO₂e per barrel



With a 30% reduction in emissions intensity since 2004, Cenovus’s direct emissions intensity is lower than the average global barrel

Sources: ¹ Cenovus 2018 ESG Report – assumes credit granted for cogeneration; ² Masnadi et al. (2018) – adjusted to show direct, upstream emissions only; ³ IHS Markit (2014); ⁴ IHS Markit (2018) – adjusted to show production-related emissions only and includes credit for cogeneration/carbon capture, utilization and storage where applicable; ⁵ DPFT – dilbit paraffinic froth treatment; ⁶ Mined synthetic crude oil includes incremental emissions associated with upgrading; ⁷ include lighter crudes that typically require less processing; ⁸ 2018 Cenovus oil sands production volumes and GHG intensities were impacted by voluntary curtailment in Q1 2018 and Q4 2018.

Sustainability at Cenovus

Cenovus is focused on sustainably producing Canada’s oil and natural gas resources – knowing that striking the right balance among environmental, economic and social considerations leads to long-term value. Beyond its efforts so far, the company has taken even more steps to set itself apart. With an estimated 40-year reserve life index, sustainability is critical to Cenovus’s business resilience and long-term success.

Starting with a strong and unwavering focus on safety, Cenovus has also embedded ESG considerations and practices into its capital allocation framework and business decisions, assessing ESG criteria alongside financial metrics. When it comes to the environmental aspect of ESG, innovation and technology development are key – and are backed by a proven track record.

Cenovus also has strong relationships with communities in its operating areas – especially Indigenous communities. The philosophy has always been to ensure communities share in the company’s success and to be open and transparent with community members about business plans and operations.

Transparent disclosure, proactive shareholder engagement, tying executive and staff compensation metrics with ESG performance and other key measures underpin a strong governance framework to support the direction of Cenovus at all levels and functions. A new 2025 aspirational target to have at least 40% of independent Board members be represented by women, Aboriginal peoples, persons with disabilities and members of visible minorities is another step in the right direction⁷.

⁷ In February 2020, Cenovus’s Board revised their Board Diversity Policy to reflect the company’s commitment to the principles of diversity. The policy now includes a 2025 aspirational target to have at least 40% of independent members be represented by women, Aboriginal peoples, persons with disabilities and members of visible minorities, with at least three women as independent members of the Board. While diversity is an important and valuable consideration in assessing potential candidates for the Board, all nominations and appointments are made on merit in the context of the skills, expertise and experience that Cenovus requires.

⁶ <https://www.cenovus.com/news/news-releases/2020/01-08-2020-Cenovus-sets-bold-sustainability-targets.htm>

Fig 6: A closer look – Cenovus’s 2030 ESG targets

Focus area	2030 Targets
Climate & GHG emissions	<ul style="list-style-type: none"> Reduce emissions intensity by 30% Hold absolute emissions flat
Indigenous engagement	<ul style="list-style-type: none"> Achieve a minimum of \$1.5 billion* of additional spending with Indigenous businesses
Land & wildlife	<ul style="list-style-type: none"> Reclaim 1,500 decommissioned well sites Complete \$40 million* of caribou habitat restoration work
Water stewardship	<ul style="list-style-type: none"> Achieve a fresh water intensity of maximum 0.1 barrels per barrel of oil equivalent

Source: Cenovus sets bold sustainability targets, January 2020 news release. *All ESG figures expressed in Canadian dollars. <https://www.cenovus.com/news/news-releases/2020/01-08-2020-Cenovus-sets-bold-sustainability-targets.html>

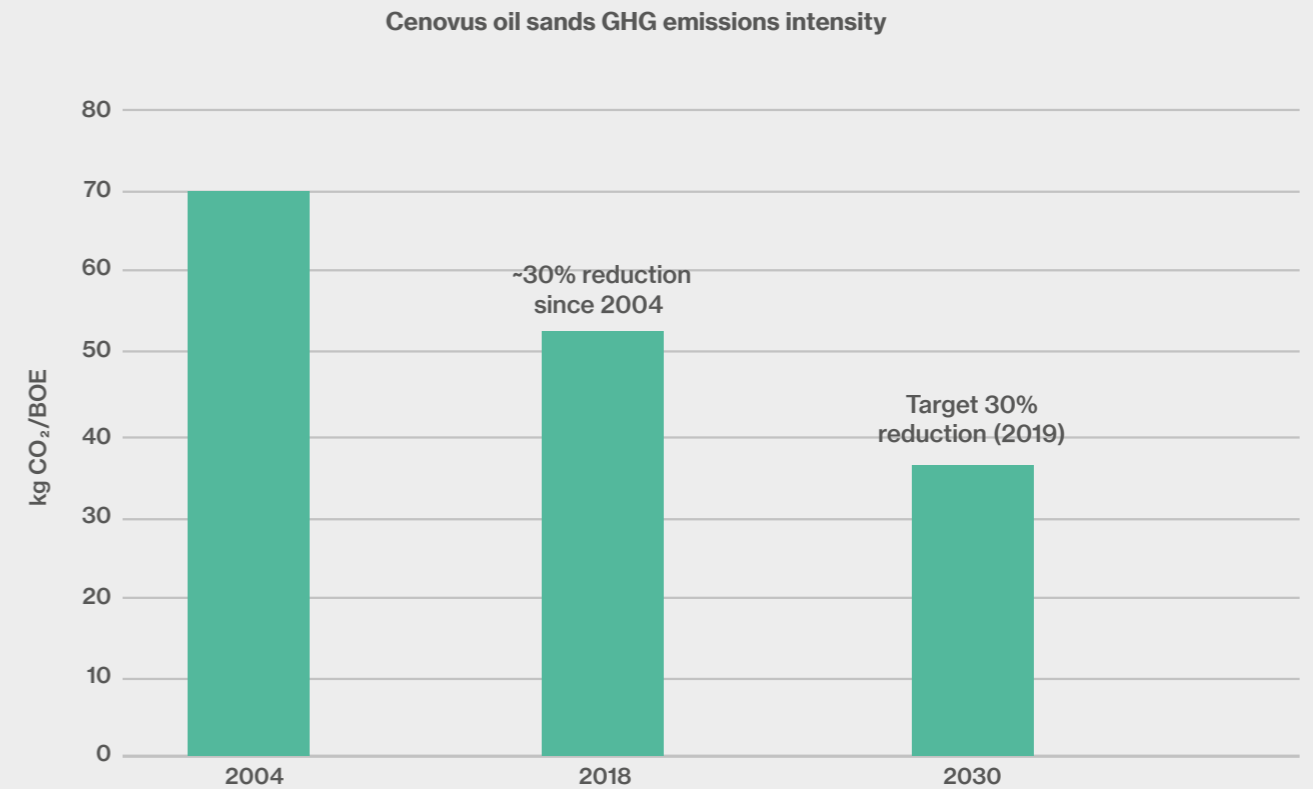
A clear direction – Cenovus sets bold sustainability targets

As mentioned earlier, in January 2020 Cenovus took the next step by continuing to integrate ESG performance into its strategy for enhancing business resilience. With an eye to adding value for shareholders and other stakeholders, specific targets related to climate & GHG emissions, Indigenous engagement, land & wildlife and water stewardship were established through a rigorous process that involved work with global experts, external consultants and robust scenario analysis (Figure 6 to the left).

“Cenovus is focused on sustainably producing Canada’s oil and natural gas resources – knowing that striking the right balance among environmental, economic and social considerations leads to long-term value.”



Fig 7: History of GHG emission intensity reductions



Advancements contributing to emission intensity reduction include well pad design improvements, well length optimization, improved boiler efficiency and cogeneration

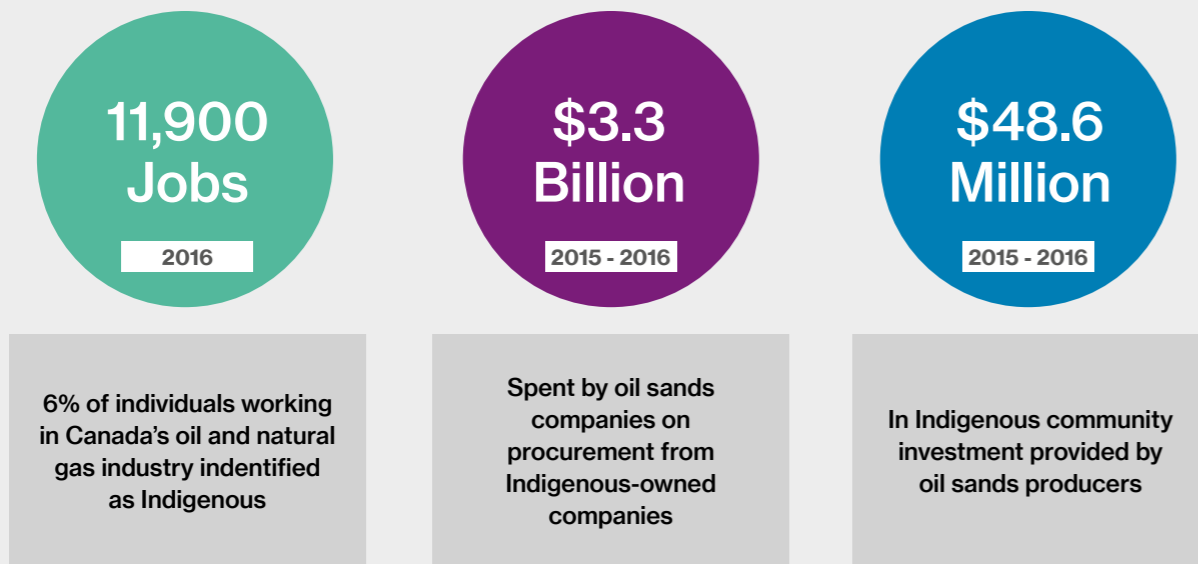
Source: Cenovus 2018 ESG Report. Note: 1 - Includes only emissions from exploration, drilling and development, production and extraction, separation and surface processing; does not include emissions from transport, upgrading, refining, or end-use combustion. See Advisory.

GHG reductions

Starting with arguably the most important of the four focus areas, Cenovus has set a target to reduce emissions intensity by 30% and hold absolute emissions flat by 2030. On top of that, the company identified a long-term ambition to reach net zero GHG emissions by 2050. These are among the boldest emissions targets and ambitions in the world for an upstream exploration and production company.

Cenovus set these important targets with the intention of managing climate-related risks and opportunities while supporting business resiliency through the energy transition to a lower carbon economy. In addition to the technology and process advancements to reduce emissions intensity that the company has already realized in its operations (Figure 7 above), Cenovus has identified a number of levers to achieve its GHG target, including optimization of its assets and steam to oil ratios, solvent technology, cogeneration, methane emission reductions and data analytics as well as considering offset opportunities.

Fig 8: Industry-wide Indigenous engagement, 2015-16



Source: CAPP 2018 Economic Report Series, *Toward a shared future: Canada's Indigenous peoples and the oil and natural gas industry*

Indigenous engagement

Since 2009, Cenovus has spent over \$2.8 billion doing business with Indigenous-owned and operated businesses. With its new ESG targets, the company has committed to spending at least an additional \$1.5 billion with Indigenous businesses by 2030.

Since 2012, Cenovus has also awarded over \$660,000 in post-secondary scholarships to Indigenous students and continues to support non-profit organizations that address local community needs. Additionally, the company has introduced mandatory Indigenous awareness training for its staff.

On the heels of Cenovus's ESG target announcement, the company followed up with an unprecedented commitment. Over and above the Indigenous spending target, an initiative was announced in January 2020 to help address the chronic housing crisis among Indigenous communities in Canada. Until 2025, the company will spend a total of \$50 million building about 200 new homes in six communities located closest to its oil sands operations – while also providing skills training for Indigenous peoples.

Enhancing these already strong relationships improves the social fabric of local communities and supports regulatory certainty for the company's projects.

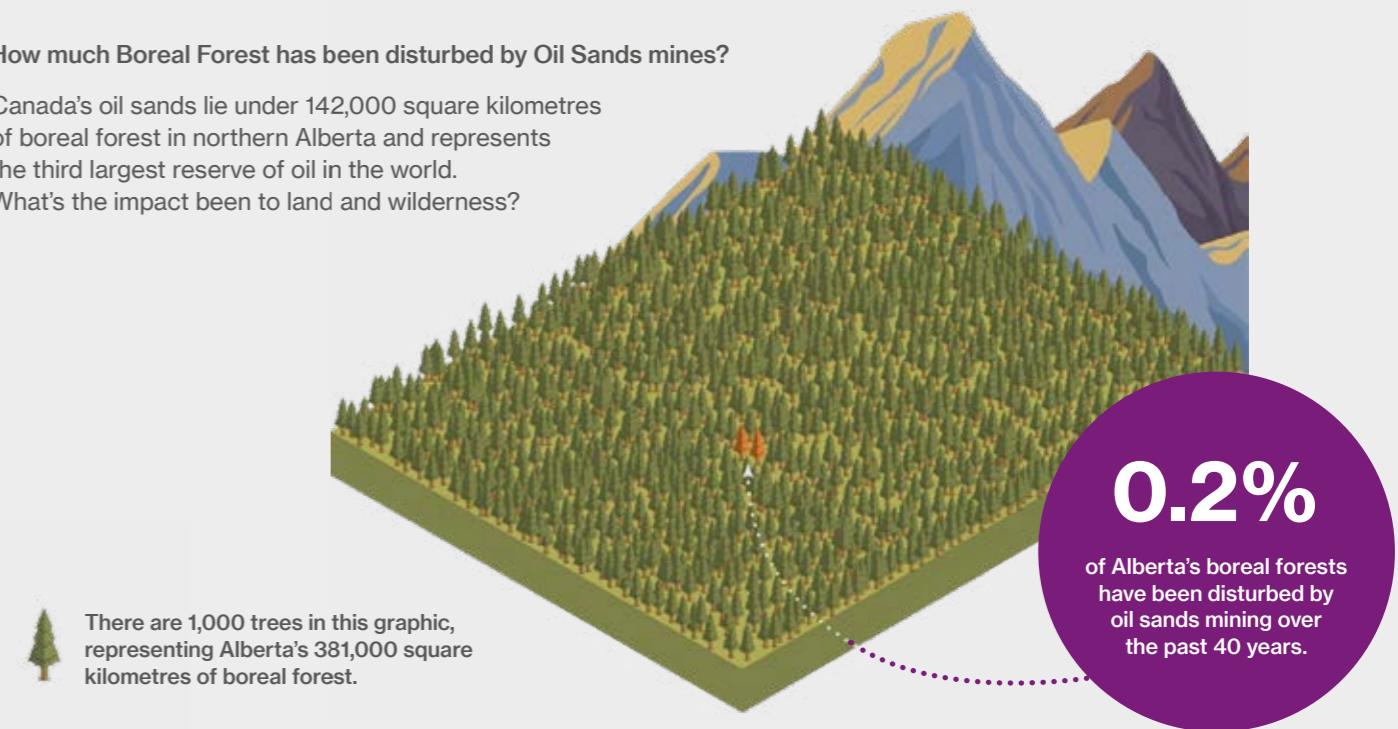
Beyond its own efforts, Cenovus is encouraged by the industry-wide engagement with Indigenous communities, recognizing it as a key component to support reconciliation.

Despite the economic downturn in recent years, in the most recent data available from 2016, the Canadian oil and natural gas industry employed almost 12,000 Indigenous workers and oil sands producers spent \$3.3 billion on procurement from Indigenous-owned companies. Beyond that, producers also invested almost \$49 million to support Indigenous community programs and initiatives, as evidenced by Figure 8 above.

Fig 9: The Boreal forest: facts, not fiction

How much Boreal Forest has been disturbed by Oil Sands mines?

Canada's oil sands lie under 142,000 square kilometres of boreal forest in northern Alberta and represents the third largest reserve of oil in the world. What's the impact been to land and wilderness?



Source: Canadian Association of Petroleum Producers, 2019

https://context.capp.ca/infographics/2019/infographic_boreal-forest-and-land-rec

Land & wildlife

It's been said that the oil sands are damaging Canada's boreal forest; however, it is important to understand the context. The boreal forest in Alberta covers approximately 381,000 square kilometres, with the oil sands lying under 142,000 square kilometres of it. However, it is estimated that only 0.2% of the total area has been disturbed by oil sands extraction activity over the past 40 years. And while some mining occurs, 80% of the available resource is too deep to mine and is recovered using in-situ, or drilling, technology – which involves minimal surface disturbance.

Put in perspective, the area disturbed by all in-situ oil sands operations today is about 850 square kilometres. Of this, Cenovus's oil sands approved development area accounts for just 55 square kilometres, and the actual area disturbed is much smaller at about 20 square kilometres.

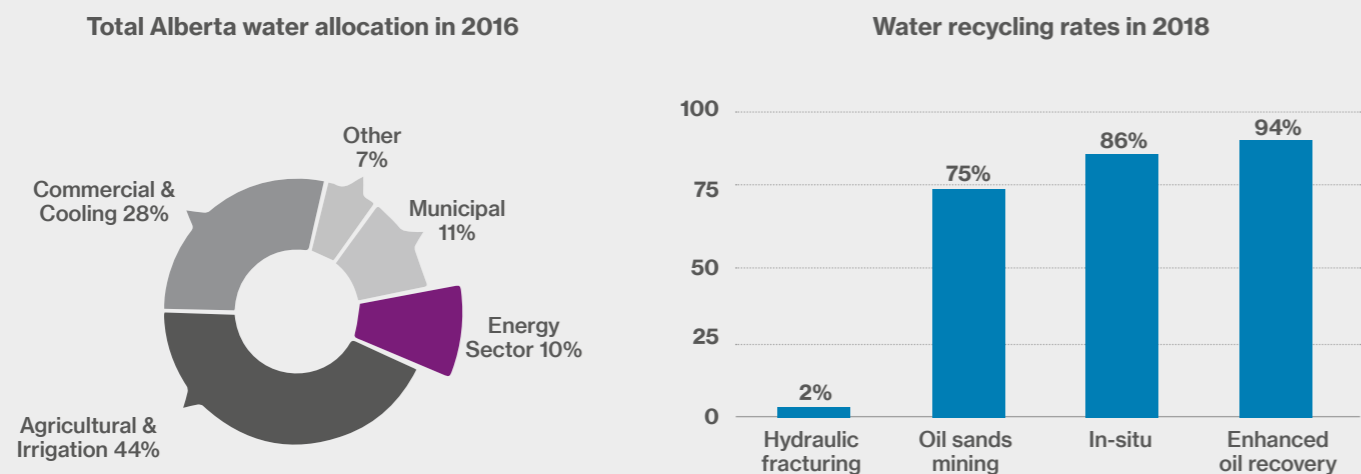
To truly understand the impact that oil and gas development can have on land, one must also know that in Canada we're required to reclaim the land we use for our operations to a state similar to how it was before.

With that in mind, reclamation plans start long before equipment is ever moved on site. For example, that means storing all the top soil from well pads so that it can be put back into place once the well is no longer producing.

Additionally, Cenovus has proactively earned 1,600 well site reclamation certificates since 2009 and is committed to reclaiming 1,500 more by 2030. As part of its reclamation efforts, Cenovus routinely monitors local wildlife movements via motion-activated cameras to improve its understanding of how wildlife move across the land at its operations and interact with its facilities.

Another unique commitment announced through the company's ESG targets is to complete \$40 million of caribou habitat restoration work by 2030. Started in 2016, this voluntary initiative uses proven reforestation techniques to restore old seismic lines, access roads and other linear disturbances. In turn, this work aims to reduce the fragmentation of the Cold Lake caribou herd's habitat and the associated wolf predation on this threatened species. To date, over one million trees have been planted as part of this initiative with long-term plans for five million trees planted by 2030.

Fig 10: Efficient and effective water use industry-wide



Oil sands projects recycle 78-86% of water used – the majority of water used for oil sands production is saline

Source: Alberta Energy Regulator, 2019

Water stewardship

In Canada, the use of water is highly regulated. In total, the energy sector accounts for only 10% of Alberta's water allocation – that includes 8% for oil sands facilities and 2% for conventional oil and gas, as per Figure 10 above.

Companies apply to the Alberta Energy Regulator for water allocation volumes and the Regulator closely monitors and regulates water usage in the oil sands. And across the industry, companies are using much less non-saline water than what is allocated to them. In fact, Canada's oil sands industry continues to look for ways to reduce fresh water sources; instead, it uses saline water that is unfit for human and animal consumption or agriculture use. Additionally, in-situ operators recycle 86% of all water used, which at Cenovus amounts to about 60 million litres annually. That has a positive impact on the company's fresh water performance.

Cenovus also doesn't have tailings ponds and uses virtually no surface water for steam generation. By enhancing existing technology and innovating through new opportunities, the company has set a path to achieve a

fresh water intensity maximum of 0.1 barrel per barrel of oil equivalent by 2030. That's well below a target set by Canada's Oil Sands Innovation Alliance (COSIA), of which Cenovus is a founding member, for in-situ producers of 0.18 barrel by 2022.

Already a leader in managing fresh water intensity compared to its oil sands peers, Cenovus is improving this performance further to reduce the impact of the company's operations on the environment and bring down its capital and operating costs.

Conclusion: the path ahead

In addition to the industry's performance on several ESG markers, Canadian oil sands operators also have a strong history of innovation and technology development to continue their trajectory of improvement.

Since COSIA began, its members have invested \$1.4 billion to develop over 1,000 distinct technologies that reduce industrial impacts on air, land and water. Currently, \$773 million is dedicated to 294 active projects.

In fact, as the epicenter of Canada's oil and gas industry, Calgary, Alberta surpassed other major Canadian cities in 2018 to hold the most patents per capita⁸. This technology innovation, through both competition and collaboration, has led to more efficiency and lower emissions industry-wide.

It wasn't that long ago that drilling in Alberta's oil sands was thought to be impossible. The oil in the oil sands can at times be as hard as a hockey puck and it's embedded in tonnes of sand deep underground. But through resilience, innovation, and smart business practices, companies like Cenovus are balancing environmental concerns with investor value to provide long-term sustainable energy solutions.



Michele Waters is the Director of Risk for Cenovus Energy Inc., and is accountable to develop, operationalize and monitor the effectiveness of the company's risk management governance and control framework.

Cenovus Energy Inc. is a Canadian integrated oil and natural gas company. With over seven billion barrels of oil equivalent of reserves, it is committed to maximizing value by sustainably developing its assets in a safe, innovative and cost-efficient manner, integrating environmental, social and governance considerations into its business plans. Operations include in-situ oil sands projects in northern Alberta, which use specialized methods to drill and pump the oil to the surface and established natural gas and oil production in Alberta and British Columbia. The company also has 50% ownership in two U.S. refineries, operated by Phillips 66, and owns a crude-by-rail loading terminal in Alberta. Cenovus shares trade under the symbol CVE and are listed on the Toronto and New York stock exchanges. For more information, visit cenovus.com.

⁸ C.D. Howe Institute, Toronto, Ontario, Canada (2018). <https://www.cdhowe.org/expert-op-eds/move-over-waterloo-and-ottawa-calgary-now-out-innovating-you-cbcs-road-ahead>





Part Two -
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 insurance market?

Was the previous status quo too narrow and unnecessarily complex?

For several decades, energy companies have considered each class of insurance in isolation when assessing historic losses to establish ongoing insurance arrangements. Premium, market capacity, deductible and insurable limit are often the main drivers, with only limited analytical decision support undertaken to assess placement outcome and pricing. Additionally, insurance lines are often purchased with differing renewal dates, with many local policies stretching across different geographies as well as varying levels of deductibles and limits; this adds complexity, alongside a narrow focus on individual classes.

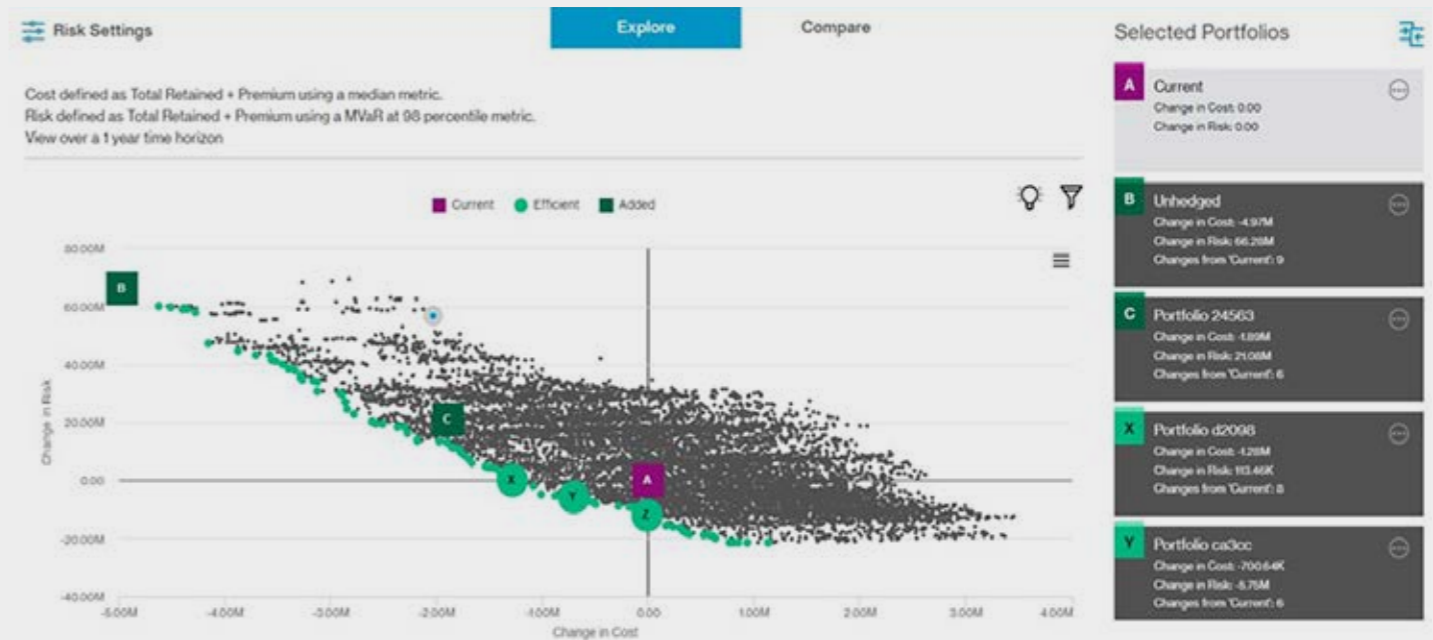
However, embracing a portfolio view, using modern analytical capabilities and computing power, has now led to better understanding by some energy companies of dependencies between and within risks and exposures, leading to more optimal decision making.

What if risk managers adopted their FD's perspective?

Historically, basic terms for individual classes were tweaked in response to changing rates in hard and soft markets, often to maintain budgeted spend. But this strategy 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. This lack of transparency means that the value of insurance as a hedge is hidden from view.

However, energy companies can easily perceive the value from transferring risk in a layered arrangement by purchasing hedges in the commodity, interest rate and currency markets, thereby seeing how a portfolio of risks interacts 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 how this approach aligns with the Finance Director's world.

Fig 1: Establishing the efficient frontier



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 greater understanding and visibility of new or non-insurable elements in the overall risk landscape when they are added.
4. Finally, 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 concurrently in flux. 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

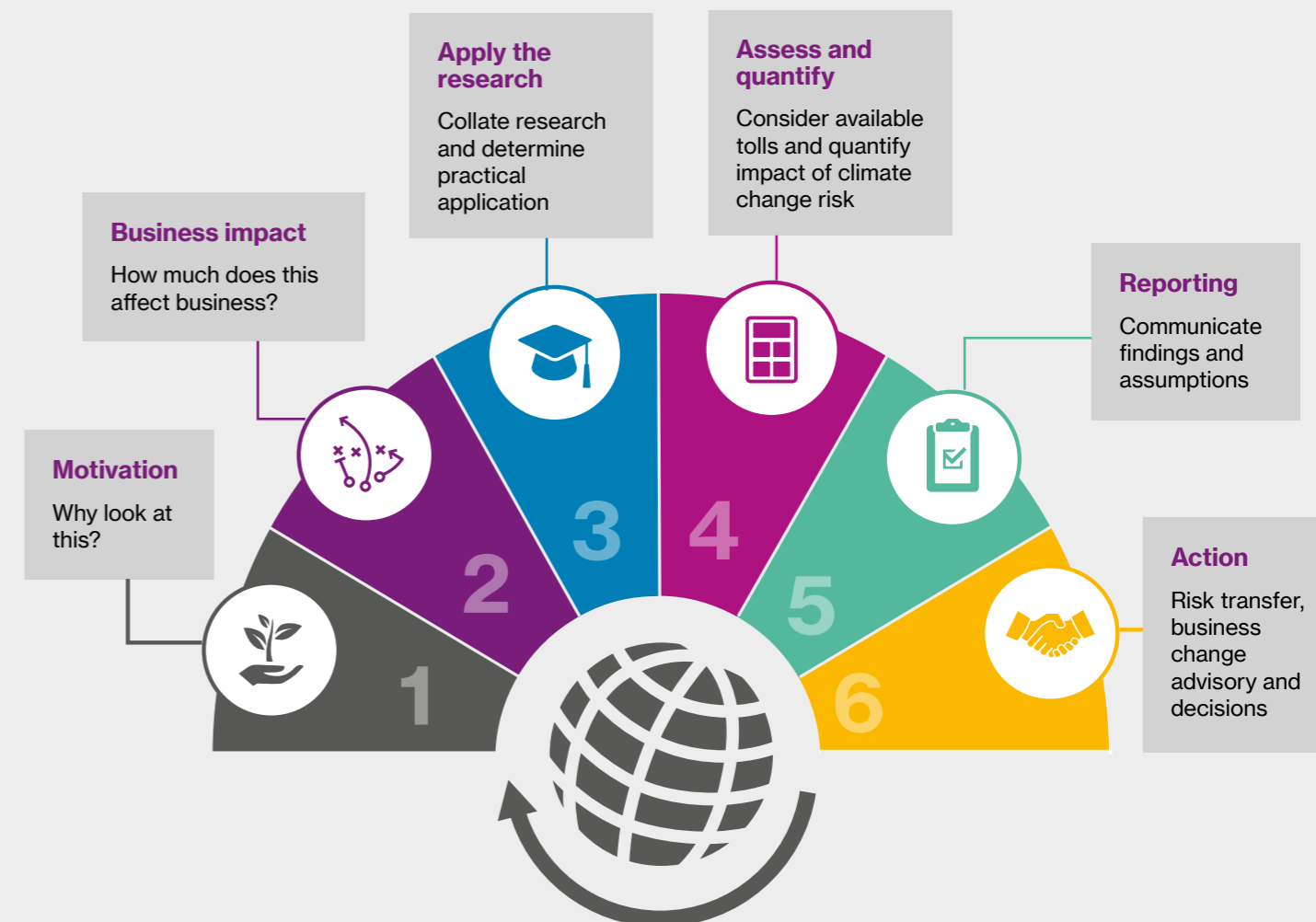
A hardening insurance market always encourages the search for creative alternatives within the market itself. Currently, large energy companies may wish to understand the impact of using insurance-linked securities as a vehicle for tapping alternative markets for risk-transfer of extreme scenarios. Parametric 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 from outside the traditional insurance space. They favour speed and simplicity and may additionally generate the ability to trade energy company risks into a liquid market.

Enhancing governance

A useful by-product of adopting 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 both accounts for the interdependencies of risk while also considering the merits of different strategies.

In the governance realm, energy 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 power 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

Fig 3: Cost of potential oil spills, expressed as Value at Risk

2020 Drilling and Production wells			Worst Case Scenario across all Wells		
Country	Likelihood of having one maximum spill	Return period for maximum spill	Median	1-in-20	1-in-200
All Territories	0.03%	4,000	200	2,500	9,500

Conclusion: two practical examples

To conclude, a couple of recent examples will help to show readers the breadth of issues that can be answered by this approach.

1) Bespoke oil-spill model

An integrated oil company wanted help to quantify the risks of a significant oil spill in both its drilling and production wells. Working closely with the client's risk and engineering teams, we developed a model to forecast both the likelihood and volume of an oil spill at their sites, as well as the cost of clean up of any spill. The tailored model is based on industry data for large oil spills as well as key risk factors particular to the client, including well location, type of drilling, well depth, water depth and hydrocarbon type. The client has used the model to make decisions for:

- insurance limits
- investment in mitigation activities
- financial provisions for worst case scenarios
- negotiations with JV partners to manage equity stakes in projects to ensure a balanced portfolio of projects with respect to worst case scenarios

Figure 3 above shows the cost of potential oil spills, expressed as Value at Risk, for the portfolio of drilling and production wells for the client and is one of the outputs of the analysis.

2) Global energy company

This client carried out a comprehensive risk optimisation exercise to better understand their total risk exposures and to identify the key drivers of risk, both by geography and by class of risk. The risk profile of the company was quantified, which demonstrated significant inherent risk in a single business unit. As a result, the company decided to sell off the highest risk business unit and optimized its insurance program for its remaining business units. 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. As a result, they were able to minimise increases to their total cost of risk across a wide programme of coverage.



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Geopolitical risk: dealing with Newton's Third Law in the energy sector

Introduction: new geopolitical challenges and risks

The lenses through which geopolitical risk can be viewed apply to almost every business sector, and the energy industry is no exception. At every stage of the lifecycle of an energy 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 Airmic member survey expecting geopolitical risk to become "harder to manage" in the next three years – 14% higher than the next biggest risk, climate and environmental disruption¹.

For the energy sector, exploring geopolitical risks is important, if only because the industry experiences Newton's Third Law from geopolitical drivers. This law states that when two bodies interact, they apply forces to one another that are equal in magnitude and opposite in direction. The third law is also known as the law of action and reaction².

- **Action:** In March 2020, we saw Saudi Arabia slashing its export prices after the collapse of an Opec production deal with Russia that had stabilised the market after demand drops as a result of COVID-19³.
- **Reaction:** Research commissioned by Lloyd's suggests that demand in the coal sector is estimated to fall by at least 70% under 2°C compliant scenarios by 2030⁴, and we're seeing new regions rise to power. Energy classes such as renewables are also creating their own waves, with the promise of energy security and independence changing the power structures of regions and states⁵.

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, while environmental, technological and political changes are bringing with them any number of new uncertainties. 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.

¹ 2019 Airmic member survey <https://www.airmic.com/news/guest-stories/rethinking-geopolitical-risk>
² <https://www.britannica.com/science/Newtons-laws-of-motion>
³ <https://www.ft.com/content/755663c0-62ad-11ea-a6cd-df28cc3c6a68>
⁴ https://www.lloyds.com/-/media/files/news-and-insight/risk-insight/2020/below2c_insuranceforalowcarboneyconomy_deepdives_pdf.pdf
⁵ IRENA <http://www.geopoliticsofrenewables.org>

At a political and national level, areas that were once regarded as predictable and stable have become volatile, and changes in international policy are bringing new uncertainty to long running conflicts. Many of these countries are prime suppliers of the Downstream energy sector and add a new dimension to the potential for Business Interruption claims.

The uncertainty of these issues alone would be enough to keep executives up at night, even before factoring in ongoing attritional losses, aging infrastructure, rising Business Interruption losses and concerns around talent retention and attraction. It has never been more important to consider new ways in which geopolitical risks can be managed more effectively than by simple insurance purchase.

Dialling in on risk

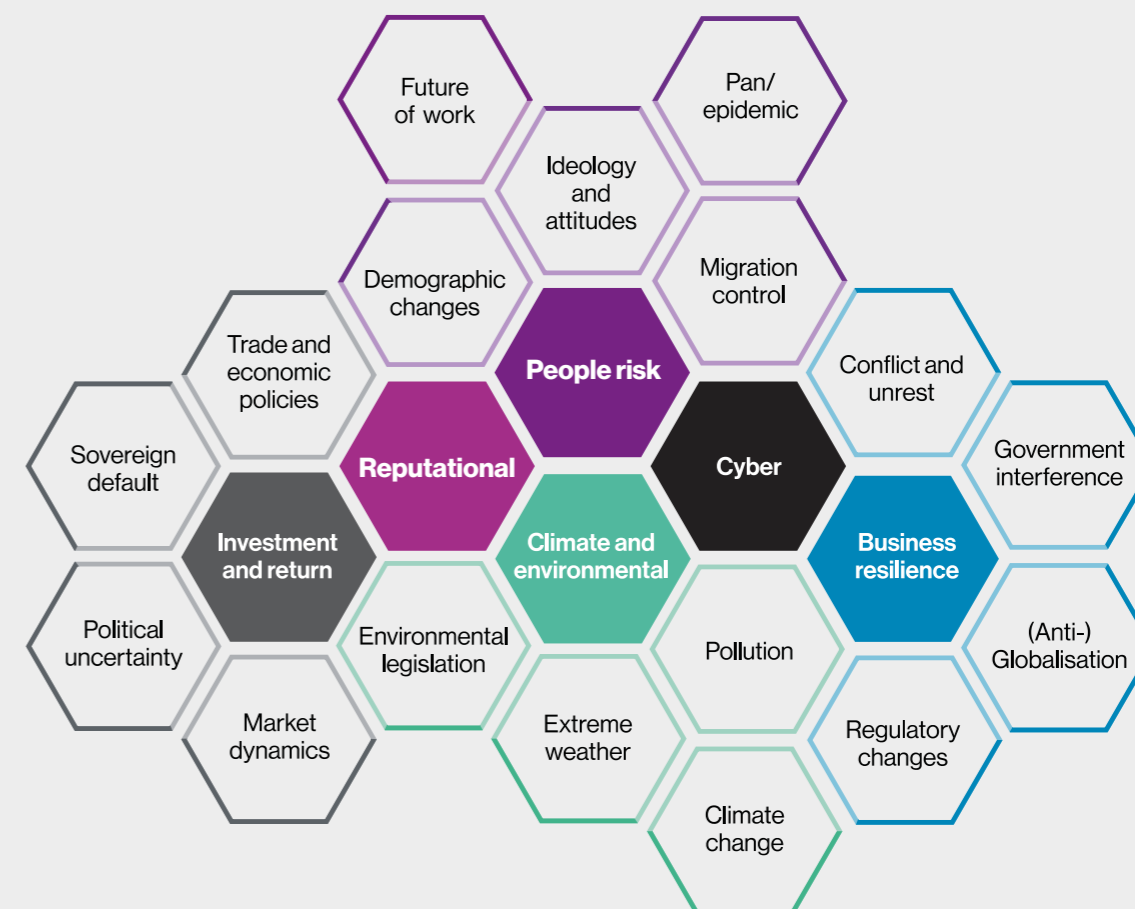
Foreseeing trends is often a matter of perspective and sometimes it helps to take a step back and look at challenges with fresh eyes. In the last Willis Towers Watson Energy Market Review⁶, we introduced you to the six lenses used to explore these nuances and build an integrated view of risk.

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 the issues, then who do you need to talk to?

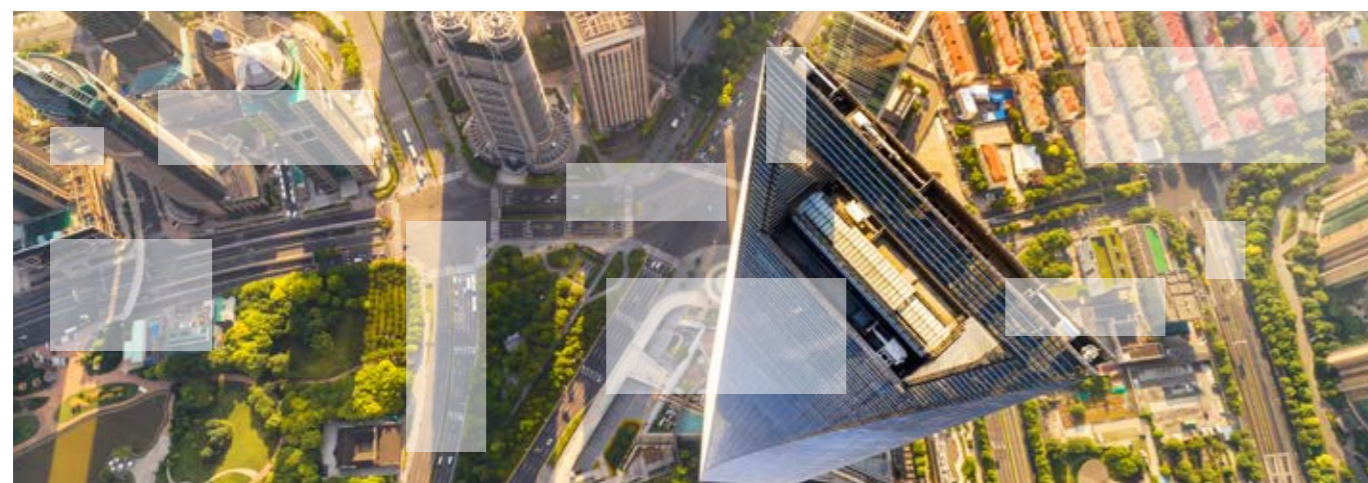
Six lenses – an integrated approach to geopolitical drivers of risk

- 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 implemented. 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 license in a country. Being attuned to the relationships between geopolitical drivers and reputation helps anticipate and mitigate these risks.

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 that:

- 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;
- When fire hits a remote data hub many thousands of miles away, your customers and suppliers can still work with you; and

- 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 our Natural Resources Reviews this year, and we would recommend looking at all the reports to understand the sector specific issues and consider how these may create secondary impacts for you.

⁶ <https://www.towerswatson.com/assets/pdf/power-renewable-energy-market-review-2019.pdf>



Storyline One - new rules for old conflicts: investment and return, people risk, and business resilience lenses

Areas that were once regarded as predictable and stable have become volatile, and changes in international policy are bringing new uncertainty to long running conflicts. In the release of their '10 Conflicts to watch in 2020' report⁷, Robert Malley, President and CEO of Crisis Group, summed up the challenge: "the understandings and balance of power on which the global order had once been predicated – imperfect, unfair, and problematic as they were – are no longer operative."

The music has changed

The music has changed, and nobody knows the steps; but when nations are waltzing, the outcomes aren't bruised toes. Multinational businesses with many operations centres, multiple markets and complex supply lines are going to need to be vigilant to finance the economic and trade risks that are going to emerge as a result.

These changes aren't just happening at the national level; a local perspective needs to be factored in. Establishing new sites can result in land use conflict and trigger localised political risk,⁸ and current sites can also serve as focusing points for local and international interest, from climate activism and communities who have been reliant on sites for their livelihoods, as well as local issues⁹. Both instances can cause reputational harm, investor uncertainty and local security issues.

Factoring in local opinion

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 corporate cultures. Predicting the occurrence and nature of political and social disruptions may seem impossible, but there are a series of different tools in the toolbox.

For example, for political risk, threat assessments can make use of recent examples such as attacks on pipelines and oil-processing infrastructure to add additional context to 'actor mapping'¹⁰; and analytics tools such as VAPOR¹¹ allow global companies to assess the financial impact of political risk exposure that can feed into your company's business continuity planning.

While this kind of analysis won't provide all the answers, red teaming and scenario building with these questions in mind can give you input on the 'who, how and where', to move from understanding to action:

- **Understand:** Identify, quantify and assess – the full spectrum of interlinked geopolitical drivers of risk and associated risks that may impact a business.
- **Prevent and protect:** integrated solutions – consulting, risk management and broking – to help organisations prevent and protect against interlinked geopolitical risks.
- **Respond:** when risks become events we work with clients to minimise the impact, no matter where they operate and where the incident has occurred. We help them manage fast moving situations.

Storyline Two – ESG issues heat up: climate risk, investment and return lenses

As we move into 2020, the energy market continues to experience a backdrop of political volatility, investment inflection points, and an unfolding Environmental Social and Governance (ESG) landscape. Companies must manage a range of policy, investor, and societal pressures to move to a low-carbon energy system while still meeting expected global energy demand over the long term.

Energy consumption is still increasing. We are going to need to make full use of digitalisation, robotics and artificial intelligence to increase safety standards and carry out precision extraction and processing that minimises

environmental impacts. On the other side, before we reach 2030 we're likely to see some major climatic events which will accelerate the sense of urgency that policy makers feel they need to instil to change the ways in which we generate power.

C-Suites should wake up to new policy landscape

No stage of the energy market is safe from these drivers, and C-Suites need to consider the strategic direction of their businesses against an evolving policy landscape. Being geographically blessed with resources isn't going to be enough for long-term value strategies – ESG is here, and countries accounting for almost half of global demand have implemented or have plans to enact frameworks aimed at meeting the transition to a low carbon economy.

Fossil fuels need to respond to challenge

Around the world we are seeing a gradual shift from policies that have supported oil and gas production to policies that instead are starting to disincentivise fossil fuels, including carbon pricing and the European Union's Emission Trading Scheme. While these shifts are slow at the moment, the EU is already moving to formalise ESG standards, which is adding to the momentum around coalescing fragmented, voluntary guidelines into formal, regulated standards. An in-depth review of the ESG landscape can be found in the first chapter of this Review; you should take note of what central banks are discussing because change is coming.

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 and drive efficiency. The changes are going to vary across the energy sector, but this is the time for risk managers and boards to pivot a risk to an opportunity.

This makes access to research and innovative partnerships essential to gauging the energy transition and is already resulting in forward thinking companies exploring new distribution models that have the potential to disrupt them if they stand still¹² and investments in digital technologies for faster, safer, more reliable, efficient and resilient production.

Storyline Three - designing for safety and efficiency: reputation, cyber, business resilience lenses

With the sector looking to harness digitalisation and technology for efficiency gains and to be more reactive to demand trends, it is essential to understand the strengths and weaknesses of embracing these capabilities. With estimates of unplanned downtime already costing the oil and gas industry an estimated \$50 billion each year, 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.

Cyber-attacks

Technology has improved resilience to countless threats from an individual level to a societal level. It also facilitated attacks against Saudi Aramco holdings in northern Saudi Arabia in September that initially halved the kingdom's output¹³. While the name Refined Kitten might evoke the image of a cuddly pet, Microsoft have announced that is a hacker team, believed to be backed by Iran, that can do things virtually no other known hacker group can do, namely infiltrate the control systems of critical national infrastructure, including oil refineries and electric utilities¹⁴.

No one size fits all answer

Geopolitical 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. The

⁷ <https://foreignpolicy.com/2019/12/26/10-conflicts-to-watch-2020/>

⁸ <https://doi.org/10.1016/j.erss.2015.06.008>

⁹ <https://www.canada.ca/en/environment-climate-change/services/climate-change/task-force-just-transition.html>

¹⁰ 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

¹¹ <https://www.willistowerswatson.com/en-GB/Solutions/services/vapor>

¹² <https://www.atlanticcouncil.org/in-depth-research-reports/report/the-role-of-oil-and-gas-companies-in-the-energy-transition/>

¹³ <https://www.reuters.com/article/us-yemen-security-saudi/yemens-houthis-say-they-fired-at-aramco-other-saudi-targets-idUSKBN1ZS1SA>

¹⁴ <https://www.willistowerswatson.com/en-GB/Insights/2019/12/what-you-should-know-about-the-changing-cyber-risk>

range of cyber drivers and vulnerabilities is vast, and the need for cyber expertise or a dedicated CISO have never been more crucial for business resilience. 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.

Delivering cyber resilience is a core part of effective corporate governance for energy companies. 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 electricity ecosystem.

Back in 2017, The Economist published a story entitled "The world's most valuable resource is no longer oil, but data"¹⁵, and this is where the energy sector should be thinking about the decades of information they have on responding to supply and demand dynamics, and how they can secure and use it.

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 boardroom¹⁶, 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, energy 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 scenario¹⁷.

Learn from the innovation journeys of other sectors

It is also important to consider the opportunities and ensure scenarios explore positive futures. Companies should learn from the innovation journeys of other sectors to think outside the box to create new value in future stranded assets¹⁸. As a result of this kind of thinking, innovative companies are investing in new technologies, diversifying their models, and in some cases 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 sites¹⁹, gas capture²⁰, battery storage locations²¹, vertical farms, housing, and tourism, which in turn can reduce regional inequality that can develop into social unrest²².

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? Do you want to drive the action, or react to a situation you're not ready for?



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Drones: dangerous or beneficial?

Introduction

Drones have been making headlines all over the world for all of the wrong reasons over the last year. From disrupting flights at London's Gatwick airport, to attacking oil facilities in the Middle East, these technical innovations are being used for more than just aerial photography. But what exactly is a drone? Do they pose a danger, or can their use be beneficial?

A drone is a remotely controlled unmanned aircraft, but the term drone is typically used to describe a small remotely controlled aircraft with multiple propellers that is capable of hovering and, usually, taking photographs and video. Consumer drones can have an operating range of as much as 8 km with the capability to provide a continuous live video stream back to the operator, even at maximum range.

Potential applications

These capabilities in terms of range, flight time and payload (currently in the form of a camera) mean that drones can be put to work performing a number of tasks including those that are beneficial for Operational Risk Management.

Aerial surveys

Drones can be used to survey large areas from the sky relatively quickly and cheaply. For example, surveys of cross-country power transmission lines can be performed

using drones. Some inspection companies have started using artificial intelligence to analyze the results of the surveys to identify defects such as vegetation impingement, rusting bolts, bird's nests, missing tower parts, etc. If fitted with infra-red sensitive cameras, drones could also undertake thermographic surveys of the connections and insulators to help identify faults; the benefits are the elimination of low-level manned helicopter flights and a reduced number of workers in the field with both cost and safety implications. Surveys can also be completed faster with less manpower. The reduced costs allow surveys to be performed more often which could result in earlier detection of faults and an increase in the reliability of the power transmission network.

Pipelines

As well as surveying power lines, drones can be tasked to overfly pipeline routes as part of the required monitoring of the right-of-way, with very similar benefits. The utility of using drones to monitor pipelines continues offshore, with submarine oil or gas releases being much more visible from the air than from the surface. Again, the benefits of using drones over manned helicopter or fixed-wing flights are cost savings, a reduced impact on the environment and reduced risks to personnel with the elimination of low-level over-water flights.

¹⁵ <https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data>
¹⁶ <https://www.willistowerswatson.com/en-GB/Insights/2019/12/geopolitical-risk-and-how-experience-of-the-battlefield-might-help-the-boardroom>
¹⁷ The summer reader's guide to scenario planning <https://www.willistowerswatson.com/en-GB/Insights/2019/08/the-summer-readers-guide-to-scenario-planning>
¹⁸ <https://theconversation.com/coal-mines-can-be-closed-without-destroying-livelihoods-heres-how-124336>
¹⁹ <https://coloradosun.com/2019/05/29/guzman-tri-state-coal-plant-offer/>
²⁰ <https://www.bgs.ac.uk/downloads/start.cfm?id=1370>
²¹ https://pureportal.strath.ac.uk/files/19668385/RevManuscript_1_.pdf
²² <https://www.jbs.cam.ac.uk/faculty-research/centres/risk/publications/geopolitics-and-security/>



Oil spills

Continuing the offshore theme, there are multiple applications for drones to reduce costs, downtime and response times. Drones have recently been successfully used in oil spill response exercises. Recently they were used to provide surveillance and reconnaissance of the oil spill to determine the location and extent of the spill.

The information that they provided was used to help direct surface response vessels and to coordinate the clean-up vessel and the boom-handling vessel to maximize containment and capture of the spill. It was found to be safer, faster and cheaper than manned flight operations using helicopters or fixed-wing planes.

Inspections

Drones can also be used to reduce reliance on high-risk and high-cost rope access work such as underdeck and over-the-side inspections. This can help reduce the pressure on offshore bed space with fewer people required offshore to complete the tasks. Flare boom inspections can

be carried out during operations without the need to make the flare safe for a human inspector, and internal tanks can be inspected without having to arrange scaffolding or rope access, speeding up turnaround time to minimize downtime. Two operators can conduct UAV operations for up to ten hours each day, landing the drone only to replace batteries, and multiple drones can be operated simultaneously without cross-interference.

As mentioned earlier, drones are not limited to purely visual inspections. In the power transmission example above, a drone with an infrared sensitive camera was used to undertake a thermographic survey. Some companies have taken drone-based inspections a step further and installed ultrasonic thickness measurement instrumentation on drones.



Storage tanks

One application which is well suited to drone inspection is the inspection of storage tanks. Once a tank has been cleaned and is made safe for entry, the drone inspection team can quickly start taking wall thickness measurements off a pre-defined grid, with results streamed directly back to the operator for recording and interpretation without the need for scaffolding or rope access. The drone simply works up and down the sidewall of the tank, pausing only long enough for the thickness measurement to be taken. This allows a large number of thickness measurements to be taken up and down the walls of the tanks very quickly, reducing waiting time and eliminating the risks associated with working at heights.

Difficult to reach places

Drones can also carry out inspections at a height that might normally need scaffolding or in difficult to reach places like pipe racks. They can even be used in non-explosive oxygen-deficient atmospheres before someone without breathing apparatus can enter. This allows an increased opportunity for inspections to be performed rather than be deferred due to lack of availability or resources.

Ground security patrols

Another possible application is using drones to supplement ground security patrols. The UK Border Force has been using drones to provide a live video feed of the waiting and assembly areas at sites such as the Eurotunnel for several years and the UK Police forces routinely use them

for monitoring crowds. Drones can also be tasked to flying set routes defined by waypoints, all the time recording and relaying a live video stream back to the operator. This functionality allows drones to become part of the perimeter control and monitoring system at sites such as refineries or petrochemical facilities, supplementing the routine manned patrols or performing spot checks. This could increase the monitoring frequency of a location or allow the security team to get a visual appraisal of an area much more quickly than by sending a manned response.

Evidence suggests that the adoption of drones at operating sites has been slow, meaning that there are significant opportunities for further penetration for this technology with the associated benefits.

The downsides

So far we have seen that there are a huge number of potential applications in process industries such as energy where drones can reduce risks, save time and deliver cost savings. But what are some of the downsides of drone technology advancements, and how can they be combated?

Weaponization of consumer drones

The weaponization of consumer drones has been widely publicized following some fairly dramatic attacks with targets ranging from Heads of State to critical infrastructure such as oil processing facilities. Consumer drones have been taken up by armed groups and modified to carry high explosives. Recent attacks have started

using multiple drones simultaneously and have had a significant impact. In September 2019 the oil processing facility at Abqaiq in Saudi Arabia was attacked with 10+ drones which caused damage to oil storage tanks and process trains¹. Drones have been fitted with a multitude of weaponry, including high explosives, chainsaws, flame-throwers and handguns. They can also be operated in swarms with visually very impressive results (think of the opening ceremony of the 2018 Olympics). But if a swarm of drones was deployed maliciously, they could present serious problems, due to the possibility of overwhelming, to any sort of defence system.

Countermeasures

There is a multiplicity of countermeasures available to stop drones but each has its downsides. They range from kinetic solutions (think of ramming another drone into the target, or shooting down a drone with a projectile) to jamming (jam the signal between the controller and the drone and, given that drones can be pre-programmed, jam the GPS signal that the drone uses for positioning) to low-tech solutions like netting or even training raptors (eagles/falcons) to intercept drones. But shooting drones out of the sky would endanger people and property on the ground; jamming signals such as wifi and GPS would affect a much wider audience than just maliciously operated drones; netting an entire site may not be practical and maintaining a watchful raptor over a facility continuously would be extremely demanding, especially during the hours of darkness.

Conclusion: benefits, but also threats

With the widespread availability of parts available to buy online, it is very easy to source all of the parts needed to construct a drone of virtually any size, payload capability and endurance so simply controlling the supply of drones would not provide any protection from their misuse.

So drones offer both tremendous benefits but also some significant threats. As with so many technologies that have emerged and been developed over the years, the currently foreseen applications outlined in this article are probably only scratching the surface.



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Seeing the value: why accurate valuations are critical for energy risk managers

Please note that this article was written before the onset of COVID-19.

Introduction: can you rely on your existing data?

It is not uncommon for risk managers to talk in round numbers about the cost of their facility. A typical energy company employs engineers, project managers and accountants that work together to finance new projects, to continually manage the maintenance and refurbishment of the facility and to report the facility value for accounting and various other purposes. As such, the company holds a significant amount of background data on the facility that can help with any risk management related services and assist the risk manager to benchmark the overall value for insurance purposes.

From a valuation perspective, this data can help to reduce consultants' time onsite, allow them to prepopulate our cost model database prior to the site visit so that we can check, review, update and record any missing asset information.

But should this data be relied upon in isolation, in the same way as a firm of accountants might complete a valuation for accounting purposes? Furthermore, does this methodology lend itself to deriving accurate replacement values for insurance purposes? The simple answer is no. As noted above, existing data is useful; however, it is very common for assets to be incorrectly recorded, missing from the data or simply that the data itself is just not representative of what is physically at the facility. These factors are often overlooked by risk managers.

Outlining the value

The output from an insurance valuation can include a single figure, a schedule of values per process area or a complete plant register. Each output has a different time implication for the valuer and therefore carries a different consultancy fee.

In recent times there has been a growing trend for values to be allocated to appropriate site areas, thereby facilitating the risk management process by identifying the target risk and minimising any PML/EML exposure.

A detailed approach, including a full site inspection, offers a wide-ranging look at the company's operations. It can greatly assist in arriving at a comprehensive assessment of the company's risk profile with a higher level of accuracy. It is almost impossible to allocate this value to the individual facility areas by relying on internally-provided data which has only been analysed from a desk.

Generally, values are allocated to appropriate plot areas, which normally are clearly defined at an oil and gas facility; however, the arrangement of individual physical facilities can vary from site to site. The location of interconnecting pipelines, pipe bridges, plant utilities and substations can materially affect the value of the individual plant areas and its EML exposure. An on-site survey minimises the risk exposure, identifying areas of concern and applying appropriate values to certain areas.

¹ <https://www.nytimes.com/2019/09/14/world/middleeast/saudi-arabia-refineries-drone-attack.html>

Fig 1: Effect of currency/exchange rate fluctuations on a selection of currencies, 2015-20

Currency	% Change Local CPI 2015-2020	% Change Exchange Rates 2015-2020
Pakistani Rupee (PKR)	30%	74%
South African Rand (ZAR)	24%	33%
Pound Sterling (GBP)	8%	31%
Australian Dollar	8%	25%
Canadian Dollar	8%	14%
Euro	8%	8%

Source: Rushton

Reporting the value

We are often asked to report valuations in local currencies, but generally we would also report in US dollars as well as the local currency. Local currency fluctuations do seem to impact replacement values from a labour perspective; however, most plant is purchased from China, the US and the EU using an internationally traded and stable currency. Reporting in one common value, across multiple countries, allows the values to be easily updated from the desk.

However, it is not uncommon for clients to ask for values to be specifically reported in local currency. This can have a significant impact on valuation outcomes and should be carefully considered, especially when values are updated over time. This is obvious for less stable currencies but also applies to traditional currencies which have weakened in comparison to the US dollar.

Figure 1 above illustrates the changes in value when applying local trends such as the Consumer Price Index (CPI) and comparing those to US dollar currency exchange rate movements between 2015 and 2020.

“It is not uncommon for clients to ask for values to be specifically reported in local currency. This can have a significant impact on valuation outcomes and should be carefully considered.”

Case Study

Rushton was appointed to undertake a revaluation of a major oil and gas asset in Canada. One of the major issues during the exercise was the sudden depreciation of the Canadian dollar, which had decreased considerably reducing the purchasing power of the currency and impacting on all aspects of the valuation. It was argued by the client that the local currency fluctuations would have little impact on the values, considering that the majority of the assets were manufactured locally and would utilise non-foreign construction labour. It was also argued that construction rates should not be benchmarked against US dollar amounts, which would increase the valuation dramatically in Canadian dollar terms.

Evidence was produced of a newly constructed project that was plagued by construction issues and cost overruns which saw the project completed off schedule and over budget. It was discovered that the project was susceptible to increased costs, due to currency fluctuations whereby escalation rates were underestimated; this led to increased costs relating to all aspects of the project, including labour, bulk materials, engineered equipment and project in-directs. It was clear that higher domestic prices had increased import costs and had also negatively impacted labour rates, due to the inverse relationship between the value of the dollar and its effect on the local currency.

Fig 2: Rushton energy industry valuations, 2019

Recent Valuations – Rule of Thumb	
Oil Refineries	US\$ 20,000 – 25,000 barrels per day
LNG Plants	US\$ 800 – 1,200 tonnes per annum
Offshore Processing Platforms	US\$ 40,000 – 45,000 per dry tonne
Offshore Compression Platforms	US\$ 45,000 – 55,000 per dry tonne
Onshore Pipelines	US\$ 100,000 – 120,000 per inch per km
Offshore Pipelines	US\$ 175,000 – 200,000 per inch per km

Source: Rushton

Changing the value

The world economic situation saw a dramatic shift in 2015, with crude oil prices collapsing to their lowest levels in many years. As a result, all base metals (including steel prices) had corrected in tandem with the fall in crude oil prices. The crash in crude was largely caused by oversupply and the continued growth in US shale production which is still evident today.

At the close of 2019, prices in the oil and gas industry had steadied, reflecting the uncertainty over lower oil prices and international trade tensions, with an overall average increase of only 0.4% recorded since January 2019. This compares to an increase of 8-10% since 2015. A broad analysis of recent valuations in Figure 2 above shows the “rule of thumb” estimates for various oil and gas facilities.

Steel prices have remained volatile, due in large part to an unexpected rise in demand in China compared to the rest of the world, which saw demand decrease or slow in comparison to 2019. Prices have varied from 3,300 yuan to 4,400 yuan per tonne over a twelve-month period. The increase since 2015 has been more pronounced, with the market increasing since the correction in 2014.

With regard to the financial markets, all major currencies have weakened compared to the US dollar. The dollar has strengthened on average of 5% since 2018 impacting and increasing values for assets, especially those insured on a local currency basis.

Conclusion: garbage in, garbage out?

In the computer science world “garbage in, garbage out (GIGO)” coins the concept that flawed or nonsense input data produces nonsense output. A variation on the term “garbage in, gospel out” refers to a tendency to put unwarranted faith in the accuracy of computer-generated data or relying on data in isolation.

While we are not saying that all the data is garbage, we would suggest that relying on data in isolation can lead to inaccurate valuations. The valuation output is just one part of a business's risk management process and is used by third parties for EML studies. Both the valuation and the EML impact on the insurance buying strategy; however, the allocation of the valuation, together with the accuracy, impacts on the EML.

There is always a quick and dirty way to complete a task so that it is cheaper or easier for the business to facilitate; however, consideration needs to be given as to whether the task is fit for the purpose for which it is being used.



Sue Davies is Managing Director of Rushton International.



Oil Insurance Limited: an excellent underwriting year

2019 proved to be Oil Insurance Limited's (OIL) second best operational and financial year of performance since its inception in 1972; only 2009 was better. Four new members joined OIL: Beach Energy and Origin Energy from Australia, Motiva Enterprises from the United States and Bruce Power from Canada. In addition, Net Income exceeded \$1 billion, on the back of strong underwriting and investment results.

Cost-effective \$400m occurrence limit provision a significant differentiator

While these results nearly set a record, OIL's steadfast and dedicated objective to offer a \$400 million per occurrence limit at a long-term cost-effective price stands out as a value proposition differentiator relative to the commercial markets. At a time when there are significant adverse pricing and capacity pressures in the energy insurance markets, OIL continues to be unaffected by these external forces because of its unique mutual system. Furthermore and because of its ownership base that directly supports its internally generated capital position, OIL is firmly dedicated to supporting the energy industry, which includes the Exploration & Production, Refining & Marketing/Chemicals, Pipeline, Power/Utility, Wind & Solar Renewables and Mining sectors.

"While these results nearly set a record, OIL's steadfast and dedicated objective to offer a \$400 million per occurrence limit at a long-term cost-effective price stands out as a value proposition differentiator relative to the commercial markets."

A real and viable option as interest intensifies

As a result, OIL continues to remain critically important to its members and it is a very real and viable insurance option for interested and qualified energy company prospects. Over the past several months, Willis Towers Watson has experienced an elevated level of interest from energy companies attempting to understand the benefits and the long-term commitment of becoming an OIL member.

Development of OIL Cyber Wrap cover

On the product development front, OIL teamed up with Brit Insurance and Oil Casualty Insurance Limited (OCIL) to co-develop the "OIL Cyber Wrap". Realizing that there were gaps in cyber coverage with traditional OIL Property/Business Interruption wraps, the three companies collaborated to develop \$100 million of additional Cyber Property/Business Interruption coverage that works seamlessly with OIL's existing cyber property coverage. Brit Insurance exclusively offers the product with OCIL as a following market.

Excellent underwriting and investment year

The 2019 financial results were a combination of an excellent underwriting year with a similarly good investment year. The underwriting year saw Premiums Written of \$478 million against Losses & Loss Expenses of \$112 million, yielding Underwriting Income of \$364 million. As a point of reference, OIL's actuarially derived Annual Expected Losses have averaged around \$600 million for the past several years. Once Net Investment Income of \$691 million is combined with underwriting results and administrative costs, OIL's Net Income totaled \$1.034 billion for the year.

\$250 million dividend

Earlier in the year, OIL declared and paid a \$250 million dividend to its Shareholders. In doing so, OIL has paid dividends totaling \$2.1 billion since 2013 and billed \$2.6 billion in premiums over that same period. The recent distribution was made possible by OIL's continued and very strong financial position as reflected by Standard & Poor's rating of A Stable and Moody's rating of A2.

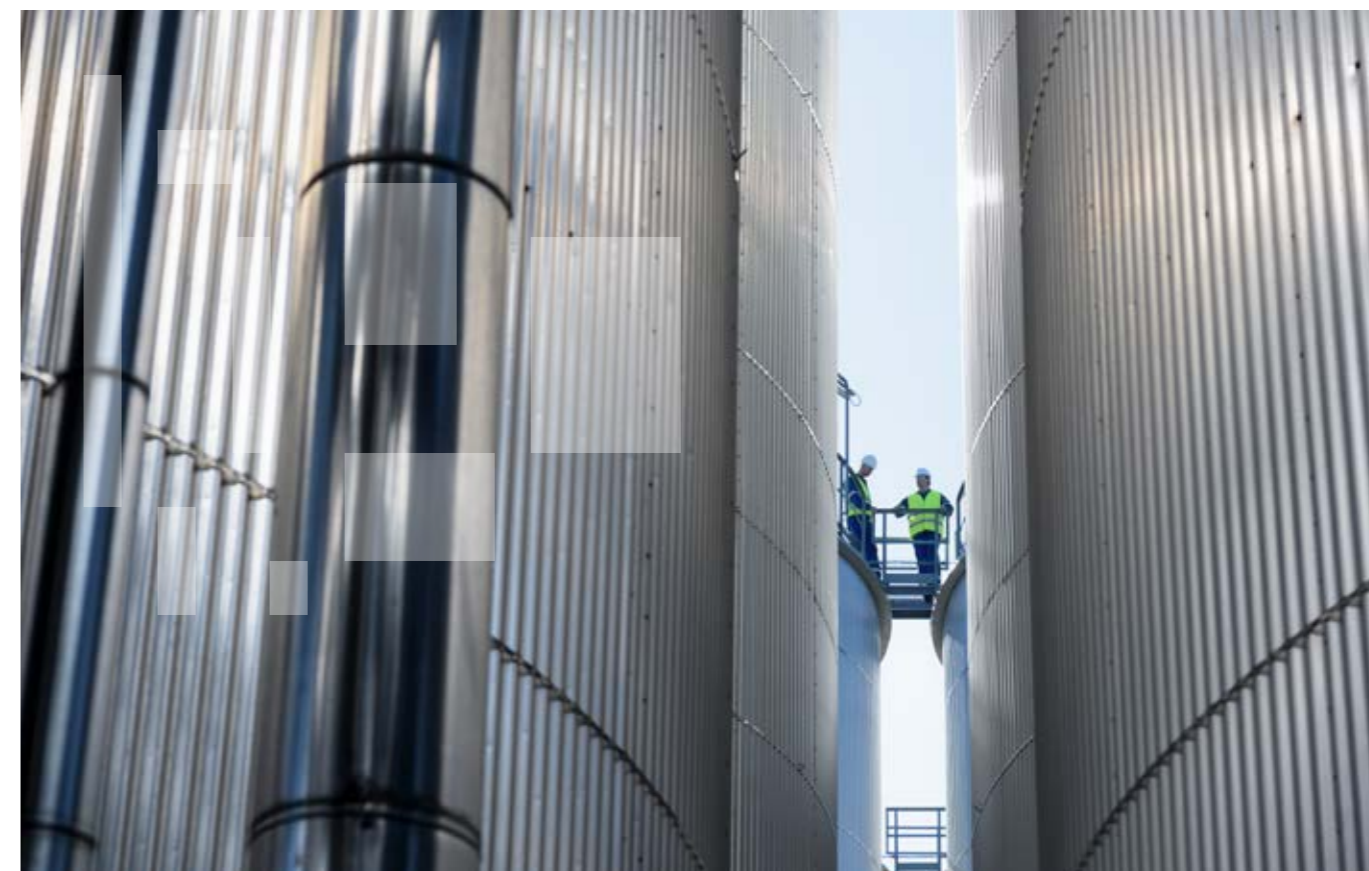
Four new members in 2019

As previously mentioned, OIL welcomed four new members to the mutual with no members departing. After taking into consideration Occidental Petroleum's acquisition of Anadarko Petroleum (both of whom are OIL members), OIL's shareholder count increased from 54 to 57 over the year. The membership increase boosted worldwide insured assets by \$43 billion to an aggregate total of \$3.1 trillion.

OIL is a Bermuda based energy mutual that offers its members up to \$400 million in net property, control of well and sudden & accidental 3rd party pollution coverages. Should your company have an interest in learning more about OIL, please contact your local Willis Towers Watson representative or Joe Seeger, EVP & MD on Joe.Seeger@WillisTowersWatson.com.



George Hutchings is SVP & COO of Oil Insurance Limited and based in Bermuda.





Part three –
the Energy insurance markets
in 2020



Convex's Paul Brand: London's still the place to deal with complex energy risks

In 2019, Stephen Catlin and Paul Brand co-founded the Convex Group with \$1.7bn of initial committed capital to underwrite insurance and reinsurance for complex specialty risks. Energy Market Review editor Robin Somerville (RS) caught up with Paul Brand (PB) recently in Convex's offices at Lime Street, London.

RS Paul, what's changed in the London insurance market during the last five years?

PB Let's take what hasn't changed first - we can still segment our client base into two distinct entities, those that are focused primarily on receiving advice, and those who are focused primarily on the price of the transaction. The first group tend to have more complex risks, with more significant hazards and with more potential for significant losses. They want to form strong relationships with their intermediaries to obtain advice on how to manage their risk landscape as it becomes more complex.

Conversely, there are plenty of other clients who, for very good reasons, need answers to two rather simpler questions: one, how do I get my insurance programme done and two, how can it be done as quickly and efficiently as possible? These companies tend to be less complex, with less exposure to risk; they are often buying insurance simply because the banks and the regulators have told them to.

The interesting thing is that both these segments have been conducted in the London market using the same processes, all throughout my career.

The complex risks have been dealt with quite well, whereas the commoditised risks have been relatively costly to deal with – in essence, a \$10,000 risk still costs the same to place as a \$1,000,000 risk.

The opportunity for technology to really drive the changes behind how insurance is conducted is there, and that's going to have a huge impact on the business. If you think about what clients want, their ideal would be to have the required insurance delivered instantly, and there it is – job done. Everything just happens in five minutes, rather like buying a book from Amazon. Now technology is enabling that, it's really happening. A lot of people are talking about disintermediation: we have brokers trying to become underwriters, we have underwriters trying to become brokers, and I have some scepticism about how good either sector will be at that. Are these underwriters and brokers good at technology? Because they must be to do this properly and be successful. To be honest, I've not met many carriers or brokers in London who are.

So we are on the cusp of a dramatic change. But in the meantime, the proposition that we've got for complex business is pretty strong. The transaction

costs remain relatively low - the cost of broking a complex risk is relatively cheap compared to a similar transaction in banking or any other capital solution.

RS So how are you going to differentiate the Convex offering to these two market segments?

PB Convex is essentially set up to deal with complex risks. That doesn't mean we won't support people who have built solutions for commoditised risks; we'll do that through our reinsurance business. This business can take global risks - where we find people who have built the right mousetrap, we will support it.

But I don't think that Convex is a technology company. We are an insurance company, and these days that implies knowing about technology, understanding data and understanding the opportunities that you can get from using data in different ways. If I get a bunch of underwriters turning up and telling me they want to create an online portal to attract \$2,000 premium accounts from around the world, I would probably ask them: what's the distribution? Because if you don't have the distribution solved, why would the business come to you rather than to anyone else?

RS What about those large energy companies around the world who continue to tender their business regularly? Do you still treat these programmes as complex risks?

PB Forming long term relationships and tendering the business aren't incompatible. I think it is entirely reasonable for clients to ask themselves: am I getting the right services from my intermediary, am I getting the right services from the market? So I don't feel threatened by companies who wish to tender their business. What we are looking for is whether the companies can look beyond the price and see the value. If you are dealing with the company which is going to make very short-term decisions because it does not really understand what its risk transfer opportunities are and what its strategy should be, then this may be because they have not been properly advised by their broker. That's very difficult for us to deal with, because we never know what's going to happen next.

“Some of the most prominent clients have had some of the worst claims records; it's much better if that's transparent and we can point out that we have people who can deal with claims in a fair way, looking to get a fair outcome, even if this offering is a bit more expensive than some of the less experienced alternatives.”

RS So you are looking for clients to be more transparent?

PB Transparency helps, but ultimately we want clients to behave in a rational way. We need to encourage them to consider not just the price but the value they are receiving. Some of the most prominent clients have had some of the worst claims records; it's much better if that's transparent and we can point out that we have people who can deal with claims in a fair way, looking to get a fair outcome, even if this offering is a bit more expensive than some of the less experienced alternatives. I think there is a lot more transparency in the industry these days and that's a good thing - carriers are keeping business because they are coming up with the right product set and providing the right responses in terms of behaviours, speed and certainty when speaking to intermediaries.

RS We are getting a hard market now in virtually every line of business, but there is still a lot of reinsurance market capital about. Do you see that ever going away, or will the over-supply simply continue?

PB Over time, the market must sustain a reasonable return on capital, or the carriers will indeed go away. Is that fundamental insight currently broken? No, I don't think so - you are always at risk of being out-competed by carriers who might have a cheaper cost of capital or lower expenses. The market needs to be the best place for clients to do business with. If we go back to the commoditised business, there is a challenge as to whether the London market will be doing all that it currently does in the future. For example, there is a lot less motor business in Lloyd's than there used to be.

RS Would you ever envisage a convex syndicate at Lloyd's?

PB It's not something I would say never to – it will be really interesting to see how Lloyd's recovers from its current issues. Are we hopeful that it does recover? Absolutely. Is the current management doing a good job? Yes, the blueprint has a lot of good ideas. In some ways Convex is a strategic bet on the fact that the London market will remain a really strong place for conducting complex insurance and reinsurance business.

RS Why are you so confident that London will retain its pre-eminent position in the global insurance markets?

PB We wouldn't have opened our offices in London and Bermuda if we had thought otherwise. For complex insurance risks, it's clear that London brokers and carriers are continuing to do a great job. Look at the amount of money flooding into wholesale brokers in London; that would not be happening unless investors saw a good future for the London market. When major brokers buy smaller wholesale units, they do that for the good reason that the London people generally represent value.

RS At one stage it was fashionable to talk about the globalisation of the insurance market. Do you now think we are seeing a re-centralisation?

PB I think my old shop at Catlin was part of that trend, but what we discovered as we expanded globally was that complex business came to London anyway; there was an assumption in the past that business wanted to stay local which I think was less true than we thought it was.

RS Why do you think that London's expertise, its knowledge base, its accumulation of insurance acumen has never been exported successfully to other hubs in quite the same way?

PB The key to it must be that we have been providing the right outcome for our clients, or it wouldn't have happened. However, I am quite interested in how networks work and how organisations administer themselves. Why is Cambridge University a brilliant institution? It's because there are all kinds of people in Cambridge that are rubbing along together, talking to each other, sharing ideas and concepts. And in a strange way, there is a sort of university feel to the London insurance market. Why has Convex chosen to position itself in the Scalpel next to Lloyd's in Lime Street? Why is Willis Towers Watson next door? It's because we can talk to each other easily.



RS So despite all the advances in technology, physical locality is still important?

PB If you are doing complicated things, then it's helpful if you can speak to somebody. It will be interesting to see how commoditised risk will become, but if you have got a difficult problem to solve, then you are normally better off going to speak to somebody. So when Convex conducted our capital raise, we went to speak to specific people. Now if you are doing something different, for example securitising a mortgage portfolio, you don't necessarily have to speak to people to do that, you simply create an index and people form opinions. But when I think about the complex business that London is good at, that still requires a great deal of face to face interaction.

RS Let's now turn to the risk landscape for the energy industry, and the risks to which it is increasingly exposed to. Let's take natural catastrophe (nat cat) risk as an example - with the climate change agenda becoming increasingly apparent on the horizon, there is the potential for nat cat losses to increase. But there's also a limited amount of nat cat capacity in the insurance markets. Do the insurance markets need to re-address what clients need and come up with a fresh, innovative nat cat solution?

PB I think the insurance market has indeed innovated around nat cat - the ILS market has increased from nothing to 25% of the global nat cat market over the last 10 years. That's hardly a minor blip. There has always been a bit of a supply/demand gap - on the one hand you can purchase anything if you are prepared to pay enough money for it, but on the other hand, quite rationally, companies have their own budgets and will limit themselves as to how much risk they can transfer. For individual carriers, we obviously have to be very careful about the amount of nat cat exposure we have on our own balance sheet - we clearly have to pay these claims if they happen.

RS Most companies have to be seen to be buying as much nat cat as possible because of shareholder pressure. So if there's a demand because these companies have to be seen to be buying it, given the amount of reinsurance capital in the market, should there be a larger capacity available for nat cat risks?

PB Well, at the moment I think there is as much capacity as is required. US property nat cat prices, even in a hardening market, didn't increase very much at this year's 1/1 renewal season. We will have to see what happens with the Florida renewals at 1/6, but in January there wasn't more demand than supply, although it was close. So demand didn't generally exceed supply - in the small number of instances where it did, it was not a question of price; carriers were just full.

RS Turning to the question of clients providing underwriting information - in this era of big data, is it easier for insurers to get the right sort of information to make good underwriting judgements than it was say 10-15 years ago?

PB Yes indeed. It's going to be fascinating where the internet of things will lead us to, and no one is really using that data yet in ways that truly help us to be more informed about risk. But the second area is where we can know more about companies than we used to be able to know. We can now do that independently, and that is a useful thing in terms of shifting the timeframe of the negotiating process.

RS We have heard a lot about how certain insurers have withdrawn from the coal industry recently - do you have any views about the type of business Convex likes to write from an ESG perspective?

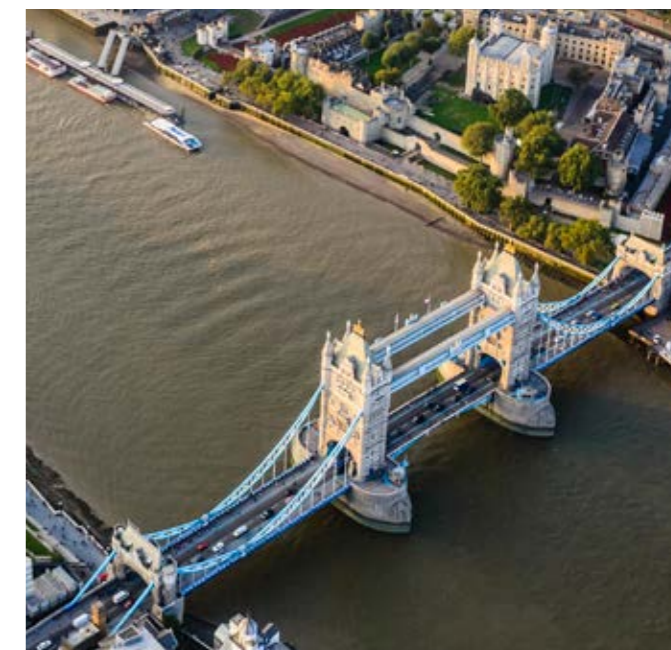
PB Society as a whole, and governments generally, need to show a bit more leadership around environmental issues. If it's legal to burn coal in a certain jurisdiction, and people are using that energy to heat their houses and run their air conditioning, you get to the question: well, who will insure them? I don't see coal mining as a major business opportunity for Convex but there is a challenge and people have to start thinking it through: obviously it has to be legal, secondly it has to be moral, thirdly, you have to think about your stakeholders and ask what is their view of that segment. Finally, do you think you will make money out of it?

RS It's interesting that you want to take into account the views of the company's stakeholders because everyone is going to be affected by this.

PB We have had similar challenges before. For example, one of the risks that I have always avoided has been tobacco companies; part of my moral compass was not to have too much to do with that industry. Other people in the company had similar concerns, then we got to the final factor - could we make money? And we concluded that we probably couldn't.

Now if you think about the oil and gas industry and some of the pressures it is coming under from some of their investors, again you have to ask: who are the polluters? Are they the people producing the energy or are they the people consuming the energy? Or should you simply ask the question: if climate change is accelerating and we believe that carbon is contributing to that, how do we as a society think about how we can cut carbon or re-capture it or find a solution that addresses the problem that we've got? So I get concerned with people who seem to possess magical thinking on this issue. Which companies are probably spending and investing the most and finding renewable sources of energy at the moment? It's actually the major oil companies. Does constraining share ownership of these companies help that? Probably not.

"If climate change is accelerating and we believe that carbon is contributing to that, how do we as a society think about how we can cut carbon or re-capture it or find a solution that addresses the problem that we've got?"



RS Finally Paul, how would Convex differentiate itself in term of what you want to offer the oil and gas industry as a long-term strategic risk partner?



Paul Brand is Co-Founder of the Convex Group.

PB Firstly, being collaborative – we think that the quality of our people, the ease of access, the faster service, all lead to smarter decisions. We are interested in finding the right outcome – that doesn't mean we write everything that comes our way, but it does mean that we will engage intelligently with anything that brokers are kind enough to bring us. We've set the business up so that the behaviours are right. Secondly, because we are not caught up in legacy, because our business plan is much more focussed, operationally we can be a bit slicker and cheaper. And as we build our data, analytics and insight we will continue to make smarter decisions.



Robin Somerville is the Editor of the Energy Market Review.

RS Paul, many thanks for your time.

“We are interested in finding the right outcome – that doesn't mean we write everything that comes our way, but it does mean that we will engage intelligently with anything that brokers are kind enough to bring us.”



Zurich's Ben Kinder: how to differentiate yourself in today's Liability insurance market

Conditions in the Energy Liability insurance markets all around the globe are suddenly the toughest for decades from a buyer's perspective. With capacity in short supply, and awards going through the roof, buyers and their brokers face many challenges ahead to secure appropriate coverage at a realistic price.

Willis Towers Watson's Michael Newsom Davis (MN-D) and Jo Stroud (JS) recently met with one of the most respected leading specialist Liability underwriters in London, Zurich's Ben Kinder (BK), to gain a more detailed insight into underwriters' mindset at a time when the industry's Liability risk landscape is in a state of flux.

MN-D Ben, let me start by asking you why you think the Liability market capacity is contracting quite so rapidly in 2020?

BK From my perspective I don't think it's contracting too rapidly - we still see significant capacity in the marketplace, but what we are now witnessing is underwriters being held accountable for the capacity that they have. They are having to fight harder for the capacity provided by their management, who will allocate that capital where they feel they are going to get the best return to enable them to hit their long-term strategic targets. Historically the Liability market hasn't been good at selling the long-term capital returns that they provide internally, and managers tend to view long tail liability as capital intensive and capital eroding over a long-term period. So in general terms they have been moving their capital away from long tail business to other lines that are hardening at a quicker rate and can give better returns on capital in a shorter amount of time.

JS What's different this time about today's hardening insurance market? We've had spikes before, most notably after 9/11.

BK I see that this hard market is very different. Comparing the current situation to hard markets from previous eras, this one has not been the result of a huge catastrophic event. Leading into 9/11 we had rumblings of hardening; the Independent had gone bust, facultative reinsurance had dried up, but the trigger was the huge withdrawal of capital off the balance sheets of the big insurers where they were having to conduct share calls to prop up their balance sheets; the big insurers were just shutting their doors trying to work out exactly what was going on. Previously, following catastrophes such as Piper Alpha in 1988, underwriters often didn't know what their aggregates were, which resulted in a shrinkage of capacity; this time it's a death by a thousand cuts. No one has had their legs chopped off; rates have just been shaved again and again. We are now seeing a correction and a need to gradually rebuild capital because so many people have

emptied the Incurred But Not Reported (IBNR) pool; I think IBNR has been masking the true situation for too long, so there will be no more raiding the savings accounts to mask the results. Meanwhile there has been significant social inflation around the world; we are now in a world where claims are inflating at around 9%, so we can't stand still.

MN-D *We have seen London-based insurers leading the charge on terms but there has been a bit of a disconnect with local markets in the past – do you see the dynamic changing, so that some of the regional markets begin to harden as well?*

BK I can only comment on Zurich's perspective here, as other insurers work very differently. We do have a global energy casualty strategy - we allow our customers to access the Zurich network, wherever they are located, and we will give them all the same price for the same product, the same proposition - at least, as much as possible. In a softer market place, you see the way in which companies conduct themselves is much more decentralised; when they are looking for growth, they are pushing empowerment out to all the offices and it is very hard to control that. In a hardening market you tend to see a recentralisation; we need to bring it back to the skill sets and only empower those people who we think can implement the strategy.

JS *Are there any lines of business which are coming under particular scrutiny?*

BK We are seeing a significant shift in litigation in a number of Liability lines where management are looking back and realising that these lines have never actually delivered any significant returns to the business. It's coming to an epiphany whereby they are thinking: can we turn this around, is this a viable product we can go forward with to the market? In areas such as Directors & Officers (D&O) and Professional Indemnity (PI), the legal environment is changing very significantly and insurers can't change the product swiftly enough to respond. The Liability portfolio is sitting at the very precipice of that and there's still a lot more to come in terms of changing legislation.

MN-D *In these more challenging market conditions from a buyer's perspective, how will specialist Energy Liability insurers like you differentiate your client base?*

"It's coming to an epiphany whereby they are thinking: can we turn this around, is this a viable product we can go forward with to the market?"

BK For my team, the biggest focus now is on customer buying behaviours. What we have found for a long time is that some customers have been very transactional, tendering every year; their brokers have not been trying to differentiate their product, they have tended to just walk into the market and obtain the cheapest price. Those clients who have used us to pick up their additional losses, to take all their risk off the balance sheet and to push for low deductibles - they are really going to struggle to access capacity in this market because firstly, they have used the insurance market to prop up their lack of maintenance and secondly, their balance sheets have failed to look after their assets. In my view, those customers are now in trouble; we will walk away from customers who think our capital is cheaper to use than their own.

In contrast, there are customers that have bought sophisticated products to protect their balance sheet, who haven't looked to us to subsidize maintenance cost, who haven't been willing to let their assets go into a poor state of repair and who haven't compromised on the quality of metal they use in their well casings or the quality of their contractors. Those customers are going to be fine.

JS *Turning to the issue of climate risk and sustainability, do you think the insurance industry should be helping clients move more towards more sustainable business models?*

BK I think sustainability is becoming a massive factor, particularly on Energy and Casualty lines. But on this issue, there's also a very important message to put out - at Zurich, we are not going to stop providing insurance to fossil fuel companies. Furthermore, we can't expect coal-fired power stations to suddenly stop being who they are - we can't turn around and say we won't insure you anymore. Because if they want to convert that power station to the biomass or a gas fired station that is going to cost them money; they are going to need to go to the banking markets to find it and they are going to need insurance to cover it while that process is going on. That again goes back to behaviours.

What we have said is that if a company falls into one of these categories over the next two years, we want to engage with you and share our knowledge within our risk engineering team with you - we want to understand how we can help you achieve your ESG targets. I think

the insurance industry as a whole has a massive part to play in this; we have significant data, we have property and risk engineering skills, and that is the sort of offering we should be bringing to clients to help them achieve these goals. We are very strong around that engagement piece; we have shared data, analytics and technology to support these industries in achieving their targets. We developed this approach in a softening market; now the market is changing, and we have seen another group of significant insurers taking the same position; so the pressure on buyers is only going to increase. Meanwhile we are seeing increased climate change litigation so we need to be in a situation where we can defend how we are transacting business with these clients, how we are enabling them to meet their long term ESG targets. That's where companies such as Zurich can differentiate ourselves from the General Liability providers.

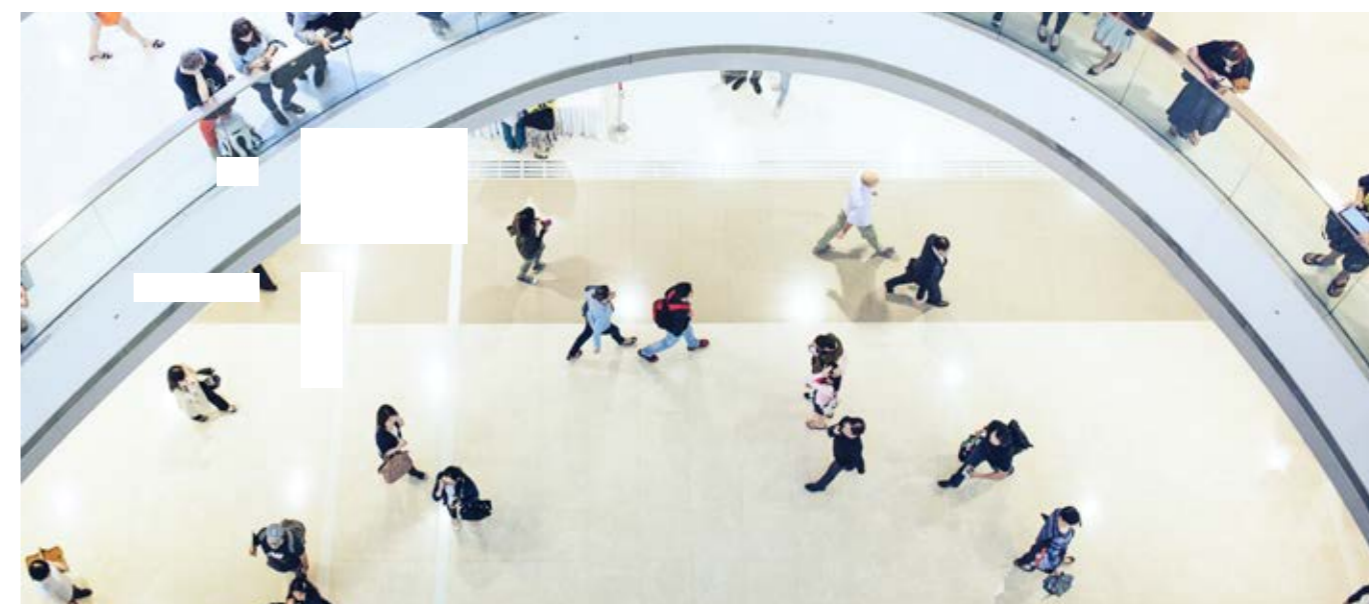
"Those clients who have used us to pick up their additional losses, to take all their risk off the balance sheet and to push for low deductibles - they are really going to struggle to access capacity in this market because firstly, they have used the insurance market to prop up their lack of maintenance and secondly, their balance sheets have failed to look after their assets."

MN-D *What other ways do you see the insurance industry adding value in terms of managing climate risk?*

BK Well, here in the UK the Bank of England has now built climate change into capital stress testing. They are looking at financial institutions in the city and saying: if you are investing in XYZ infrastructure, how are you differentiating that infrastructure around what we call stranded asset exposure? To illustrate, if a bank lends 25 billion dollars to an energy company to build the biggest coal-fired power station in the world, and then the legislation changes in three years' time and coal-fired power stations are banned, the bank is left with a stranded asset - it's worth zero. And the bank has a debt on their balance sheet to the tune of 25 billion dollars; that's enough to potentially bring down a significant financial institution. The reason why the financial institutions are doing this is they cannot risk a suite of debt on their portfolio that is highly exposed to stranded assets - especially after the 2008 crisis. That's why they are careful about what they are lending and who they are lending to. So those companies that need to transition to more sustainable sources, cleaner fuel and output along the whole ESG journey are going to require investment; they are going to need to go to the banking markets and insurance markets and will require finance, liquidity and insurance.

JS *In what other ways are specialist Energy Liability carriers such as Zurich differentiating themselves from other Liability carriers?*

BK Over the course of the previous ten years, risk analysis and selection had become ignored and eroded, together with exposure analyses; underwriting had just



become a process of churning quotes across the desk. The General Liability teams generally consist of underwriters; they don't include specialist risk engineers, so I think that those teams don't have the breadth of knowledge to really differentiate on risk selection, whereas Zurich has a large team of risk engineers who have worked in the industry for 20-30 years and sit within the underwriting teams. And if an enquiry comes in on an energy risk in these new market conditions, the first question we ask our engineers is quite simple: would you work for this company? Would you want to work in one of their refineries? If they say no, we won't quote it. But if instead the engineers think it's a decent company, that's when we take the process further.

MN-D *Do you think the product that the Liability market has offered during the last ten years or so is now in need of modification?*

BK In some cases, the product been used was written 20 or more years ago when the legal environment was a very different place. The litigation, legal and business environment has changed and the shareholder pressure that our clients are under has shifted dramatically. So we have to improve the product to meet the needs of our clients.

Furthermore, customers have been willing to sign contracts that impose significant liabilities on their business, because they know they have full contractual liability within their policy wording that will back up the contracts that they are signing. Over the years you have seen this - Liability insurers have become the dumping ground for customers who can't find any other home for the cover.

"And if an enquiry comes in on an energy risk in these new market conditions, the first question we ask our engineers is quite simple: would you work for this company? Would you want to work in one of their refineries? If they say no, we won't quote it."

Now we are seeing even more of this with the Downstream Property market hardening. For example, a customer might want to cover their product in a particular tank or other receptacle. Now that's Care Custody & Control coverage, but because the Downstream Property market has hardened, they might want to attempt to insure their product under their Liability programme. If this was presented to us, we would simply walk over to our Downstream Property colleagues and say: this is the sum insured, the amount of product in the tank, so how much would you charge for that? But curiously, as soon as we say we've talked to our Downstream Property colleagues, that demand suddenly disappears.

Similarly, what we saw after the Deepwater Horizon tragedy in 2010 was customers trying to blur the lines between Operators Extra Expense (OEE) coverage and Sudden & Accidental (S&A) pollution. The clients did not want to buy the OEE limits they really needed to buy, and they thought that if they could blur the lines, they could use both lines of cover. But that just won't work in this market. What we have been quite good at has been to say: this is our product - we know what it is, what it does and doesn't do, and we are not going to blur the lines any more.



JS *Finally Ben, in light of the new market dynamics now in play, what advice would you give clients in terms of optimising their Liability programme terms and conditions?*

BK Let me put it this way: if you go to the dentist once a year, that doesn't guarantee that you will have the best set of teeth - we all know we need to maintain our teeth throughout the year! A client that just comes to the market once a year is not going to have the best experience. What we want are professional customers who engage with the market regularly and update us properly with what is going on in their business. Some brokers come in to us with a lame story: "it's the same risk as last year". Now if I was a shareholder of that company, and I went to the CEO to ask what had happened to the company over the last 12 months, only to be told by the CEO that "nothing has changed", I would want to know why - it just doesn't sound right. A \$20 billion energy company, and we are being told that the exposure is exactly the same? We need more visibility from the company on a regular basis.

Customers such as these should understand that insurers' main focus at the moment is risk quality information. They need to be transparent about the risk and to differentiate themselves from their peers. Underwriting is a professional skill and underwriters need to fully understand a client's exposures. We can then provide our capacity based on that, especially for those wanting to but the bigger limits. The danger has been certain clients who have produced a lack of information and who then wanted and/or demanded certain coverages; this will no longer be accepted by insurers.

These customers must also realise that this process is not a one-day transaction - if you look at the way these same companies deal with the capital markets, they have monthly meetings with their bankers, they have quarterly capital market days, because these people lend them money. We are putting our capital at risk - I appreciate that in the first instance we get to keep our capital, we don't give it to them initially. But we are still risking our capital, just as the capital markets are, and we get treated very differently.

In contrast, for customers that have been with us for a long period of time, we will show where we think their exposure has gone, where their premium has gone and where their claims have gone, using the data that we have compiled. We will overlay that and highlight the gap that has been created which we have to close.

MN-D *Ben, many thanks indeed for your time.*



Ben Kinder is Global Head of Energy Casualty at Zurich Insurance Company Ltd.



Mike Newsom-Davis is Head of Liability, Natural Resources at Willis Towers Watson London.



Jo Stroud is Head of Energy Liability at Willis Towers Watson London.



Upstream: artificial management “floor” keeps rating levels stable

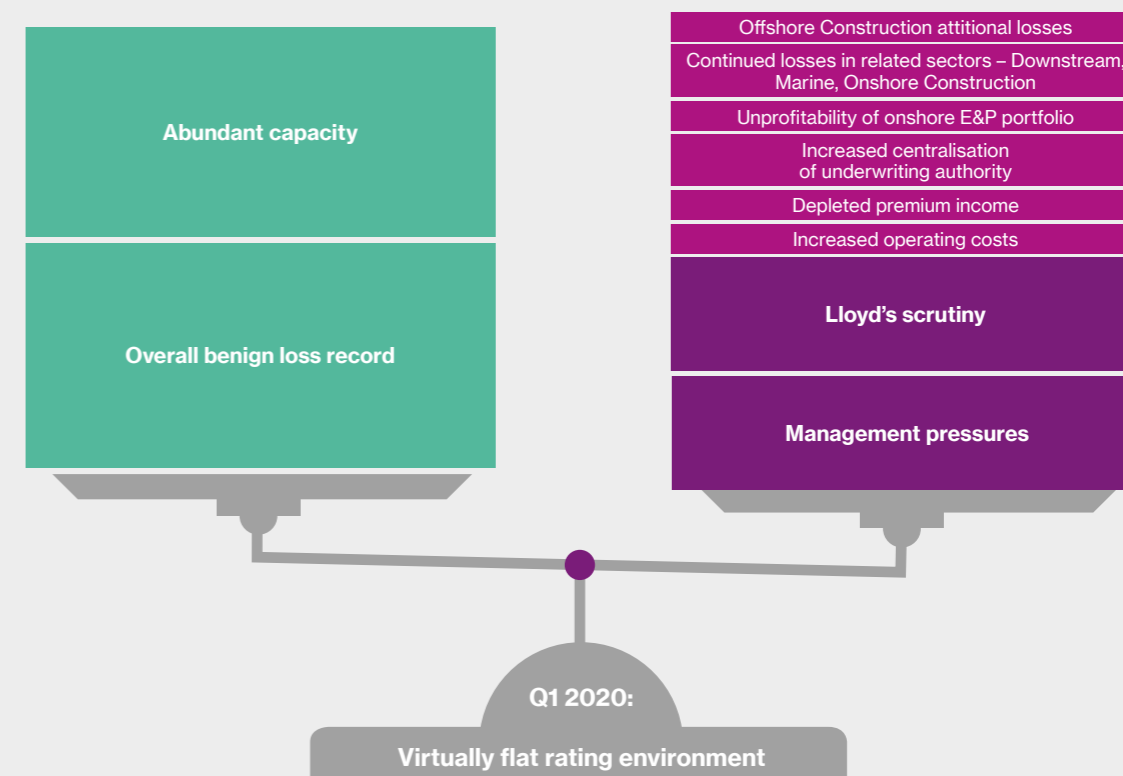
Introduction: a market that continues to buck the current trend

In last year’s Review, we suggested that the Upstream market was on the verge of a significant hardening – particularly if the loss record began to deteriorate - as insurers were looking for any excuse to push for steeper rate increases in line with other parts of the overall Property/Casualty portfolio. Buyers will therefore be delighted that no such significant hardening is yet apparent in the Upstream market. Capacity is up; the loss record, including Gulf of Mexico windstorm losses, remains benign; and so the catalyst to spark increased rate rises has simply failed to materialise, at least in general terms.

In normal times, we would therefore be reporting a continuation of the old soft market dynamic; no one needs to be an economist to understand that increased supply leads to lower prices, in the absence of any other factor.

But these are not normal times. As we emphasised last year, Upstream remains part of the wider heavy industry Property & Casualty portfolio; and as we report on the Downstream chapter of this Review, the remainder of that portfolio is still being heavily impacted by major underwriting losses across the board.

Fig 1: Virtually in balance: the Upstream underwriting environment, April 2020



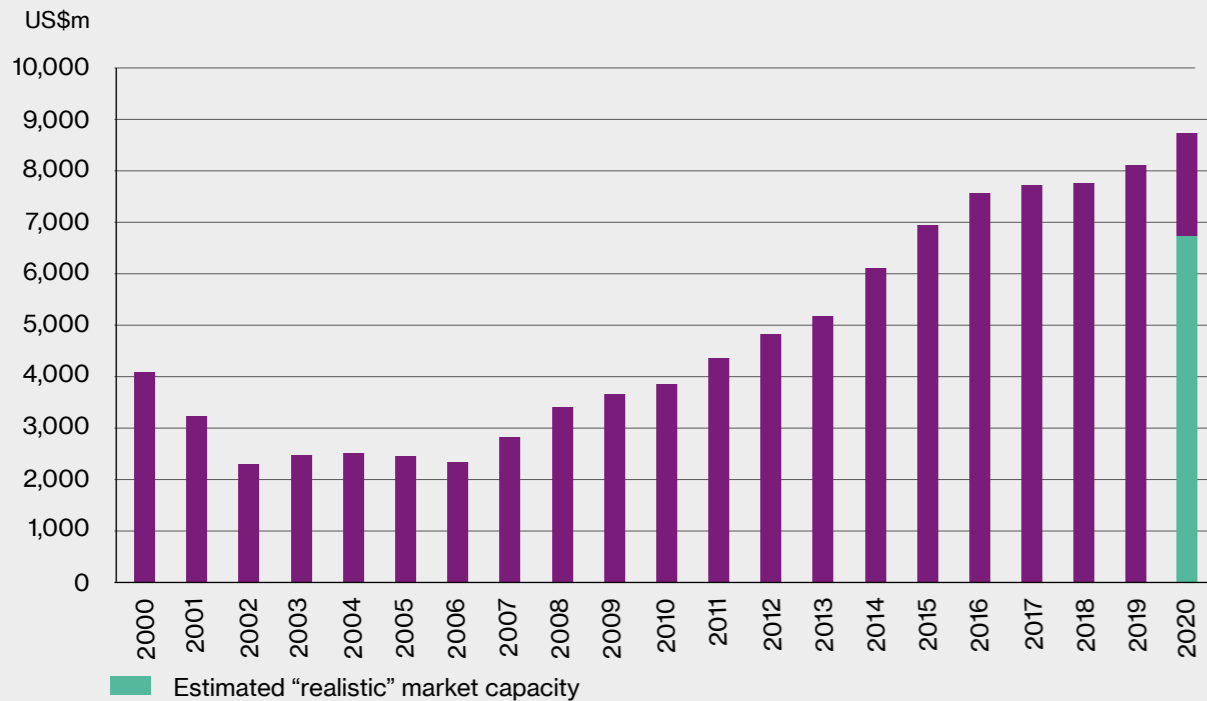
So much capacity, so few losses – this market would be softening rapidly if it were not for management pressures

A market virtually in balance

As a result, we have a situation illustrated by Figure 1 above that shows how individual insurer management and Lloyd’s Performance Management Directorate (PMD) pressures are counter-balancing increases in capacity and the benign loss record. We now have a market that is steadfastly maintaining the new status quo established last year, with virtually no rating reductions being permitted by senior management at almost every insurer. This has meant that rate rises have generally been perfunctory in nature; just enough to satisfy senior management but nowhere near the levels seen in other sectors such as Downstream.

But does this fragile stability mask some interesting developments in some sub-sectors of the Upstream portfolio? Is the current Upstream premium pool sufficient to guarantee long term profitability? Will this market continue to buck the overall current market trend? As usual, we shall look at capacity, losses and overall profitability to find out.

Fig 2: Upstream Operating insurer capacities 2000-2020 (excluding Gulf of Mexico Windstorm)



Both theoretical and realistic capacity levels are once again on the increase – thwarting the efforts of insurers to accelerate the hardening process

Source: Willis Towers Watson

Capacity – up again as new entrants keep existing leaders on their toes

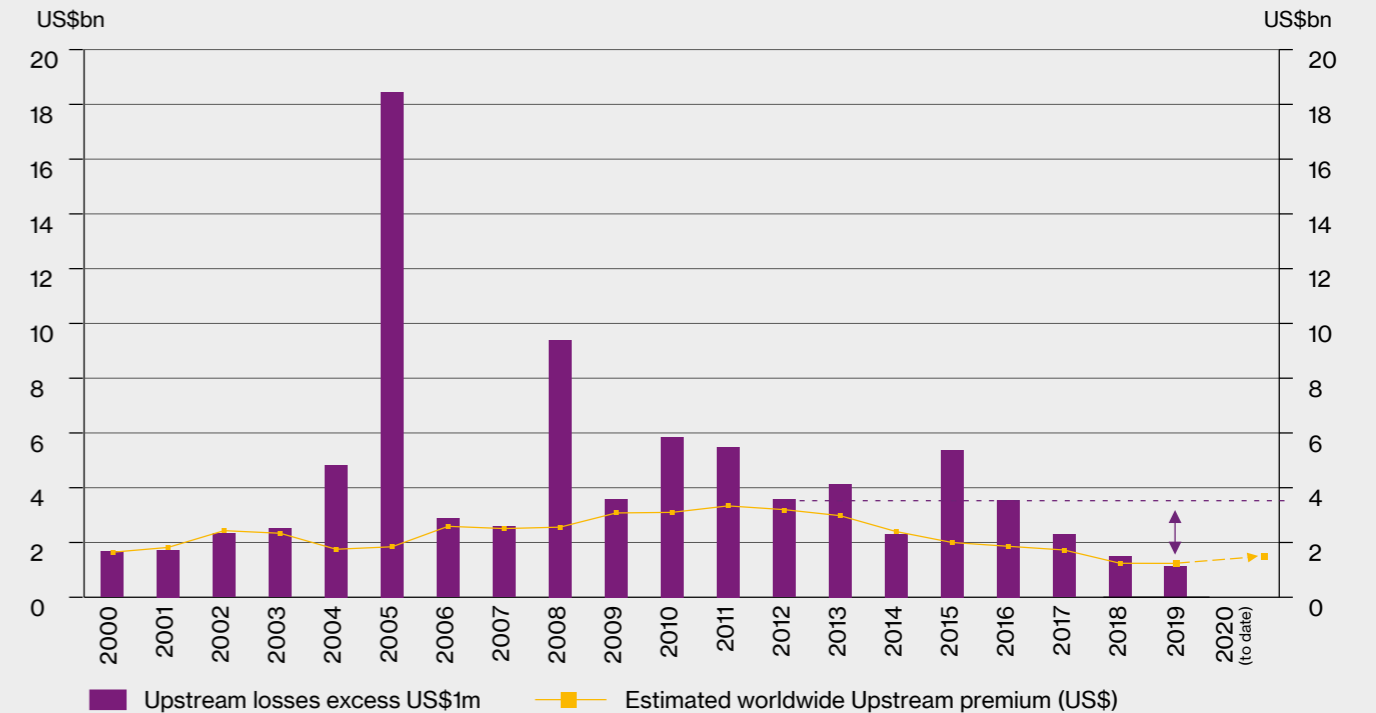
The chart in Figure 2 above is hardly reflective of a hardening insurance market. Instead, it shows that once again overall “theoretical” (i.e. what insurers advise they can offer) maximum capacity levels have increased once more, from US\$8.10 billion in 2019 to US\$8.73 billion in 2020. Some of this increase can be put down to the introduction of Convex into the market- a development which has certainly kept existing Upstream leaders on their toes - but mostly this increase has resulted from other insurers’ determination to maintain their current position in the market and, where possible, to maximise their lines sizes on the most profitable programmes. There is also no doubt that, for certain insurers, being able to advertise a larger maximum capacity figure brings with it certain branding advantages and an assurance that their capacity will be taken seriously by brokers.

Maximum realistic capacity at record levels

We have therefore increased what we think is the maximum “realistic” (i.e. what insurers actually put out in practice) market capacity to US\$6.75 billion – more than was ever available even during the ten-year soft insurance market of 2011-19. However, a note of caution needs to be sounded; insurers only generally deploy their maximum capacity on assets located in specific regions such as the North Sea. In practice, the amount of capacity available is also curtailed by the maximum percentage line size that a given insurer is permitted by their reinsurers to put out.

Be that as it may, we can still confidently assert that there is more capacity available to Upstream buyers as there has ever been in the past.

Fig 3: WELD Upstream Energy losses 2000–2020 (excess of US\$1m) versus estimated Upstream premium income



While the loss record continues to remain benign, the Upstream premium income pool, the Upstream premium income pool remains depleted compared with the last major upswing in rates in 2011

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

Losses – the run of benign years continues

In the past, the Upstream industry has been a byword for loss volatility: think Piper Alpha, Enchova, Hurricanes Katrina, Wilma and Ike, Deepwater Horizon and Gryphon A. But our chart in Figure 3 above shows a very different story in recent years. In fact, we have to go back to 2015 to find a year with significant Upstream losses; since then, loss levels have declined year-on-year. (Indeed, there has been only one Upstream loss recorded to our database to date in 2020, making this column hardly visible at all on our chart - however, we have included it for consistency with previous Reviews.)

\$2 billion of Upstream premium income lost in last nine years

This is all good news from an insurer perspective; however, this welcome development should be considered in conjunction with our estimates of the overall global

premium accredited to the Upstream market. Since the beginning of the soft insurance market in 2011, premium income levels have also continued to decline year-on-year; although we think there has been a small uplift since 2018, overall premium income levels remain low by historical standards. Indeed, since 2011 we estimate that the market has lost nearly US\$2 billion of premium income, due to a combination of softening insurance market conditions, increased captive retentions and reduced programme limits.

So we think that there is still a long way to go before Upstream insurers can rest easy in their beds. It would only take a small number of major losses in excess of US\$1 billion – losses that the industry has suffered many of in the past – to change existing market dynamics.

Fig 4: Upstream losses excess of US\$20 million, 2018

Type	Cause	Region	PD US\$	OEE US\$	BI US\$	Total US\$
Plant	Earthquake	Asia Pacific	169,600,000	0	0	169,600,000
Pipeline	Unknown	Asia Pacific	80,000,000	0	0	80,000,000
Well	Blowout no fire	Latin America	0	21,500,000	40,000,000	61,500,000
Pipeline	Heavy weather	North America	57,723,374	0	0	57,723,374
Pipeline	Faulty work/op error	North America	50,710,920	0	0	50,710,920
Pipeline	Mechanical failure	Australasia	26,000,000	0	17,600,000	43,600,000
Pipeline	Unknown	Africa	39,000,000	0	0	39,000,000
Pipeline	Unknown	Africa	35,000,000	0	0	35,000,000
MOPU	Impact	Asia Pacific	31,265,500	0	0	31,265,500
MOPU	Faulty design	Australasia	28,111,600	0	0	28,111,600
MOPU	Faulty work/op error	Africa	27,000,000	0	0	27,000,000
Pipeline	Corrosion	North America	26,723,500	0	0	26,723,500
Plant	Mechanical failure	Middle East	25,000,000	0	0	25,000,000
Well	Blowout no fire	Latin America	0	23,680,000	0	23,680,000
Pipeline	Misc	Latin America	22,700,000	0	0	22,700,000
Pipeline	Misc	Latin America	23,205,540	0	0	23,205,540
Well	Blowout no fire	Africa	0	22,500,000	0	22,500,000
MOPU	Unknown	Africa	22,000,000	0	0	22,000,000
Pipeline	Flood	Latin America	22,000,000	0	0	22,000,000
Pipeline	Anchor/jacking/trawl	China	21,140,000	0	0	21,140,000
Rig	Fire no explosion	USA	20,215,000	0	0	20,215,000

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

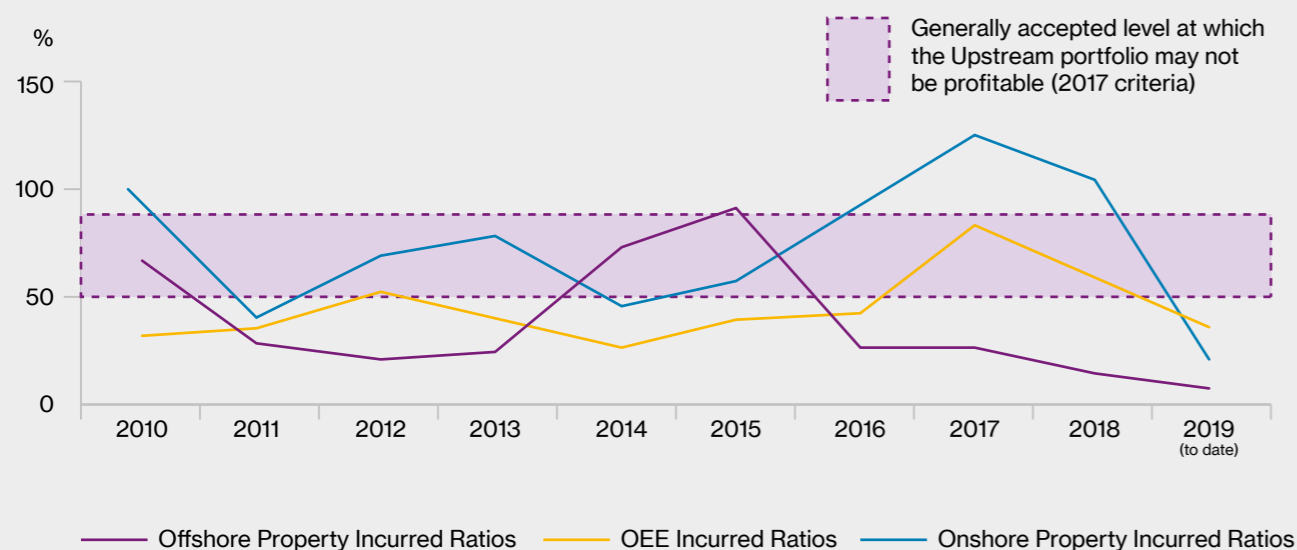
Fig 5: Upstream losses excess of US\$20 million, 2019

Type	Cause	Region	PD US\$	OEE US\$	BI US\$	Total US\$
MOPU	Heavy weather	Europe	85,000,000	0	50,000,000	135,000,000
Well	Blowout no fire	Asia Pacific	40,000,000	90,000,000	0	130,000,000
MOPU	Heavy weather	Latin America	100,000,000	0	0	100,000,000
Oil Sands	Fire no explosion	North America	45,000,000	0	22,500,000	67,500,000
MOPU	Fire no explosion	Latin America	60,000,000	0	0	60,000,000
Well	Blowout no fire	Asia Pacific	0	53,600,000	0	53,600,000
Pipeline	Ruptured pipeline	Europe	52,900,000	0	0	52,900,000
Well	Blowout no fire	Africa	0	50,000,000	0	50,000,000
Pipeline	Faulty work/op error	Africa	45,000,000	0	0	45,000,000
Well	Unknown	Africa	0	42,000,000	0	42,000,000
Rig	Unknown	North America	20,500,000	0	20,000,000	40,500,000
Pipeline	Ruptured pipeline	North America	40,000,000	0	0	40,000,000
Pipeline	Fire + explosion/VCE	North America	0	0	35,000,000	35,000,000
Platform	Windstorm	Asia Pacific	33,000,000	0	0	33,000,000
Well	Blowout no fire	North America	0	31,000,000	0	31,000,000
Well	Blowout no fire	North America	0	30,000,000	0	30,000,000
Well	Blowout no fire	North America	0	25,000,000	0	25,000,000
MOPU	Faulty work/op error	Asia Pacific	20,000,000	0	0	20,000,000
Pipeline	Flood	Latin America	22,000,000	0	0	22,000,000
Pipeline	Anchor/jacking/trawl	China	21,140,000	0	0	21,140,000
Rig	Fire no explosion	USA	20,215,000	0	0	20,215,000

With only three losses excess of US\$100m recorded for 2019 to date, the Upstream portfolio continues to be profitable - even at current premium income levels

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

Fig 6: Upstream Market Profitability 2010 – 2019



While the Offshore Property portfolio remains highly profitable, the same can not be said for OEE or Onshore Property when viewed in isolation

Source: Lloyd's Market Association Quarterly Loss Report Q4 2019. "Offshore Property" – combination of ET/EC/EM/EN Audit Codes "OEE" – combination of EW, EY and EZ Audit Codes. "Onshore Property" – EF audit code

Profitability – overall Incurred Ratios mask contrasting fortunes

The statistics for this chart come from Lloyd's of London and show overall Incurred Ratios (i.e. received premiums versus paid and outstanding claims) for three different classes of Upstream business – Offshore Property, Operators Extra Expense (OEE) and Onshore Property, which includes various onshore energy infrastructure/assets that can be underwritten in the Upstream market such as land rigs, gas plants and onshore pipelines. 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.

What can we deduce from this chart? Sadly, the latest figures available from Lloyd's are too immature to be germane for 2019, but we can take a closer look at 2017 and 2018. The purple line, showing Offshore Property, is well in profit for both years; given that this is where the vast majority of Upstream insurers' premium revenue derives from, that is highly encouraging news for the market.

OEE and Onshore Property remain unprofitable

However, it's a different story for the other two sectors. OEE, the yellow line, is very likely to have lost money for insurers in 2017 and may well have done for 2018 as well. Meanwhile, the Onshore Property portfolio represented by the blue line (which does include an element of Downstream assets which the Upstream market is prohibited from underwriting) for both years has been highly unprofitable.

No wonder that Upstream insurers have been paying particular attention to the Onshore Exploration and Production (E&P) and OEE areas of the portfolio.

An artificial backstop prevents a wholesale market softening

The combination of increased capacity and fewer losses means that unlike other lines of business, this is still a market where the broker is setting the terms. All too often, brokers head out to the market with a good-looking insurance programme and can return to their offices having placed the business without a single amend to the proposed terms and conditions: unlike Downstream, Upstream is still very much a subscription market.

Current rating increases very modest for most business

No wonder brokers can keep average rating increases to nominal amounts – ranging from as little as 2.5 to 5% in most cases (for loss-free business). Indeed, the overall market appetite for Upstream business - particularly offshore - is preventing some well-known market leaders from attempting to push for more significant rate rises; over the last few weeks their initial quotes requiring steeper increases have not been accepted by clients and their brokers, with the result that they have had to accept a reduced rate increase to secure a firm order from the buyer along the lines of the modest rating increases indicated above.

Convex entry leaves market undisturbed - for now

While it is true that the introduction of Convex has had an impact, particularly on smaller insurers with more modest programme lines, they have not yet assumed a full leadership position in the market. This has enabled the existing leadership panel to remain intact, with Convex keen to focus on building and establishing their portfolio without any undue disruption to the current market status quo.

Following market offer benchmarking services

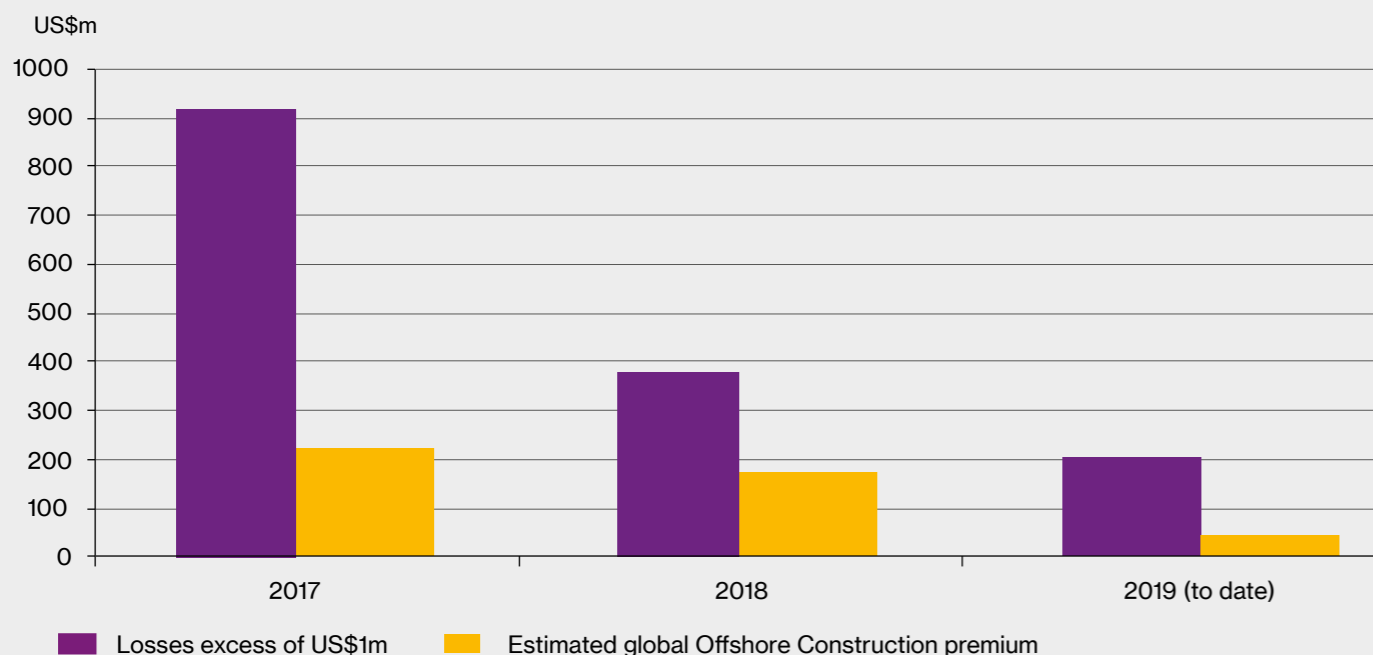
Meanwhile some member of the following market have sought to differentiate themselves from their peer group by offering brokers ancillary services such as benchmarking to assist brokers in formulating their broking strategies. Again, this is hardly the sign of a hardening market and amply demonstrates that the broker still has command over the general market situation.

Reductions still out of the question - with rare exceptions

Despite all of these factors, however, brokers remain essentially up against a brick wall when seeking actual rating reductions – which they should be able to achieve in any other market displaying these characteristics. With some rare exceptions, the position of both the Lloyd's PMD and senior corporate management in the big composite insurance companies remains the same – individual Upstream underwriters are generally still not permitted to agree to any form of rating reduction, regardless of whether the insurer in question had participated in the expiring programme or whether the broker is keeping the original rates but applying other credits in some form or another. To break this injunction would almost certainly have significant consequences for the underwriter in question, unless there are some special mitigating circumstances where senior management can sign off on a deal. That is perhaps the one issue that even the most plausible and skilful brokers can do absolutely nothing about.



Fig 7: Offshore Construction losses reported to date, 2017-19



Most of the deterioration of the overall Offshore Construction loss record falls back onto the 2017 year of account. However, the figures for 2018 and 2019 have also shown a marked deterioration during the last six months.

Source: Willis Towers Watson/Willis Towers Watson Energy Loss Database as at March 1 2020

Offshore Construction - the exception to the rule

The one area of the Upstream portfolio that is causing alarm in the market is Offshore Construction. Although this line of business represents only 10% of the overall Upstream portfolio, the loss record has recently been so poor it seems that in this sector at least insurers are successfully enforcing much more significant rating increases.

A glance at Figure 7 above should explain why. Although the loss figures in the purple columns do include both insured and uninsured losses, and although there is a significant proportion of this part of the portfolio that is absorbed by the participation of captive insurance companies, these figures still make disturbing viewing for Offshore Construction underwriters. One of the problems for this class of business from an insurer perspective is that rating levels were driven artificially low by the steady advance of the previous soft market while the attritional loss record, particularly for 2017 but also to a lesser degree for 2018, has been maintained.

Subsea issues drive underwriting losses

Furthermore, a significant proportion of these losses can be attributed to the increasingly prevalent use of subsea completion systems. Some insurers have reacted by refusing to participate in subsea projects, and in making that decision they have been supported by their senior management, who are alarmed not only by the prevalence of subsea attritional losses but also by the long “tail” which is a significant aspect of many Offshore Construction projects.

Excess layer a focus for insurer attention

As a result, rating increases for this sub-class have been sharp – to the extent that it has often been more prudent for the broker to layer the larger programmes, whereas in the past virtually all of them had been placed on a quota share basis. On these excess layers in particular, there has been a special focus on rating levels as the market, sensing an opportunity, has enforced what would have been considered punitive rating levels on programmes that have had to be layered in this fashion. Meanwhile a section of the following market are holding back from participating on these programmes, preferring it seems to wait until the situation improves still further from an insurer perspective.

To mitigate these challenging conditions, it is critical that the buyer provides a sufficient degree of underwriting information. For those buyers who don't, we have seen instances recently where the price has continued to increase as the programme has become more and more distressed.

Do some leaders sense a Construction opportunity?

Meanwhile we do detect that, as prices increase in this fashion, several Lloyd's syndicates who have held back from this class in recent years are beginning to sense an opportunity to begin to lead this class of business, now that pricing has returned to their comfort level. It will be interesting to see later in the year if such additional leadership options provide brokers with the opportunity to leverage more competition to what has been previously been a very restricted leadership panel.

Midstream – a source of valuable premium income - or a long-term underwriting headache?

As we outlined in Figure 6, the onshore part of the Upstream portfolio has been suffering heavily from attritional losses. One way to rectify this – and to achieve some much-needed premium income spread - has been for certain Upstream insurers to consider expanding their onshore book to include assets that have more traditionally been insured in the Downstream market, such as tank farms, gas plants and onshore pipelines. Because the Downstream market has been hardening much more significantly over the last two years, Upstream insurers are finding that their terms for these assets are sufficiently competitive for them to receive firm orders - even if the terms quoted are significantly increased from what they would have charged 12 months ago. Other Upstream insurers are taking a more cautious approach, preferring to abstain from programmes that have little by way of offshore exposures to allow for them to take a positive view.



Upstream insurers filling in distressed Downstream placements

Be that as it may, we have found on a number of recent occasions that the Upstream market has been able to complete some Midstream programmes that had started life in the Downstream sector but where the broker had simply run out of available capacity. This can often happen where, for example, European programmes have a small (but significant) asset base in the United States that has proved unacceptable to the European Downstream market. In such circumstances, we have been able to find a home for the outstanding elements of the programme without any undue difficulty - even to the extent of putting together a separate Gulf of Mexico windstorm placement for the US assets in question.

It remains to be seen whether this trend will result in wholesale transfers of Midstream business to the Upstream market from its Downstream counterpart. From our experience, we would suggest that buyers in many

ways prefer an Upstream programme, by virtue of the fact that it remains generally a subscription market and so guarantees the same terms and conditions to the buyer for every underwriting line.

Midstream business smooths onshore volatility

There is no doubt that an enhanced Midstream portfolio does much to offset much of the volatility from Upstream insurers' Onshore Energy portfolio, for example from uneven drilling schedules prompted by oscillating oil prices. However, it remains to be seen whether these insurers have priced this new and expanding area of their portfolio correctly. Clearly, at the moment the Downstream market's view is that the Upstream pricing for this business is too competitive for their liking; time will tell as to which market has called the pricing correctly. In the event of increased losses from this part of the portfolio, we should expect Upstream insurers to beat a rapid retreat from assets of which they have relatively little knowledge or experience compared to their Downstream counterparts.

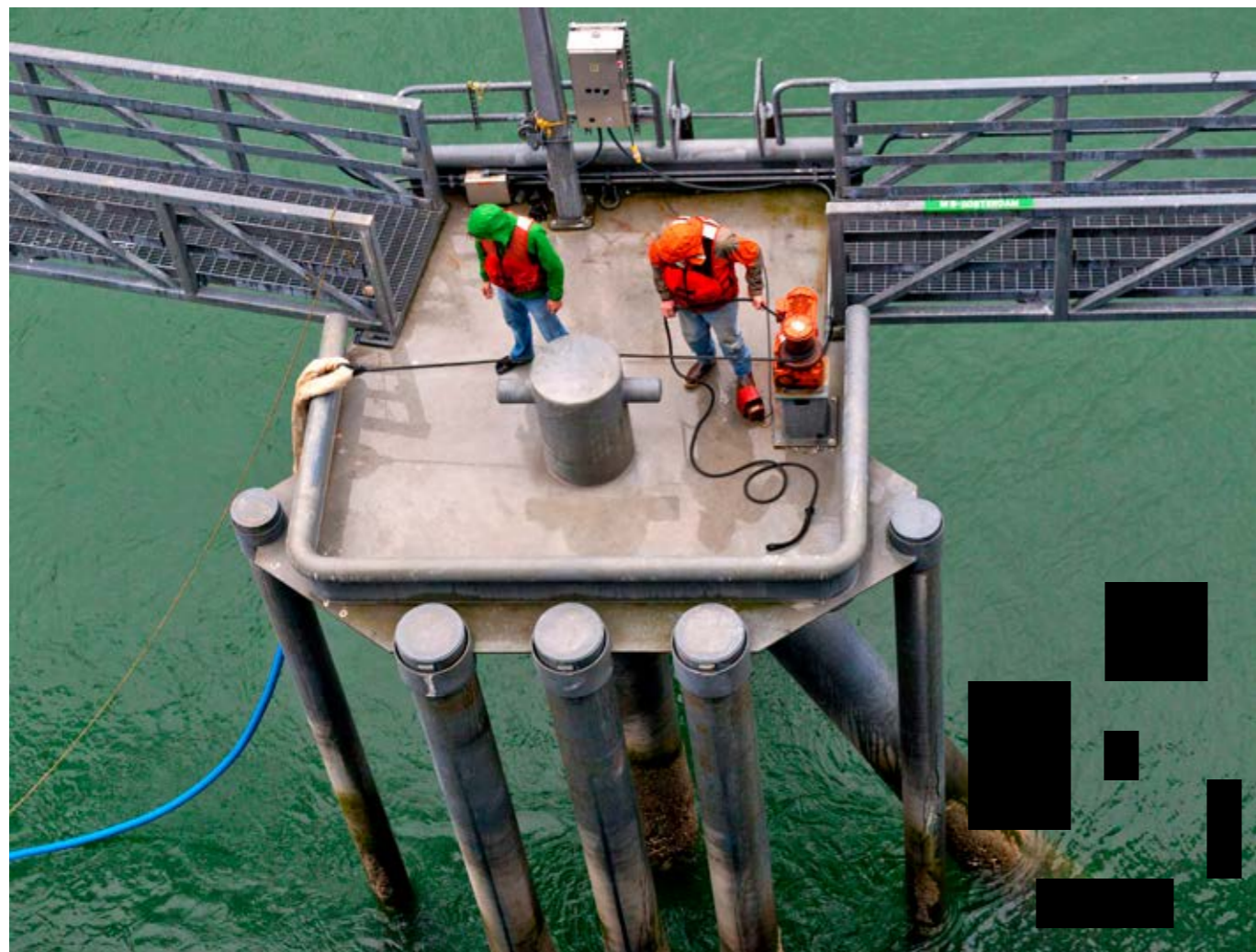
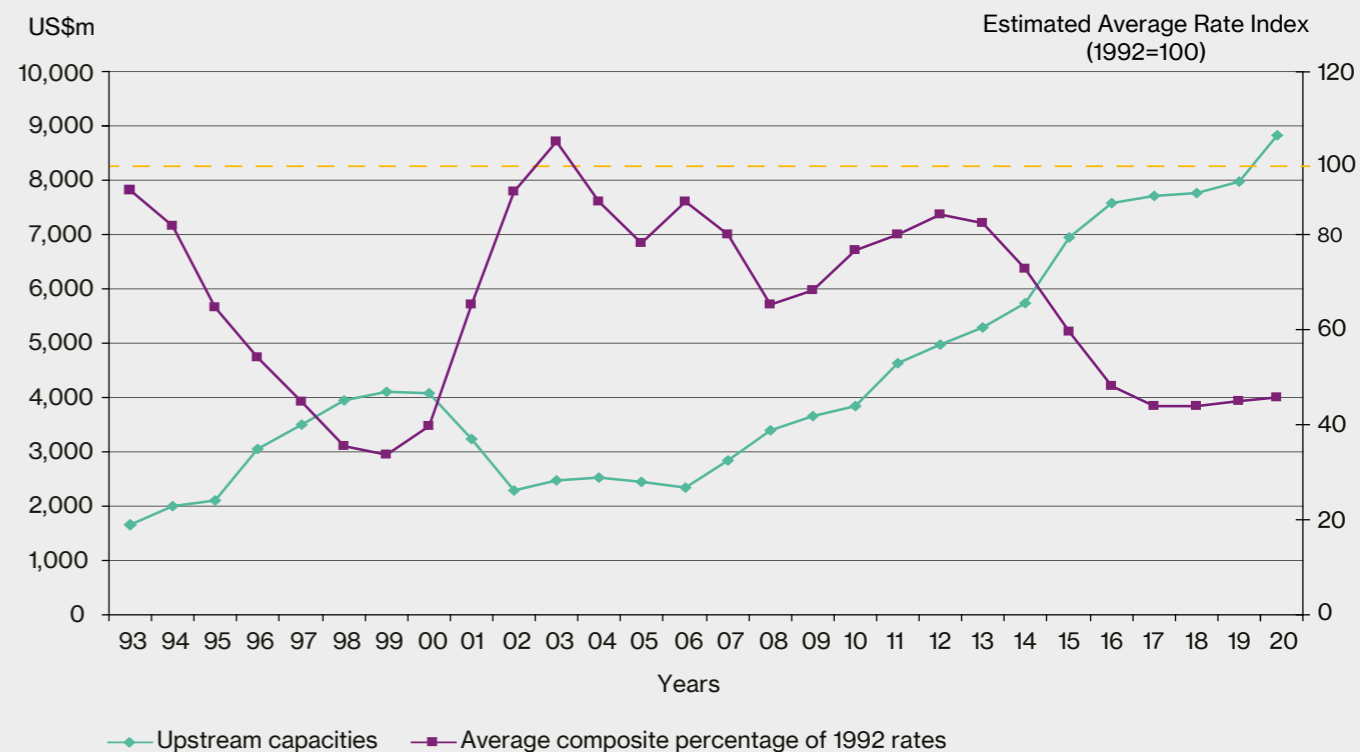


Fig 8: Upstream Capacity versus rating levels, 1993–2020 (Excluding Gulf of Mexico Windstorm)



The relentless increase in overall capacity levels is putting a break on the hardening process - resulting in effectively flat market conditions

Source: Willis Towers Watson

The Outlook for 2020 – will there ever be a tipping point?

Figure 8 above shows the historical correlation between Upstream market capacities and average rating levels. A careful examination of the chart shows that during the beginnings of the old soft market from 2008 to 2012, the Upstream market was actually successful in securing rating increases at a time when capacity was also going up. What is to stop them doing the same thing for the next four years? After all, our chart also shows a rate increase for 2020, at a time of increasing capacity.

Previous market hardenings prompted by major losses

The difference between the period 2008-12 and 2020 is quite simple - the rating increases that were instigated in 2008 were prompted by the significant losses incurred by the market in the aftermath of hurricane Ike. They were swiftly followed by the Deepwater Horizon loss in 2010 and the Gryphon A loss in the North Sea in 2011. All of these losses provided the perfect excuse for Upstream leaders to insist on rating increases; in a subscription market, if all the leaders are united in their determination to increase rates, there are few options open to the buyer other than to accept them.

However, this is by no means the situation as we move further into 2020. We have already seen that there are no major losses to provide the impetus for more significant rate rises. We have also seen that when a small selection of leaders has tried to enforce more stringent rate rises, they have not received the backing from their fellow leaders, nor the rest of the following market.

In short, the relentless rise in capacity levels is capping rate rises to today's modest amounts. But at the same time, management diktats that apply across the full spectrum are keeping any prospect of rate reductions off the table for the time being - with rare exceptions.

Can the current status quo last?

So the question we have to ask is this: in the continued absence of major losses, how long will it be before the need to secure additional premium income from a profitable portfolio such as Upstream outweighs these diktats?

It is of course difficult to know exactly how long managers will be happy to artificially restrict income growth by preventing their underwriters from engaging in the usual activity of competing for additional premium income. But as we have pointed out, the overall premium income pool for this class of business remains at historically low levels - levels that won't be increased much by today's modest rises. At some point, to ensure the viability of the portfolio by covering their operating costs, it is likely that some of the smaller insurers will come under enormous pressure to increase their line sizes on the more profitable programmes. If the only way to do so is to offer more competitive terms, there must surely come a point when senior managers at some insurers accept the trade-off between an increased line size and more competitive terms in their drive for more income - the current standoff can surely not last for ever. And if the smaller Upstream leaders start generating more income and the larger leaders find that their income pool is draining away as a result, that could be the one scenario that might break the current impasse.

"To prevent the market from having an excuse to increase your rating levels further than is necessary, engage with your broker early in the renewal process and develop a sufficiently professional underwriting submission to enable your leader to maintain confidence in your programme."

Of course, it is instead possible that a succession of large losses will provide the impetus the market requires, and today's conditions will simply be the launching post for a much harder market. Only time will tell.

Our perennial advice - preparation is key!

In the meantime, our advice to buyers remains as simple and consistent as ever. To prevent the market from having an excuse to increase your rating levels further than is necessary, engage with your broker early in the renewal process and develop a sufficiently professional underwriting submission to enable your leader to maintain confidence in your programme. And should the current market cohesion finally break - as it has done at the end of every hard market in living memory - you will be first in line to reap the undoubted benefits.



Paul Braddock is Head of Upstream, Willis Towers Watson London.



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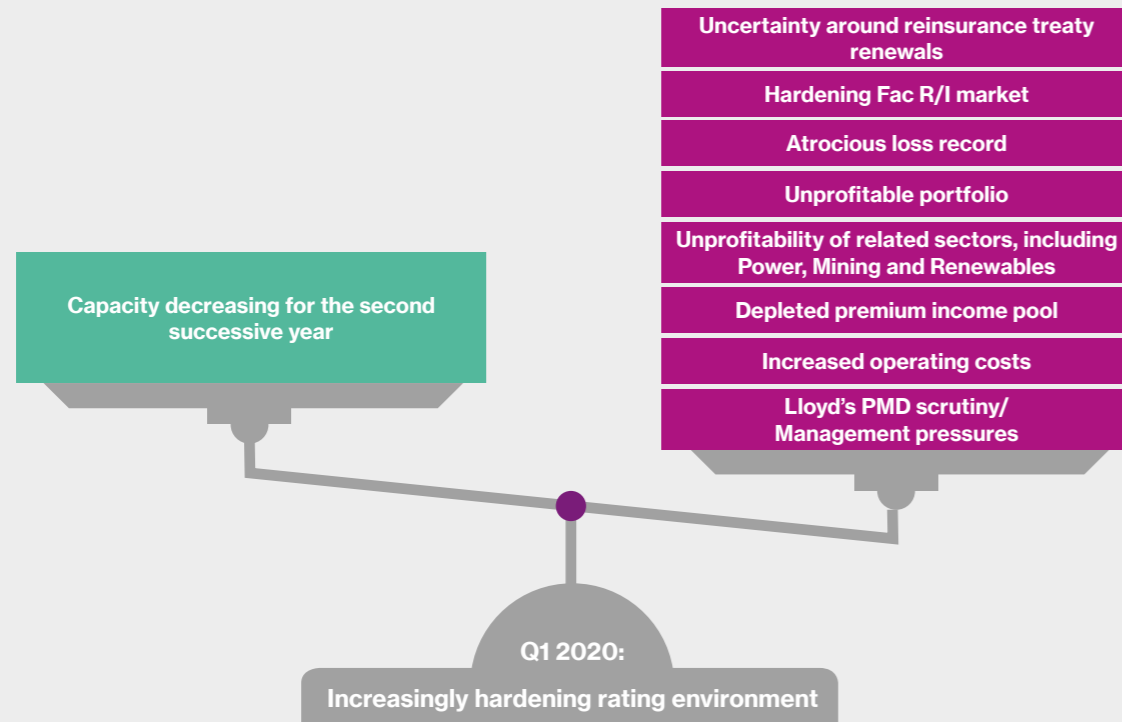
Downstream: unenviable choices as the hardening continues

Introduction: a market beset by relentless management pressures

In last year's Energy Market Review we pulled no punches in outlining why conditions had changed so dramatically in the Downstream market. 12 months further on, we are finding, if anything, an intensifying of the hardening process as insurers, buoyed by their ability to finally instigate a market turnaround in 2019, continue to press for even more draconian rating increases - pretty much across the board. Their determination to do so is fuelled by relentless management pressure to deliver improved underwriting results within the context of poor performances across the Property & Casualty (P&C) spectrum.

Buyers are therefore being faced with the unenviable choice of either scaling back on the cover purchased - leaving them with potentially significant new risk exposures - or accepting that current insurance budgets will have to be revised.

Fig 1: Increasingly challenging - the Downstream underwriting environment, April 2020



With capacity reducing again, no wonder conditions in the Downstream market continue to deteriorate from a buyer perspective

The scales tip further...

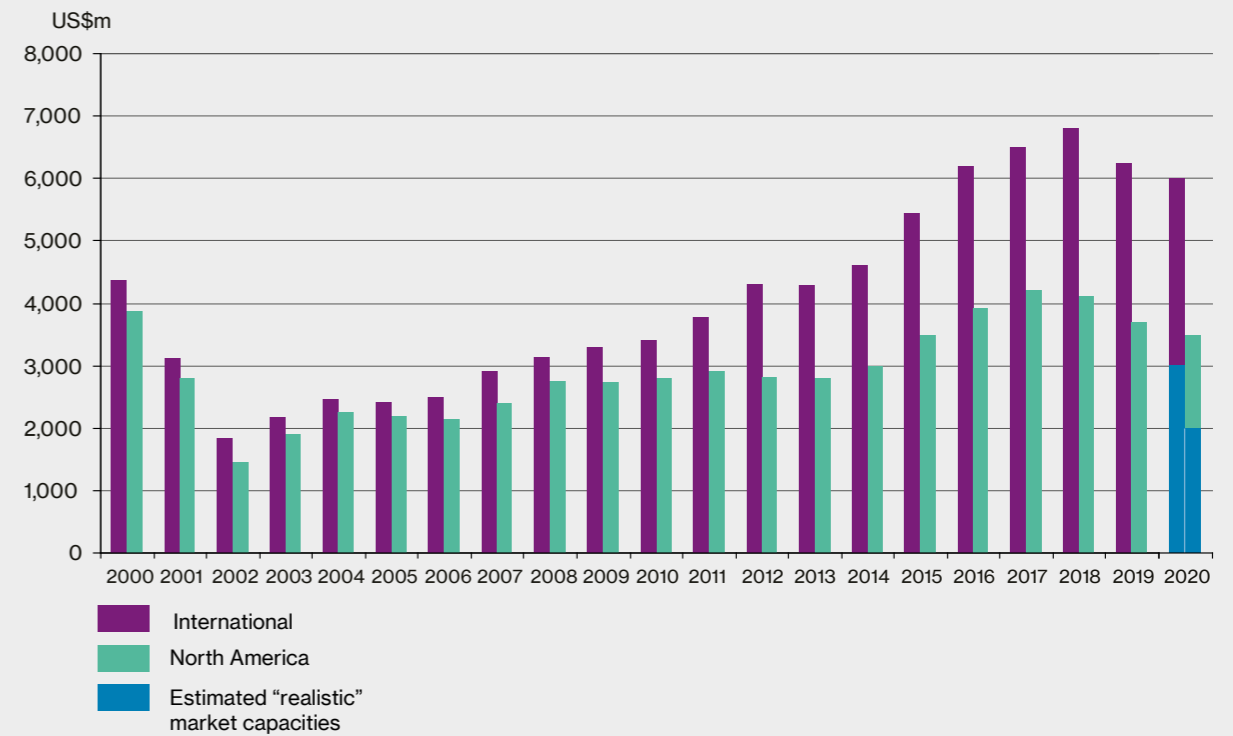
A quick glance at Figure 1 above shows why the “scales” have tipped even further in favour of the insurance market as we have moved further into 2020. Where once capacity levels and hunger for premium income were the key drivers in this market, those days are long gone as the key driver is now firmly to underwrite this portfolio profitably at all costs. As a result, we now not only looking at a reduction in available capacity; we are also looking at a myriad of factors, not least of which are the continuation of the recent appalling loss record and increasingly severe management pressures that are turning the screw even further on buyers (as we suggested in our November 2019 Update).

Time to reassess risk transfer strategies?

But in this new decade, as the market hardening process shows no signs of abating, are there ways in which this process can be managed and mitigated? Are there ways in which buyers can offset some of the worst effects of the upturn in market rates? Let’s have a look at the overall situation in more detail and then conclude with some suggestions that may form the basis of an enhanced risk transfer strategy.

“Where once capacity levels and hunger for premium income were the key drivers in this market, those days are long gone as the key driver is now firmly to underwrite this portfolio profitably at all costs.”

Fig 2: Global Downstream insurer capacities, 2000-2020 (excluding Gulf of Mexico Windstorm)



Although the estimated “realistic” maximum capacities for Downstream are the same as they were for 2019, buyers are finding that capacity significantly more expensive as overall theoretical levels continue to decline

Source: Willis Towers Watson

Capacity

Capacity reduces for the second year in succession

Figure 2 above shows overall capacity levels in the Downstream market during the last 20 years. It shows that the long period of year-on-year capacity increases, which began in 2005 in the aftermath of that year’s appalling hurricane losses, finally came to an end last year with the first decrease in overall capacities in 14 years. Most market observers will not be surprised to see that theoretical capacity levels for 2020 have reduced still further, down to US\$5.978 billion from last year’s US\$6.428 billion. In practice, much will depend on the geography of the risk in question but in general terms it is becoming increasingly challenging to access capacity in the way in which buyers have become accustomed during the last 14 years.

What are the besetting reasons behind this continued reduction in capacity? It’s not really a case of multiple insurer withdrawals. During the last 12 months only one insurer of note (Pioneer) has withdrawn from this class

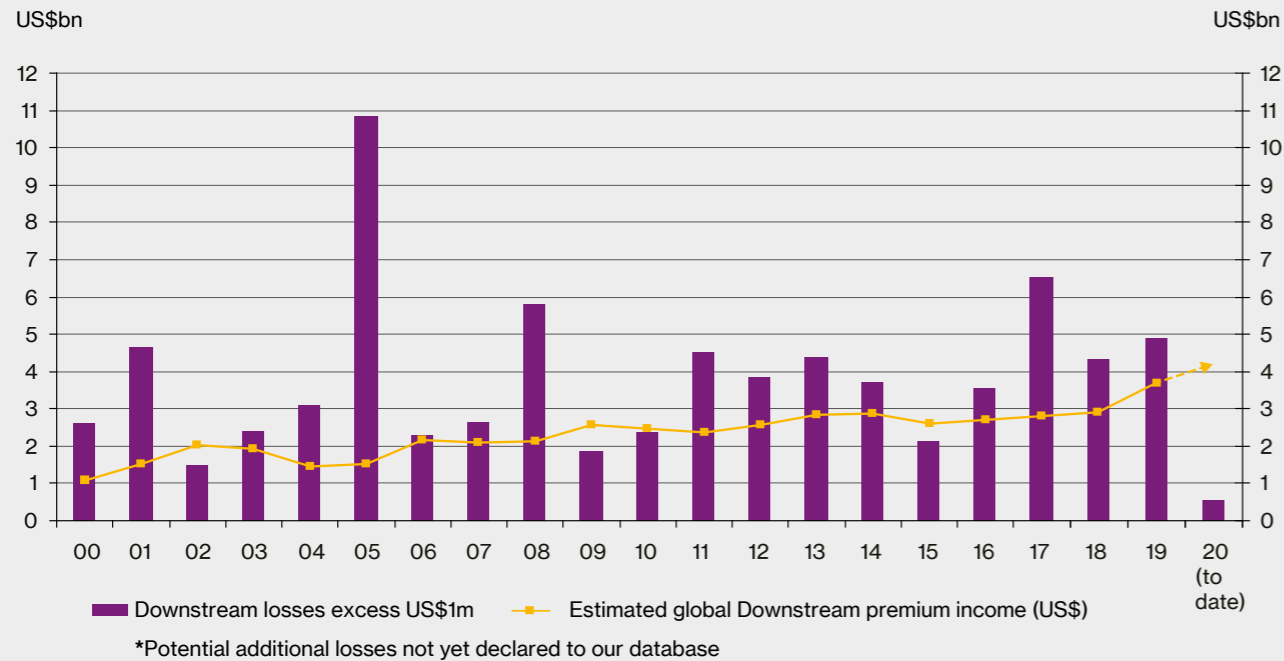
of business and we have only had one significant merger, between Arch and Barbican. It’s much more the case that the artificially high figures offered in theory by major insurers in the past – to attract the interest of buyers and their brokers – have now been withdrawn and replaced by more realistic figures.

Line size restrictions a factor

Insurers are also finding that their participations are being limited by two other significant factors:

- **Line size:** insurers have become increasingly restricted to a maximum percentage line on any give programme, due to reinsurance programme constraints.
- **Management protocols:** in theory, additional capacity is always available from some of the larger composite insurers – at a price. However, the process involved in accessing such capacity is now so tortuous that in virtually every instance we have seen that this additional capacity has been no longer realistically available.

Fig 3: WELD Downstream losses 2000 – 2020 (excess of US\$1m) versus estimated global Downstream premium income



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

The hardening Downstream insurance market has seen overall premium volumes increase in 2019 – but so have overall losses

US\$3 billion still achievable - at a price

However, based on our own brokers' experience of trading in this market, we still think it is possible to access US\$3 billion for a well-regarded International programme (US\$2 billion for US programmes). We identified these realistic maximum figures in our November 2019 Update, and we see no reason to revise these figures downwards at this stage in the market cycle - so long as buyers are prepared to accept the inevitable pricing increases currently being demanded. One of the reasons for this is the impact of the introduction of Downstream specific reinsurance treaties; this development has had the effect of releasing a degree of additional capacity to the direct market.

Losses

At the beginning of 2019, some Downstream insurers might have been hoping for a respite following three years of virtually unprecedented losses. However, a glance at the data outlined in Figure 3 above tells a very different story; the 2019 data that we hold on our database shows a further deterioration in the loss record and, while the figures are not quite as bad as they were for 2017, last year's figures (which may be even worse if revised loss forecasts materialise during the next few months) are already in excess of any other year apart from 2017 since 2008, the year of hurricane Ike.

Existing loss record deterioration

No wonder these figures have produced consternation in the market. The difficulty that underwriters are facing is the continuing deterioration in individual loss figures and explaining these to senior management, who generally hate bad surprises; loss adjusters are often reporting initial advices of one figure and then recommending a final settled figure at several multiples of the original figure.

We believe that the discrepancy between the initial and final figures can generally be put down to three factors:

- A more sophisticated process of establishing final loss figures, as a result of methodologies introduced by Forensic Accounting specialists
- A significant number of assets being valued by buyers without the benefit of a recent valuation survey, or because an independent review conducted some time before the loss was inaccurate
- Shifts in commodity prices affecting Business Interruption values

Premium income on the rise

In the meantime, 2019 saw an increase in overall premium income as the hardening process instigated at the beginning of last year produced some much-needed increased revenue to the market. However, as Figure 3 illustrates, this looks to have been insufficient to prevent another loss-making year for the Downstream portfolio in overall terms.

Finally, Figure 4 overleaf depicts the major losses to have impacted the market since the beginning of 2018. It is interesting to note the number of losses involving a vapour cloud explosion (VCE) at either a refinery or a petrochemical plant, the degree to which the Business Interruption (BI) element often outweighs the Physical Damage (PD) element and the preponderance of losses emanating from North America.



Fig 4: Downstream losses excess of US\$100 million, 2018-20 (to date)

2018

Type	Cause	Region	PD US\$	BI US\$	Total US\$
Refinery	Fire + explosion/VCE	North America	108,712,856	705,000,000	813,712,856
Refinery	Fire + explosion/VCE	Europe	397,267,000	405,000,000	802,267,000
Petrochemical	Fire + explosion/VCE	Middle East	80,400,000	410,000,000	490,400,000
Refinery	Fire + explosion/VCE	North America	115,000,000	255,000,000	370,000,000
Chemical	Fire no explosion	Europe	42,500,000	112,500,000	155,000,000
Gas plant	Fire no explosion	North America	92,000,000	51,000,000	143,000,000
Oil sands	Supply interruption	North America	96,874,226	40,000,000	136,874,226
Chemical	Ice/snow/freeze	North America	19,876,326	107,372,496	127,248,822
Chemical	Explosion no fire	North America	20,000,000	94,500,000	114,500,000
Petrochemical	Mechanical failure	Latin America	10,860,000	92,500,000	103,360,000

2019

Type	Cause	Region	PD US\$	BI US\$	Total US\$
Refinery	Fire + explosion/VCE	North America	300,000,000	745,000,000	1,045,000,000
Gas plant	Fire + explosion/VCE	Asia	200,000,000	400,000,000	600,000,000
Petrochemical	Fire + explosion/VCE	North America	400,000,000	200,000,000	600,000,000
Refinery	Fire no explosion	Europe	90,000,000	420,000,000	510,000,000
Refinery	Fire + explosion/VCE	Africa	350,000,000	95,000,000	445,000,000
Tank farm/terminal	Fire + explosion/VCE	North America	161,000,000	0	161,000,000
Refinery	Faulty work/op error	North America	37,765,000	113,293,500	151,058,500
Petrochemical	Fire + explosion/VCE	Latin America	25,000,000	100,000,000	125,000,000
Refinery	Fire no explosion	Eurasia	11,500,000	112,004,000	123,504,000
Petrochemical	Fire + explosion/VCE	North America	71,000,000	50,000,000	121,000,000

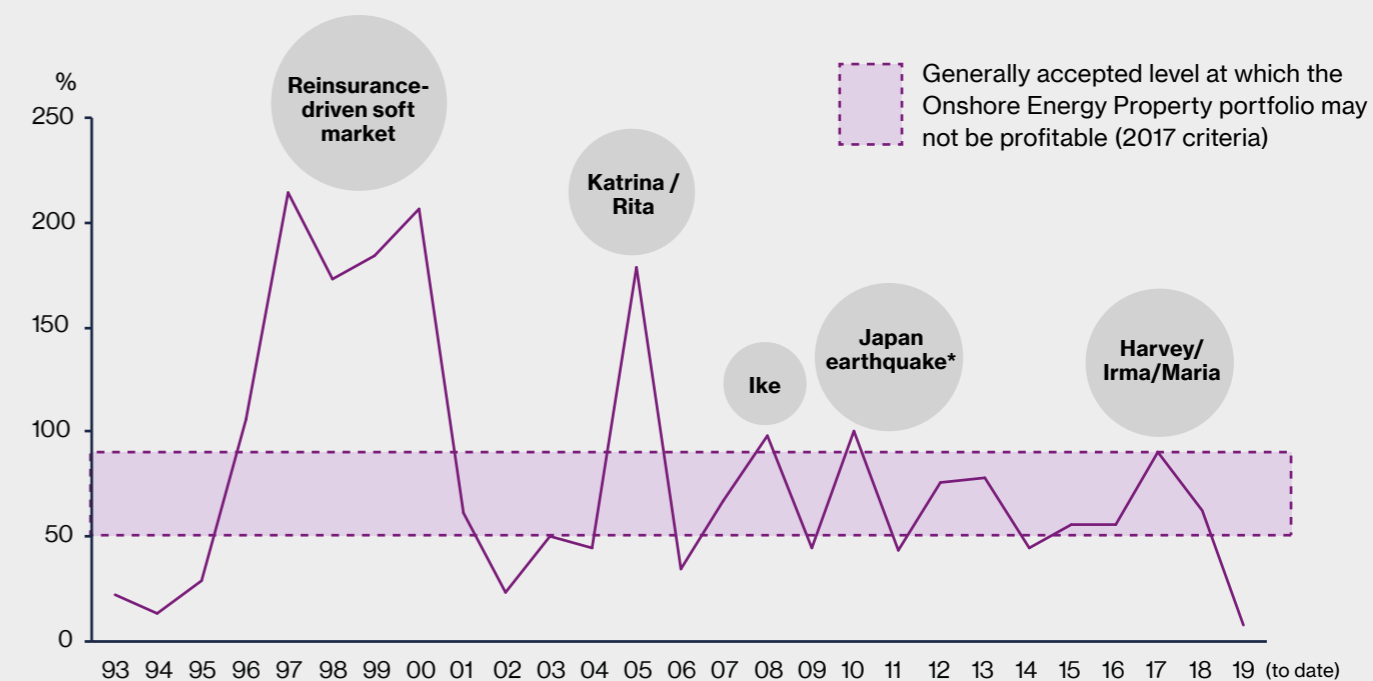
2020 (to date)

Type	Cause	Region	PD US\$	BI US\$	Total US\$
Petrochemical	Fire + explosion/VCE	Europe	105,000,000	55,000,000	160,000,000
Refinery	Fire + explosion/VCE	Eurasia	100,000,000	0	100,000,000

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

Fig 5: Lloyd's Onshore Energy Incurred Ratios, 1993-2019 (as at Q3 2019)

Incurred Ratios (Premiums v Paid & Outstanding Claims)



Although 2018 was an improvement on a truly disastrous 2017, Lloyd's Onshore Energy Property portfolio remains stubbornly in unprofitable territory

Source: Lloyd's Market Association Quarterly Loss Report Q3 2019 - Audit Code EF

*Some Japan earthquake losses were claimed on programmes incepting in 2010

Are buyers absorbing more losses?

What our database does not show, however, is the degree to which these figures represent insured rather than uninsured losses. This year we have been astonished to see at least one of our clients suffer a major loss to find that a very significant part of it has been uninsured, due to the buyer electing to purchase only minimal Business Interruption cover. What seemed like a prudent decision before the loss to reduce premium spend has ultimately resulted in a very large uninsured loss something that must make for a very difficult conversation between the Risk Manager and his or her Financial Director.

Profitability

Figure 5 above represents the only data available to estimate the overall profitability of the Downstream portfolio. These statistics, issued by Lloyd's, depict Incurred Ratios (i.e. premium received versus paid and outstanding claims) for the Onshore Energy audit code over the last 27 years. It is important to note that the figures for 2019 are much too immature to be germane; however, the data for the years preceding 2019 is sufficiently robust for us to be able to estimate overall portfolio probability. Obviously, any figures in excess of 100% demonstrate unprofitability; however, as explained in previous editions of this Review, anything in excess of 50% is also likely to result in overall portfolio losses.



2014 the last profitable year?

The data shows that the last overall profitable year for Lloyd's Onshore Energy was back in 2014; since then Lloyd's has recorded Incurred Ratios of 57%, 88%, 124% and 87.5%. While these figures include some element of onshore Exploration & Production (E&P) losses, by common consent the vast majority of these losses pertain to the Downstream sector.

Given these gloomy figures, it is perhaps not so surprising that underwriters remain in a determined mood to bring about an escalation of the hardening process in the market. So what can buyers expect as we move further into 2020?

Rating movements

"What did it pay last year?"

At the time of writing (March 2020) there is no question that the momentum established by the market during 2019 has continued to escalate. Underwriters are generally under instructions from their management to insist on rating increases across the board, with the first question on every underwriter's lips being: "What did it pay last year?" Gone are the days when brokers could introduce a programme to an insurer who did not participate on the previous year as "new business" – even if this is the first time the insurer has been involved, no one can be seen to be offering a rating reduction on last year's price.

Programmes that were paying rises in the region of 30% last year can probably expect a rise of 40% or so this year. Those programmes that are attracting

the most attention from the market are refinery and petrochemical programmes, particularly from North America; moreover, these programmes are likely to suffer from less advantageous terms and conditions, particularly with regard to lower sub-limits for such coverages as Contingent Business Interruption.

LNG, Midstream and Russia less affected

However, other areas of the portfolio, including LNG plants and other midstream business such as conventional gas plants and onshore pipelines, are likely to be treated more leniently by the market, although some form of rate increase is virtually unavoidable. In particular, LNG programmes have one advantage over the market, in that these programmes often feature significant premium income and captive participation, as well as the possible involvement of the Upstream market as these assets are not excluded from Upstream reinsurance programmes. These factors serve to reduce the apparent leverage of the insurance market and we have seen rating increases for this business average out at a lower percentage figure than for refinery and petrochemical programmes.

Another area of the portfolio to be less affected by the hardening market conditions is Russian business; such is the scale of the premium income involved, the long-established relationships with key market leaders and the relatively benign loss record for this portfolio that the hardening process has turned out to be much smoother than for other geographical areas.

It could have been worse...

And yet the current situation from a buyer perspective could be so much worse. Certain major European composite insurers that already boast significant capacity have watched rating levels on "quota share" (i.e. unlayered) placements increase substantially over the course of the last 12 months. Previously these (re)insurers have preferred to participate on an excess basis, believing that the lower or quota share layers were under-priced for the risk involved. Now, they seem to be more willing to offer their capacity on a quota share basis, injecting more capacity into this area of the risk spectrum and mitigating the overall percentage rise that would have been applied but for their new participation. Added to this should be the effect of the new Downstream reinsurance treaties mentioned earlier in this chapter.

So although prices continue to rise, the extent of the increases is at least being offset by the appetite of some insurers who are beginning to sense an opportunity to capitalise on today's underwriting climate.

Differentiation dynamic intensifies

Apart from this, the market continues to adopt essentially the same stance as during the latter half of 2019. What has not changed has been the way that the market continues to differentiate in favour of those buyers that have maintained their relationship with key carriers. In these challenging market conditions, these buyers are being treated more favourably than those who took advantage of the previous soft market conditions to drive down the overall cost of their programme.

In contrast, we are now sensing an increased determination in the market to ensure that those buyers who regularly tendered their programme to drive maximum competition during the soft market should now be put in the same position as the rest of their peers - in other words, to be singled out for more draconian rating increases than the rest of their peer group. There is no doubt that some buyers have benefitted from continuing to tender their programmes on a regular basis; however, it is equally clear that others have not been so fortunate. Indeed, we are aware of several instances recently when a programme has been labelled as "distressed" in the market following a tender process where the price quoted by the broker as been proven to be totally unrealistic. As a result, the market understood that the buyer had no place to run and no place to hide; as a result, the eventual price on which the programme was placed was almost certainly in excess of what the buyer would have paid had they persevered with the existing programme.

Natural catastrophe cover limited and expensive

Meanwhile natural catastrophe (nat cat) cover remains limited and relatively expensive to purchase. Indeed, for those buyers that are suddenly forced to solicit nat cat cover mid-term, for example because they have taken over assets in a specific geographical location, the cost can be overwhelming – as much as a 10% rate on line – if insurers' aggregate exposure limits have already been reached. At a time when climate change is likely to drive ever more frequent windstorms and floods across the globe, there is currently a clear disconnect between the risk transfer offering that is available from the conventional insurance market and the future risk transfer requirements of the energy industry. Bridging that gap will require considerable collaboration between brokers, insurers and buyers in the years ahead.

Business Interruption restrictions

We mentioned in last year's Review that one leading insurer was attempting to introduce an Actual Declared Value (ADV) basis of coverage for Business Interruption, to replace the traditional "Gross Profit" form widely used in the Downstream market during the prolonged soft market of 2005-18. During the last 12 months other insurers have also found that they have been basing their premium calculations on one set of values, declared by the buyer at inception as their estimate for the forecast calendar year, but finding that they are actually paying a loss later in the process on the basis of a completely different set of figures. The reasons for this kind of disparity are varied, but one possible reason is the increase in the use of forensic accounting specialists to quantify the actual loss. Be that as it may, we are now finding that a larger number of insurers are now seeking to impose an annual cap of say approximately 110% of the values declared at inception, with a monthly cap of say 125% (although there is a conversation to be had with insurers to increase this for clients that provide the right information to the market).

As we intimated last year, it seems clear that the solution to this issue is to forecast more accurate numbers to insurers at the inception of the programme. However, there is clearly a tension between ensuring an accurate payout in the event of a loss and keeping insurance costs to a minimum in the first instance. Moreover, it seems clearly to be in buyers' long-term interests to have their insurers accept accurate figures at the inception of their programme rather than to find that in the event of loss the final settlement is disputed - and therefore at the very least delayed.

It seems clear to us that a professional deployment of risk engineers, forensic accountants and valuation consultants will eventually lead to greater trust and certainty for both buyer and insurer, speedier settlement times and less of a need to resort to lawyers.

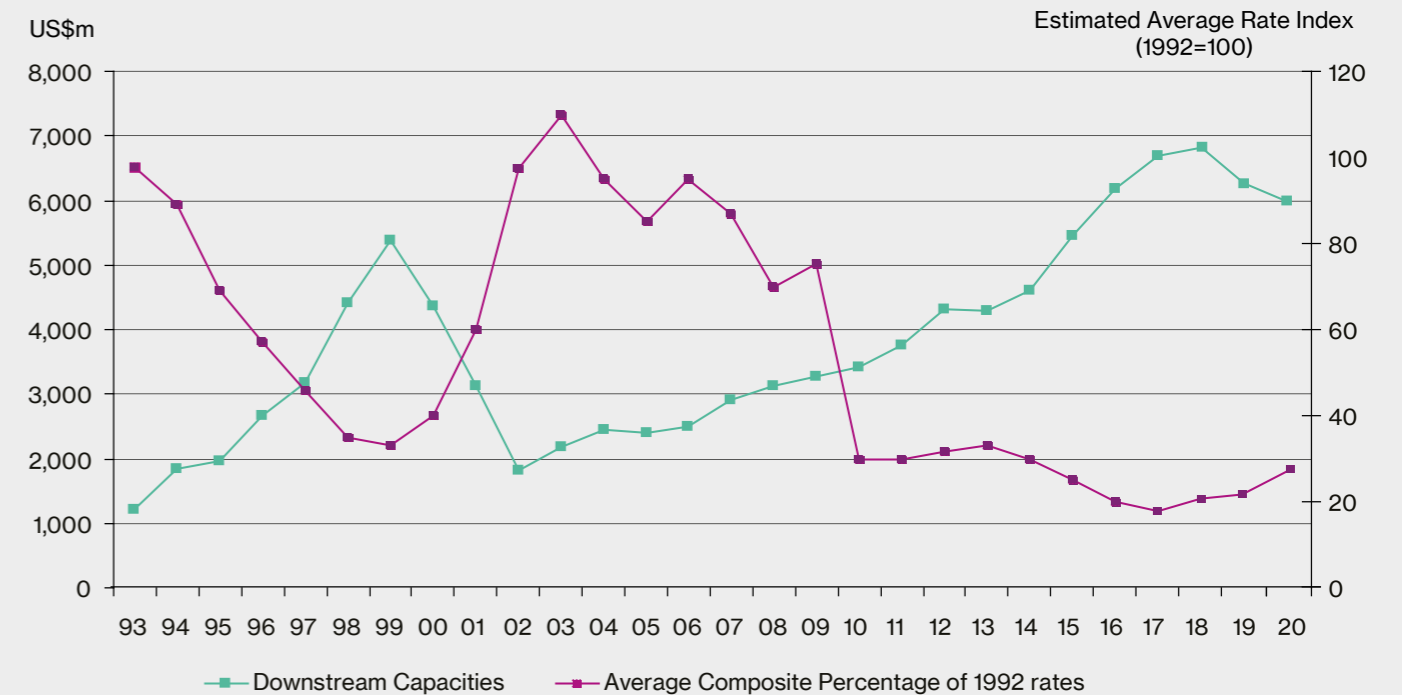
Resultant cyber cover clarified

As well as a focus on Business Interruption, there is a new development to report with regard to the purchase of cyber coverage. At the culmination of the January 1 renewal season, Lloyd's management became concerned at the potential total aggregate cyber risk to which the corporation might be exposed to. The original cyber clause, NMA 2915, provided an unacceptable degree of ambiguity in that it provided an exclusion for cyber-attack caused by anyone acting "maliciously". In practice, it became difficult to establish and define the word "malicious" - did it, for example, include the actions of a disgruntled employee, thereby putting such actions at the same level as a specifically planned terrorist attack? As a result, and in attempt to ensure that no Lloyd's policy remained silent on cyber cover, Lloyd's introduced a total cyber exclusion LMA 5400.

As a result, Lloyd's have now introduced the LMA 5401, which specifically buys back the Fire & Explosion cover (and sometimes further named perils), although most reinsurers insist on a sub-limit for loss of data. This development has been welcomed by most buyers in that it provides greater clarity of cover, although of course given that there has yet to be a valid claim paid for such cover, the "proof of the pudding will clearly be in the eating." We think that most buyers will be reluctant to admit to having a cyber loss; indeed, most will be focused more on their strikes, riots and civil commotions coverage.



Fig 6: Global Downstream capacity versus estimated average rating levels, 1993-2020 (excluding Gulf of Mexico Windstorm)



Rating levels in the Downstream market have now recovered to where they were five years ago. However, they are still low by historical levels.

Source: Willis Towers Watson

Conclusion: the outlook for 2020-21

To give some sort of wider perspective on today's Downstream market dynamics, it's worth having a look at our data that we have collated over 27 years and determine exactly where we are in the overall market cycle. Figure 6 above shows maximum capacity levels set against estimated average rating levels, using an index of 100 for 1992.

The historical data by no means presents a neatly ordered cycle of supply contraction and expansion, but instead suggests a slowing down of the cycle itself. Up until about 2003, market volatility was fairly pronounced, with prices reaching a record low in 1999 and a record high just four years later.

Volatility has flattened out compared to previous eras

However, during the last ten years this volatility has flattened out considerably. The capacity increases prevalent in the last soft market (2010-18) have been steadier, while the accompanying rating decreases have also been less dramatic than in previous eras. So market dynamics have become more of an ocean liner - heavier, steadier but more difficult to stop - rather than a speedboat, capable of turning on a sixpence.

Now that the market has turned, buyers can therefore expect the current state of affairs to continue for some time yet and should adjust their expectations accordingly. We see no sign of any end to the hardening process at present, and certainly no indication of any fresh competition that would threaten insurers' resolve to bring market rating levels back to what they consider to be profitable levels.



It is perhaps worth pointing out that, even with two years of rating increases under their belts, rates are still only back to where they were five years ago - halfway through the last soft market. As we stated in last year's Energy Market Review, even at these inflated rating levels compared to 2018, the Downstream market continues to offer clients excellent value for money.

Brokers and buyers must work more closely together

So in the absence of any additional competition, and in light of the performance of other areas of the Heavy Industry portfolio, buyers and their brokers will have to work together to offset the worst effects of this continued market hardening. This will involve working as a partnership to develop the right strategy to offset this process; it may involve the increased use of risk engineers, forensic accountants, analytics specialists and others.

As we move further into 2020, buyers continue to have the option of engaging with their broker to develop this process to smooth any future volatility or to carry on as before, hoping for optimal cover from an increasingly intransigent market that itself is increasingly apprehensive about the future.



Steve Gillespie is Head of Downstream broking at Willis Towers Watson Natural Resources in London.

"Buyers and their brokers will have to work together to offset the worst effects of this continued market hardening. This will involve working as a partnership to develop the right strategy to offset this process."



Liabilities: the hard market has truly arrived

International Liabilities

Insurer withdrawals prompts further hardening

The announcement of the Lloyd's 10th Decile initiative in June 2018 pressed poor performing syndicates into improving profitability across all lines of business. The Liability portfolio at Lloyd's had run at a loss for the four previous years; although it was not a focus line of business for remediation, syndicates offering this coverage were put under scrutiny to improve their financial performance. Several carriers were tasked with significant premium income reductions; in some cases, this involved a comprehensive review of their Energy Liability portfolio. Standard Syndicate's closure in October 2018 was the start of a continuous capacity exodus, with a total of eight syndicates leaving the Liability market by mid-2019. The company market followed suit, with significant capacity reductions from AIG and a total market exit from Chubb London, Swiss Re and Ironshore.

QBE increasing the pressure

Most recently, following a change in strategy to focus on profitability, QBE announced that their General Liability team would no longer have authority to write Energy Liability and that all Energy-related business would now be underwritten within their Upstream Energy Team. Having positioned themselves as a leading Liability market for onshore and integrated energy business; this will have major repercussions. For example, QBE are not renewing a large percentage of their portfolio, reducing their capacity

to 15-20% of any one layer and, to date, have been looking to adjust pricing anywhere from +10-200%.

The result has seen the Downstream and Midstream Energy Liability sector truly enter a hard market, whilst Upstream insurers are using the market turmoil as an opportunity to make significant adjustments to premium levels on competitive business.

The reduction in capacity and changing appetite has resulted in significantly reduced competition. Insurers are consistently increasing rate and tightening terms and conditions. Average premium increases by sector from December 1 2019 to March 1 2020 have been 30.53% for Downstream, 62% for Midstream and 10.63% for Upstream risks; we do not expect these percentages to reduce any time soon.

Other influencing factors include:

- Treaty insurers pushing for significant rate increases, as losses from 2016 and 2017 continue to materialize
- The increasing demands of compliance, sanctions and industry regulation
- Changes in legislation in previously benign territories, resulting in more significant losses (especially in respect of US Auto)
- A reduction in appetite for primary business

Global International Liability capacity

On paper, global Liability capacity would seem abundant, with theoretical capacity for 2020 being approximately US\$3 billion.

However, economically viable (or “realistic”) capacity is closer to US\$750 million for non-US domiciled business - a considerable reduction on what is theoretically available. This discrepancy is due to a number of factors:

- Many insurers write significantly less than their published maximum capacity
- Some insurers cannot write Energy Liability business
- Some only write Onshore or Offshore Liability exclusively
- Some only write on specific forms (for example, Occurrences Reported rather than Follow form Losses Occurring)
- Some have unrealistic minimum rates per million for International business, so are for all intents and purposes North American players only.

The majority of the available capacity tends to target high excess layers, depleting available competitive capacity for the first US\$100 million of any one program - where the bulk of the premium is usually located.

Increased insurer focus on risk differentiation and risk quality

The importance of demonstrating risk differentiation and risk quality is increasingly important for Liability underwriters. Good quality information and buyers that can articulate their risk mitigation measures correctly will always be favored.

Limit considerations

Energy and Petrochemical companies operate in an increasingly litigious environment, due to a number of factors:

- Increasing average awards
- Higher contractual indemnity demands
- Increasing economic activity in the Natural Resources arena
- The broadening of their geographic footprint (particularly when involving North America)
- Increased regulations, for example European Environmental Directives, increased statutory liability limits for Offshore E&P activities in certain regions (e.g. Mexico) and increases in statutory Nuclear Liability limit requirements in certain countries (e.g. the UK).

Purchasing an adequate limit is therefore paramount and many buyers have capitalized on abundant capacity and competitive pricing over the past 10 years to do this.

However, the reduction in available capacity means those companies already buying in excess of US\$500 million are having to choose between paying significantly higher premiums to maintain these limits or instead reducing the level of liability coverage purchased, given that the price is no longer economical.

Retention considerations

Increased retentions are perceived by the market to reflect the buyer’s confidence in their own operations, and recent renewals have seen significant premium savings by taking this approach.

The outlook for 2020

We do not expect the outlook for buyers to become positive during the next 18 months, as the fundamental issues in the market remain and further market adjustment over a longer time frame appears inevitable.

Buyers must continue to take proactive action and work collaboratively with their brokers to achieve the best possible outcome. Insurers are mindful of historical pricing reductions when considering renewal terms; long-term relationships, alongside excellent information, has been proven to produce better than average outcomes. Despite this, Downstream and Midstream buyers have seen significant step changes and will continue to do so as reinsurance costs continue to drive insurance premiums ever upwards. And of course it would be prudent for buyers to consider the level of reduction they have achieved in the soft market when reviewing their renewal premiums.

As ever, excellent relationships, excellent information and an excellent broker will position buyers for the best possible renewal terms.



Ben Hickman and Oliver Stone are Energy Liability Brokers at Willis Towers Watson in London.

North American Excess Liabilities

One only need to look back at the disruptive Primary and Excess Liability renewals in the last half of 2019 to get an unsettling feeling that 2020 would create greater angst and havoc for buyers. Oddly, the first half of 2019 went according to the expectations of many; mild market renewal responses, with rate/premium increases registering from flat to low single digit.

Clouds gather by mid-2019

Yet by June, the clouds had gathered on the horizon; these portended to issues relating to capacity, costs, conditions and losses. By the time of the July 1 renewal season, market dynamics had started to turn nasty, and proceeded to worsen through the rest of the year. It seemed that each passing month brought increasingly difficult renewals, with the low single digit increases turning into double digit extremes. Underwriters, strengthened by market dynamics not seen for a decade, became more resolute. And warnings came that this hardening would continue through 2020.

“Nuclear” losses fuel apprehensive market climate

Perhaps the driving force behind this was the losses which, whilst not all in the energy industry arena, became “nuclear” events to the same underwriters who write the Energy Liability portfolio. These included significant losses from catastrophic events, including wildfires in the US and Australia, tailings facility failures in the US and South America and named windstorms throughout the globe. These “nuclear” events were then combined with pipeline explosion 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. 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 Energy Liability renewals in 2020 to grow increasingly more challenging as the year progresses, continuing the pattern seen during the second half of 2019. Indeed, we have seen average increases in the fourth quarter of 2019 at approximately 10-12.5%, increasing into the first quarter of 2020 to approximately 15-20%. Some renewals during this time have seen increases well above these levels, and in 2020 we expect that renewal increases will come hand in hand with a loss of capacity.

Energy business has been dropped by underwriters from its position as a respected and favoured Liability line; the industry’s Liability results are under constant management scrutiny, with some underwriters seemingly lauded for taking a “no renewal” position or halving their existing deployed capacity. The “minimum” price per million benchmark has moved from \$2,000 to approaching \$4,000; the percentage increases originally created in higher excess layers are now finding their way through into the lower layers, where the impact is magnified given the quantum associated with those placements.





Policy conditions review

Policy conditions will be reviewed at each program renewal; certain grants of coverage which have gone either unnoticed or tolerated will come under examination, to be questioned as part of the underwriting process. In Lloyds, the market push is to utilize the JL2019 form, entered into circulation to clarify the base policy's intent for coverage for joint ventures including defense costs. We see additional pressure on the use of the markets' cyber exclusions and buyback and to a lesser extent COVID 19 exclusions (for example, the March 2020 LMA 5391).

Capacity will continue to restrict

Capacity will continue to restrict further in 2020; insurers who will still utilize more than \$50 million will expect to have their capacity priced properly and will demand a superior rate for this. While in 2019 it may have been said that \$25 million was the new \$50 million, it may now come about that often \$10 million is becoming the new \$25 million. We see this new order of capacity affecting the renewal lines offered by AIG and Liberty, both in the US and in Canada.

In Bermuda, while the overall theoretical capacity may not have shrunk that much for North American energy 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, Chubb and OCIL.

Attachment points reconsidered

In addition, underwriters are reconsidering their attachment (excess of loss) points; renewal negotiations will have to deal with this dual dynamic of individual insurers' reduced capacity offers and the trend towards increasing attachment points; both of these are of particular significance to the integrity of Liability program towers written on a claims-made or occurrence reported basis. Capacity provided by the likes of Swiss Re have exited the market for many US energy insurance buyers, and Lloyd's and London company capacity at former strong supporters of US business such as Aspen and Starstone (for Onshore Liability) have done the same. Liberty and Apollo have also dramatically adjusted their appetite in the space.

ESG re-evaluation

It must be noted that insurers are coming under public pressure from shareholders and stakeholders to address their overall book of business when it comes to supporting buyers in certain energy industry segments. As mentioned elsewhere in this Review, continued emphasis will be tracked on buyers' ESG commitment and to the buyer's operational sustainability progress and goals.

We note that Everest will partner with some Energy buyers, and we see continued support from CV Starr in the US and in the UK. With a degree of anticipation, certain buyers are looking to Convex, as their Liability underwriting talent starts to build during 2020. We do not see Convex attempting to change temporal pricing dynamics in the Energy Liability market; instead, its underwriters are likely

to take a measured assessment of the North American energy opportunities. Ascot in Bermuda also represents new capacity for US business; they too will only cautiously support Energy Liability policies. Could it be that in 2020 the pricing increases pertaining to Liability business attracts additional capital investment?

Conclusion: your renewal strategy will be critical

In short, 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. It is recommended to initiate the renewal process at least 120 days from renewal, as we 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. Indeed, we see expanded use for analytics in the renewal negotiation process.

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.

Underwriters will demand greater underwriting data detail than they have in the past. As expected, this will include:

- well counts and footages
- drilling details
- cyber exposure, protection and practices
- refinery throughputs and turnaround schedules
- third party surroundings around any facility
- pipeline information, including integrity details (we see additional information being sought on gathering systems)
- tailings facility information, including regulatory reports
- rail exposure
- specific auto fleet details (including use of autonomous vehicles)
- capital expenditures

Regarding Capex, given the stress on buyers' financials caused by world events at the beginning of 2020, as they adjust maintenance spending in 2020 buyers should expect detailed questioning on where the impact the cuts being made will be felt.

Marine Liabilities

The Marine Liability market sector in 2020 will continue to press for the increases obtained in 2019; general pricing increases in the region of 5-10% should be expected for most renewal business, regardless of loss record. Larger increases are being charged for programs which are considered either to have underperformed in terms of profitability or to be under-priced at current rating levels. Pricing allowances are only being considered on programs with material reductions in exposure levels and on which pricing levels are already considered to be adequate. Buyers should expect increased risk scrutiny, pressure on capacity and longer lead times during the renewal process.

The London Marine market hardened considerably in 2019 following a continuing deterioration in profitability levels over the past 5-10 years. This has resulted in a situation whereby many underwriters in the sector showed an overall loss position in 2018/19.

Re-marketing options are limited for programs where more complex exposures are covered and/or where high limits of coverage are purchased. In the Ports and Terminals sector, the underwriting of Property risks is being scrutinised more closely. The pricing of Property and Handling Equipment in Catastrophe Risk areas has come under particular pressure, with higher than average increases being applied. Bulk liquid terminals have produced a number of large market losses during 2019, which have resulted in a contraction in underwriting appetite, together with more rigorous reviews of underwriting information for this type of operation.



David Clarke is an Executive Vice President for Willis Towers Watson's Liability practice based in New York.

Environmental Impairment Liability

Environmental Impairment Liability (EIL) coverage and capacity continues to evolve as a result of the market's heightened awareness of increased exposures, legal liability and regulatory risk. Particularly for Energy risks, London is the main centre for underwriting EIL risks outside of the USA, with developing markets emerging in Australia and the EU supporting our rest of world placements.

Useful additional coverage

As the Energy Liability market hardens and contracts, the Environmental Liability market is being used increasingly to provide additional Sudden & Accidental, unexpected and unintended cover at the top end of Energy Liability programmes or to infill gaps mid programme. Our market can write onshore and offshore risks quite comfortably and US\$200-300 million-plus limits are readily available.

1) Mexico - Offshore

Mandatory Environmental Liability cover has been required by the Mexican environmental regulator (ASEA) since 2016 for offshore Oil & Gas E&P related construction activities, processing and refining. No local environmental liability cover is available, but the London market now has a bespoke solution with a wording acceptable to ASEA.

2) Canada - Onshore

Local Canadian General Liability markets are stripping out sudden & accidental cover; however, the London market has produced an energy specific, cost effective solution in the Environmental Liability market.

Hard market conditions in standard lines of insurance have also had both positive and negative effects on the EIL market.

As demand and application for Environmental products continue to grow, many clients facing hardening conditions in the Property and Excess Casualty markets are strategically locking in multi-year operational environmental programs (2-5 years) where available to mitigate future market uncertainty. Stretching the aggregate policy limit across a longer policy period is proving a popular and cost-effective way to build an EIL programme.

While longer policy term programmes (5+ years) are available for transactional business such as mergers and acquisitions, insurers are less likely to offer them based on regulatory uncertainty surrounding emerging risks. Furthermore, pricing increases on long term programmes also mean some buyers are less likely to purchase them when they are offered.

Having said that, these transactional programmes are extremely effective deal facilitators, unblocking impasses in sales negotiations where the seller wants a clean exit from an environmentally-distressed business but where the buyer is reluctant to take on responsibility for unknown historic risks that are difficult to quantify financially. Venture capitalists, banks and lawyers increasingly see the deals available in the EIL market as a valuable tool to ensure that a deal moves ahead.



Joanna Newson is Account Exec/Broker - Environmental at Willis Towers Watson London.

“As the Energy Liability market hardens and contracts, the Environmental Liability market is being used increasingly to provide additional sudden & accidental, unexpected and unintended cover at the top end of Energy Liability programmes or to infill gaps mid programme.”



Construction & Engineering: unprecedented times

Introduction

These are unprecedented times in Construction & Engineering insurance. The loss experience and loss ratios of virtually every major carrier seems to have resulted in a total shake up in underwriting philosophy and potential uncertainty over jobs.

Nat cat losses add to the strain

2019 continued where 2018 left off in the Construction & Engineering market; 2020 is expected to follow this trend, with those losses that occurred in 2018 mostly being settled for their original reserves. Unfortunately, the damage had been done - Natural Catastrophe (nat cat) losses in the insurance industry globally, including forest fires, flooding and earthquakes, added significantly to the strain already being felt within the Construction and Engineering market. It became apparent that this class of insurance did not - and does not - produce sufficient income to be self-sustainable to many insurers. Serious flooding in the Middle East in 2019 and early 2020 has once again re-written the “underwriting guidelines”, with some areas now considered nat cat zones. This undoubtably will have a further “knock on” effect on rates and deductibles in these areas.

Erratic and uncertain underwriting

During 2019 the market continued to show signs of erratic and uncertain underwriting. Unfortunately, there was little relief to the overall loss experience, although the major loss that occurred at a major LNG project in Australia has yet to be concluded, according to our sources. Estimates as high as US\$3 billion was being rumoured, although it is suspected that even in the event of a negotiated settlement (if the amount is lower) this will still produce a significant market loss.

In 2019 the Construction industry premium spend was estimated to be US\$11.4 trillion and by 2020 to be US\$11.9 trillion. By 2025, the global spend is expected to rise to US\$14 trillion and by 2030 to US\$15.5 trillion. This includes China’s “Belt and Road” initiative from 2015 to 2030, which is estimated to be US\$7.5 trillion out of an estimated US\$ 20 trillion and represents over third of Asia spending. Russia continues to invest in the energy sector, with over US\$150 billion worth of projects planned. The premium spend is estimated to be US\$21.9 billion, representing approximately 3% of global commercial insurance market with Europe, Middle East and Africa representing the largest part of the global premium spend for the sector. The London market which is the largest single market, is estimated to receive 23% (or US\$5 billion) of all global construction premium.

Amortisation of Construction premium

Importantly, Construction premiums differ from other classes because whilst taken up front, are amortised over the construction period of the project and these are now appearing to take longer, often up to 7 to 8 years. This has increased the analytical work required by Construction and Engineering underwriters and its modelling to forecast and project long term losses.

Terms and conditions, including rates, deductibles and coverage, differ from project to project and within the energy sector itself. Concerns over modulization, fire proof painting and overall quality controls remain uppermost in underwriters’ minds, together with default risks associated with the industry, such as commissioning (explosion) and for design, workmanship or materials.

2019 market trends

Significant rating increases

In 2019 rates increased on average by 75% across the Energy sector globally, although higher increases were seen for risks in areas where underwriters have concerns over supply chain and risk management. Deductibles also increased, often by 100% for the critical areas of technology risks, commissioning and natural perils. Coverage continued to be scrutinised by all reinsurers, especially Defects (Design, Workmanship and Materials), Corrosion, Cyber, Flooding and in certain territories, Terrorism and Sabotage, which remains excluded under a Construction/Erection All Risks policy. Information on supply chain, quality assurance and risk management became more relevant in order to achieve the best terms and conditions.

Changes in underwriter appetites

During the latter part of 2019, insurers began to show a significant change in underwriting appetite and approach, noticeably dominated by more centralised control authority by Global Line of Business Chief Underwriting Officers. Product line underwriters showed more hesitation in agreeing new opportunities without referral to senior management, engineers, or both. This trend of referral has continued into the first quarter of 2020 and it seems clear that losses in 2018/2019 caused many insurers to evaluate their guidelines on projects and in regions that could be exposed to major perils.

Reduction in regional market participation

Globally, one of the most noticeable changes was the reduction in active participation and capacity provision in the key regions of Dubai, Singapore, Miami and, for domestic risks, Australia. Even the previously considered strong domestic markets in South Africa, Turkey, Germany, Brazil and similar competitive areas showed signs of reduced capacity.

There were no new Lloyd’s withdrawals, although the Construction consortium that represented a viable alternative to the major markets who would lead a project was heavily affected; whilst these syndicates still lead risks, they now do so for small to middle-market projects only. 2020 treaty renewals produced a further shake up in capacity, where global PML capacity reduced to approximately US\$3.8-4 billion on a best risk basis. It should be noted that insurers are definitely not using their full capacity for the vast majority of risks; on the contrary, they are only using a percentage of their “best risk” capacity, thereby reducing the global availability by a high margin.

Capacity changes

There were significant capacity changes in many major insurers such as AIG, Allianz, Chubb and Zurich, while Samsung Fire & Marine and Mapfre withdrew from global Construction underwriting, reducing the capacity by US\$150 million compared to 2018. The market changes were no better demonstrated than by Munich Re’s decision to merge its two Operations writing Construction business, being Corporate Insurance Partners (CIP) and Munich Re Fac. Meanwhile, the merger between AXA and XL also led to a consequential reduction of capacity.

Less enthusiasm for leading business

More importantly, clear evidence emerged of a distinct reduction in the number of leading underwriters prepared to commit meaningful capacity and spend quality time in maintaining a lead position. Other significant changes included AIG withdrawing from Construction insurance in Latin America, while rumours continue to circle regarding AIG’s global approach to this class of insurance.

Emergence of new MGAs

On a positive note, whilst Managing General Agents (MGAs) have never been active within the Construction and Engineering insurance sector (apart from those MGAs specialising in insuring construction plant and equipment), new MGAs began to emerge writing Construction business on a selective basis. Rokstone, which was set up in early 2019, was joined by other MGAs such as Castel, Connect Re and Agile Partners writing this class. While not offering significant capacity, the participation of these MGAs is a positive step forward in maintaining the London market as a Construction insurance centre of excellence.

Chinese market remains competitive

Chinese insurers continue to offer capacity for International projects, although where there is no Chinese interest this capacity is greatly reduced. Conversely however, if a project has Chinese involvement, the capacity that can be obtained can be very significant. The actual amount available varies from opinion to opinion but an overall capacity figure of around US\$1 billion cannot be ignored.

“More importantly, clear evidence emerged of a distinct reduction in the number of leading underwriters prepared to commit meaningful capacity and spend quality time in maintaining a lead position.”

Stricter approach to underwriting

Towards the end of 2019, all insurers showed a stricter approach to underwriting, with greater emphasis on full technical information, a financial substantiation for Delay in Start Up insurance and a deeper review of risk engineering in each project. After the January 2020 reinsurance treaty renewal season, it became obvious that this more diligent approach had taken a further upward turn. Quotations offered on new business were subject to a short window of validity; when dates expired, it was not unusual to discover that the quotation was no longer valid and had increased. Similarly, many existing insurance policies requiring extensions to the insurance period have seen higher than normal extension additional premiums and increased deductibles. Only those projects that had firm and clear automatic extension provisions contained within the placement document could be safe in knowing what the extension would cost. Without such provisions, those policies are potentially open to difficult negotiations, especially those that have high loss ratios.

Outlook for 2020/21

For the remainder of 2020 and into 2021, we fully expect the trend of toughening conditions and stricter underwriting to continue. We also expect rates to rise for all sectors of the Construction portfolio, particularly for the more technical industries such as oil, gas and petrochemicals, and more specifically projects containing prototypical scaled up or unproven technology. This sector has always produced strict underwriting and a strong focus on reduced cover and possible increased deductible levels.

Impact of COVID-19

The Construction sector could slow down from the impact from COVID-19 and of course, travel restrictions could severely affect project locations, hindering the process of construction projects and introducing fresh layers of compliance. Contractually, delays at this stage - and any liability thereof - can be addressed with updated schedules together with the reallocation of work and resources and the implementation of alternative measures. With many materials being imported from China, the main provider of the global supply chain, any shortages as a result of COVID-19 may have an impact on Delay in Start Up premiums/rates if insurers believe that Force Majeure clauses cannot be triggered.

Conclusion: focus on profitability as market volatility set to continue

We believe that volatility in the Construction insurance markets in all sectors will continue, that rates and deductibles for some of the higher exposed industries could also continue to increase and that insurers will remain selective. It is very apparent that all Construction and Engineering insurance and reinsurance companies no longer write for premium income but instead for profitability. Those insurers that have remained in Construction will clearly see the benefit of increased premiums and better terms and conditions; we would hope and believe that this transfers into more profitable underwriting and a more stable market. Capacity will remain unchanged and could even see a slight increase, bolstered by capacity from MGAs and those markets who have confidence in underwriting construction and engineering insurance. This is especially the case for the energy sector, if the catastrophic loss and insurance claims record improves.

However, if the already reported loss record deteriorates, and those losses that may have been incurred but not yet reported fuel further high-profile claims, the market will almost certainly maintain its current volatility during the remainder of 2020.



David Warman is Deputy CEO & Global Construction Practice Leader at Willis Towers Watson in London.

"We believe that volatility in the Construction insurance markets in all sectors will continue, that rates and deductibles for some of the higher exposed industries could also continue to increase and that insurers will remain selective."



Terrorism & Political Violence: a shift in focus

Introduction: market update

Property capacity down, Liability and Political Violence capacity up

Capacity for Property Terrorism within the global insurance market has seen a decline in 2019 and 2020 to circa US\$3.5 billion, driven primarily by mergers and acquisitions as well as the AIG remediation coinciding with their acquisition of Validus/Talbot. However, in the last few years market capacity for the additional perils of Terrorism Liability and Political Violence has seen growth to circa US\$2.4 billion, driven primarily by new entrants to the market such as Convex. However, "realistic" global capacity is likely to be lower than theoretical figures, as new entrants are cautious in deploying capacity for emerging risks. Further marginal growth in capacity has been witnessed for Chemical, Biological, Radiological and Nuclear Terrorism coverage to circa US\$625 million, whilst Cyber Terrorism physical damage has risen to circa US\$1.9 billion. We would not anticipate any further capacity growth in these lines of business.

Terrorism and Political Violence activity: shift to low capability attacks

2020 has already seen the passing of a seven year 'clean' reauthorization of Terrorism Risk Insurance Act (TRIA) in the United States of America, taking effect from January 1 2021 until December 31 2027, which keeps the program elements unchanged. It will continue to provide a backstop for insurers in relation to claims from Acts of Terrorism under all commercial Property & Casualty policies.

We are seeing increased instability across the globe as

a result of public unrest around issues such as climate change and the environment, social activism, unequal distribution of wealth, price rises of essential commodities as well as a slowdown in growth and increase of economic hardship. There has been a notable shift of incidents within the Terrorism and Political Violence market, from major catastrophic property-focused attacks to randomized, 'low capability' attacks which target the general public and are carried out by extremists or 'lone wolves' being supported by the proliferation of propaganda inciting violence. Furthermore, there is a growing threat from weaponised drones being used for targeted attacks on the energy sector which have been deemed an act of Terrorism.

Enhanced use of social media in low level attacks

This is being aided by the global reach and interconnectivity of social media which is being utilised with increasing success to organise and manage public protests, contrary to the central committee-led activities of the past; so we are seeing the appearance of 'leaderless' movements. As such, more attritional losses are being witnessed within the Terrorism and Political Violence market, requiring more detailed underwriting and management of the risk.

Strikes etc. threat remains

Along with terrorist attacks and both global and localised conflicts, the threat of Strikes, Riots, Civil Commotions, Mmalicious Damage and protests remain as a real risk to the energy industry. Furthermore, many new construction projects around the world will continue to face environmental activism and local opposition, including those where land disputes and population displacement may arise.

Pricing update

No dramatic changes

Rating and pricing levels are not expected to see any dramatic changes through 2020. Generally, reductions are being seen in western world placements but only to about 5%; however, rates are increasing in line with the heightened risk in volatile and emerging market territories such as Chile and Hong Kong, where there is a key emphasis on understanding the underlying socio-economic issues and local capacity is constricting. In addition, there is potential for wider regional implications expected to arise from the US-Iran standoff.

Increased demand for BI coverage

The Terrorism and Political Violence market continues to experience losses in the Energy sector, although the majority are still deemed small and not catastrophic. However, we are seeing an increased demand for Business Interruption (BI) coverages such as Impairment of Access, which in turn are giving rises to losses within this sector. While losses continue to be paid, with some impact on renewals for those directly affected insurance buyers, this is not expected to have any major impact on general market capacity or pricing, any further than the changes otherwise caused by any shift in the security environment in those regions.

Insurance considerations

Is the coverage currently purchased still appropriate?

The energy industry is vital for infrastructure globally and remains a key target for Terrorism and Political Violence. As the Terrorism and Political Violence market and the risk landscape continue to change, it is imperative that the energy industry considers whether the coverage they currently purchase is appropriate; for example, whether obtaining coverage through government pools provides sufficient coverage for their level of exposure, or whether a full stand-alone Terrorism and Political Violence policy or Difference In Conditions/Difference In Limits/Excess policy would provide more appropriate coverage.

Challenges securing Strikes, Riots & Civil Commotion cover

It is of utmost importance that insurance buyers also consider whether the perils currently provided by their insurance policies are appropriate for the changing risk landscapes in which they operate. For example, the civil protests taking place throughout Chile in 2019–2020 highlighted how insurance needs and buying habits can change rapidly. Many buyers in Chile have faced difficulties renewing - or even buying new insurance policies - due

to local capacity being harder to obtain and insurance carriers not having the appetite to provide perils of Strikes, Riots and Civil Commotion rather than just Sabotage and Terrorism.

Time to consider Impairment of Access cover?

While the threat of Strikes, Riots, Civil Commotion and protests remains a clear and ever-present risk, it is important that insurance buyers fully understand what coverage they may or may not have. Whilst many may have some form of coverage in their "All Risk" Property policy or a stand-alone Terrorism and Political Violence policy, this is unlikely to include any coverage for Business Interruption due to site access being prevented or hindered by strikers or protestors in the absence of Physical Damage.

As such, a policy wording has been created by our team in London which provides for Impairment of Access. This Impairment of Access coverage uniquely responds whether or not Physical Damage has occurred from an act of Protestors, Riot, Strike, Civil Commotion, Malicious Damage, Sabotage and/or Terrorism and whether or not the Impairment Of Access was due to an act at the Insured's site or within a pre-agreed radius or access route even if the Insured was not the intended target of such act.

Conclusion: cyber coverage still too restricted for most buyers

Finally, whilst the Terrorism and Political Violence market capacity has rapidly grown and evolved for Cyber coverage, it is still not as readily available or as broad in coverage as insurance buyers would hope. In general, insurers will only cover a cyber-attack that fits the standard market definition of Terrorism in that it has to be politically, religiously or ideologically motivated, with no coverage for other malicious cyber-attack. In line with other classes of business, there have been new cyber exclusion and limited buy-back clauses introduced to the Terrorism market, which aim to replace the CL380 but with potentially broader exclusions as insurers are continuously considering how and where to best manage their exposure and provide appropriate coverage levels.



Amelie Keeble-Buckle is Associate Director, Financial Solutions - Terrorism & Political Violence Practice, Willis Towers Watson.



International round up: a centralisation of underwriting authority

Beijing

Upstream: profitable and competitive, but clouds on the horizon

Further to our April 2019 advices we can see a slight increase in Chinese Upstream market capacity, which can be attributed to increasing capital and reinsurance treaty support, which is provided by international markets. In theory, market capacity could be as high as US\$500 million but for most programmes this will be reduced in practice.

Overall, Chinese Upstream business remains profitable. There have been no significant losses during 2019 and compared with international markets, Chinese insurers are maintaining their competitiveness. The overall underwriting strategy dynamic has not changed, as the Chinese market continues to support Chinese interests in Upstream programs around the world.

However, we believe the remainder of 2020 will be very difficult for everyone, including the insured, insurer and broker due to the coronavirus situation and the global economic environment. We have experienced an oil price collapse in 2014 and now it is happening again in early 2020. We hope this will be just a short period of volatility; otherwise we will face the dual challenge of a hardening insurance market together with a depressed oil & gas industry.



Su Ke is Deputy Head of the Energy Department, Willis Towers Watson CRB China.

Downstream: local markets still soft

Despite the international Downstream and Construction markets demanding rate increases as capacity reduces, the Chinese local markets are still soft, in general due to competition among non-motor businesses. However, for projects/accounts demanding higher capacity support (e.g. insured value higher than US\$ 5 billion), local insurers have started to see their terms either rejected by international reinsurers or on the basis of different in conditions offerings (same price but with higher deductible and reduced limit) since the end of 2019. Whether there will be a turnaround in the Chinese Downstream market remains unknown at this stage.

Eric Wang is Head of Downstream Energy, Willis Towers Watson CRB China.



Dubai (and the wider Middle East)

Retrenchment of authority

The role of the Middle Eastern marketplace has experienced a significant metamorphosis during 2019 and the beginning of 2020, which sees a general shift of underwriting authority from the region back to “specialty centres” – which in most cases means the authority moving back to London. The shift of authority will itself be compounded by underwriting results in the sector, which remain less than satisfactory despite recent hardening in rates and is justified by major reinsurers wanting to instil a tighter discipline and consistency of Oil & Gas underwriting regardless of region. The retrenchment of authority “back to centre” raises question marks in the broking community, particularly amongst those with a global footprint, as to how they access this capacity and are faced with broking with regional underwriters with a greater appetite for risks in the Middle East or broking with counterparts in London who may have the ultimate decision making powers related to deployment of capacity and setting of terms.

Disappearing brands

In 2019 and at the beginning of 2020, the Dubai International Financial Centre (DIFC) has lost (or announced the loss of) a number of (re)insurance brands, which may be seen as a significant blow to supporters of the regional energy marketplace. These include, but are not limited to: Allianz, Asia Capital Re, Swiss Re Corporate Solutions and Lloyd’s Talbot. Most of these brands still have access points in other trading hubs such as London, but it remains to be seen as to whether underwriters sitting outside the Middle East have the appetite to write risks from that region. Additionally, the region has seen a number of credit rating agency downgrades, which in isolation are not a major cause for concern but are still a significant illustration of the wider region’s reinsurance market’s lack of resilience.

An opportunity for new capacity?

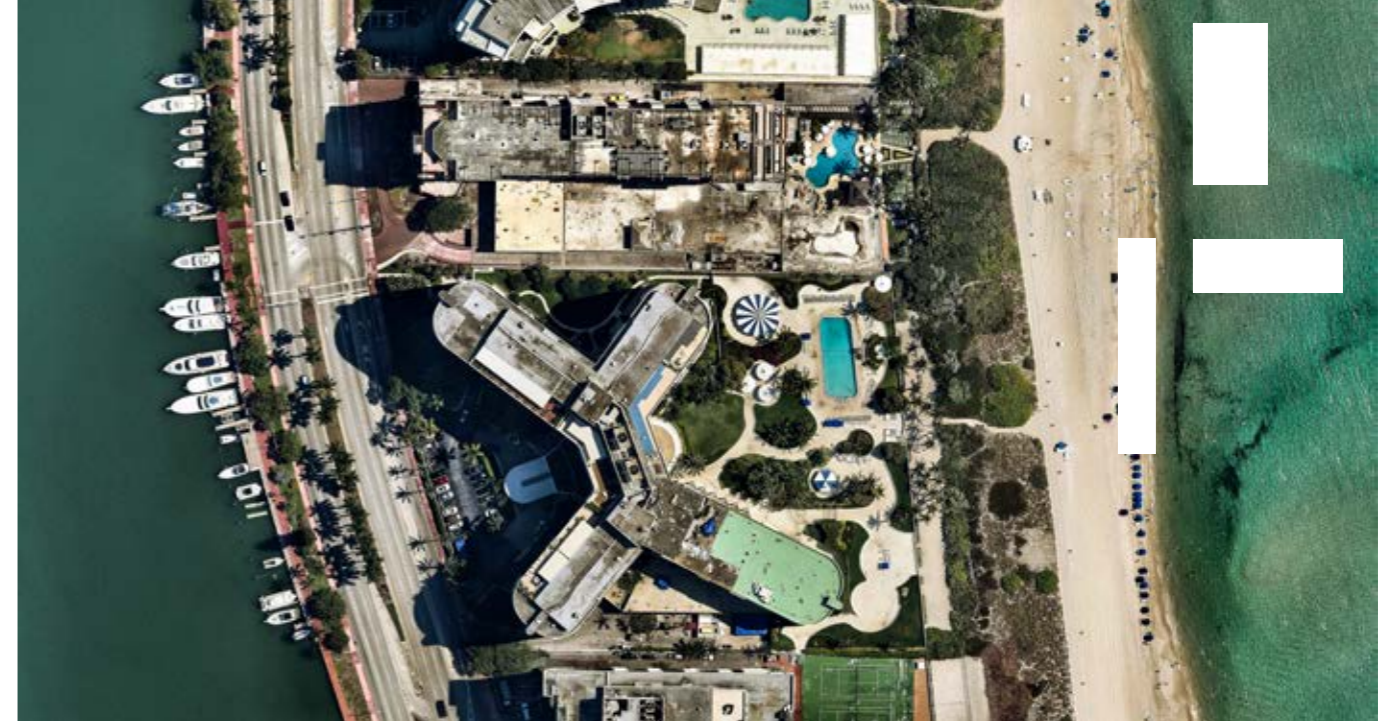
The scale of new capacity entering the region has not been sufficient to replace the levels from insurers which have scaled back their operations in recent years. The general trend for the small amount of capacity entering the region is to be focused on Managing General Underwriters (MGAs) that are not limited to Aspire Underwriting and Arma rather than on traditional reinsurers. Many have questioned why there has not been a greater demand for reinsurers to set up operations in the Middle East during 2019 and beyond; this can be justified by the experience of other reinsurers in the region. While there have been successes, particularly where reinsurers have been able to apply international underwriting expertise to regional understanding of the energy industry and risks facing the sector, setting up in the DIFC and wider Middle East region is still seen by many as a hub from which there have been a number of exits in recent years; it is also associated with having a high cost base in terms of real estate and cost of operating a team.

Towing the line

Aside from the factors affecting the region specifically, themes relevant to the wider Energy reinsurance marketplace are as relevant than ever, not limited to a focus on the importance of risk quality and the provision of detailed underwriting information, demonstrating risk quality as well as reinsurers focusing on a “return to technical rating” rather than a specific percentage increase being applied to renewals.



Will Peilow is MEA Regional Leader, Downstream Natural Resources GB at Willis Towers Watson.



Miami (Downstream only)

Key capacity providers remain strong as others depart

During 2019 the Miami market saw a number of movements in reaction to directives coming from the different headquarters of the capacity providers with operations in the city. By the end of the year some markets closed their operations in Miami; the likes of Brit, Aspen and Argo exited the hub and moved their underwriting back to their headquarters or exited the region from a facultative/wholesale perspective altogether. While this generated some questions regarding the long-term importance of the Miami market, the reality is that key capacity providers remain strong and continue with developing Miami as their regional access point. Downstream Energy insurers are part of that group and we continue to see a full spectrum in terms of appetite. Through MGAs, new capacity has also come to Miami and while their focus remains niche, either in Primary or Construction, we have also seen them develop some appetite for Energy programs.

Insurers under tighter scrutiny

Amongst the main downstream players in the Miami market for Latin American risks we saw little movement in 2019. Nonetheless, all are complying with their CUOs’ directives in terms of profitability before premium volume and risk quality before unchecked capacity. Insurers such as CV Starr, Liberty Specialty Markets, Chubb and Swiss Re Corporate Solutions continue to offer the same levels of capacity - just under tighter scrutiny. In addition, underwriters in the region will also write risks in the Downstream sector. Co-ordination between units is also increasing; especially for the large Latin America NOC programs, buyers and their brokers can expect a coordinated approach between their Miami and regional offices, together with London or continental Europe class underwriters.

Latin American loss record bucks the trend

While Downstream risks worldwide have seen an uptick in losses, Latin America has showed to be well below the trend and the market has avoided losses coming from the region. Insurers acknowledge the fact that their Latin American portfolios are profitable, and the mix of risk quality, management and sheer luck has proved to be positive. They are also quick to point out that these portfolios balance against global and even Natural Resources aggregates views; as such, the pressure to increase rating levels is there. In general, Latin American programs can expect increases in line with the global trend; however, this can be tempered by differentiating the program by working hard on its presentation and marketing aspects.

Outlook - Latin American market remains significant

It is still early days and companies in the Downstream sector need to ride out the current oil market conditions. Opportunities remain attractive, as all National Oil corporations and additional operators of Downstream facilities continue to evolve. Be it via divestments of refining assets, new pipeline operations and terminals or upgrading their operations, the London-Miami dynamic will remain strong. Decision making has been centralized, and the expectation in Miami is that the global market has turned. Be that as it may, Latin America will remain an important growth market.



Mark Kabierschke is Energy Regional Industry Leader, Latin America at Willis Towers Watson.



New York (Downstream only)

Renewal rates for the first quarter of 2020 are averaging between 25-40% for loss free accounts with limited nat cat exposure. The extent of the hardening in the US market is such that rates continue to rise as programs are frequently not completed by the expiry date, providing insurers with the extra leverage they are looking for to push rating levels even higher. Meanwhile, reinsurance capacity remains scarce and costly, resulting in incumbent insurance companies voluntarily or involuntarily reducing capacity in turn.

As in London, there is very little cohesiveness in the US market; leadership is pretty much non-existent and differential pricing therefore remains the norm. Policy terms such as CBI, Extra Expense and many non-essential sub-limits, Cyber coverage and volatility clauses for Business Interruption are all areas that are subject to negotiation with a determined market. RCV and BI valuation validation is becoming a requirement, while for OIL member “wrap” programs, a “OIL deemed in place” clause is becoming standard in the market.

Meanwhile underwriting discipline is becoming extremely rigorous, and underwriters need to have their participation signed off by their Engineering team prior to any actual deployment of capacity. Not only that, but a second and even a third set of eyes and/or senior management approval is becoming increasingly commonplace. As a result, most renewals are going down to the wire, which can cause panic and acceptance of poor and differential terms by apprehensive buyers.



Paul Chirchirillo is Head of Chemicals and Downstream USA at Willis Towers Watson.

“As in London, there is very little cohesiveness in the US market; leadership is pretty much non-existent and differential pricing therefore remains the norm.”



Oslo (Upstream only)

Industry developments in the Nordic region

In Norway, medium-sized and small companies remain the most numerous on the shelf, and whilst the number of majors has slowly declined in the past decade, those who remain maintain a healthy share of the total production.

Should the oil price return swiftly to the ‘new normal’ levels that we have recently witnessed, the positive uptick in activity should continue. If this is the case, we expect to see more drilling, as Norway looks for new big fields in unexplored areas as well as smaller finds in areas close to existing infrastructure which can be exploited and monetized quickly and profitably. The APA 2019 licensing round resulted in the award of 69 production licenses, with work programme commitments or additional areas. There were many small discoveries in 2019 and there are currently a record number of fields in production. ‘First oil’ from the giant Johan Sverdrup field was delivered ahead of schedule and budget in October 2019 and there were three other developments - Trestakk, Utgard and Oda - which also came on stream.

Looking ahead, development plans which were approved in 2019 included Johan Sverdrup Phase 2, Opal sør, Gjøgå P1, Solveig, Tor II, Shetland/Lista and Duva. A revised PDO for Balder and Ringhorne was submitted in December 2019. In addition, Vår Energi’s purchase of ExxonMobil’s assets in Norway has meant a welcome return of premium to the commercial market.

In Denmark, after a few years without any exploration wells drilled, there has been a pleasing renewed interest in Danish exploration. Operators, including Wintershall, Hess, Dana Petroleum and Total, are all planning new drilling activities. Meanwhile in August 2019 Noreco became a new partner in Danish Underground Consortium (DUC) having acquired Shell’s oil and gas interests in Denmark. The Tyra field and satellite producing fields were shut-in in September 2019 as the Tyra Future project continued to progress.

Capacity

Our estimate of the maximum capacity accessible directly by our Nordic offices for any one risk remains around the US\$3.5 billion mark, including locally based Managing General Agents (MGAs) underwriting on behalf of Lloyd’s syndicates.

Some of the local MGAs have recently added capacity providers who were not previously represented locally to their agencies in an attempt to offer currently un-utilized capacity to owners of some of the capacity risks on the shelf. Chinese insurers have also expressed an interest in underwriting more business in the region, including to non-Chinese clients to a limited degree. In addition, AIG are to close their energy underwriting capability in Oslo. Currently AIG underwrites Energy out of 26 offices around the globe and this will reduce to 3 being London (HQ), Singapore and Houston. Nicole Guttormsen will leave AIG Norway at the end of April 2020 and Karin Sommer has accepted another position within AIG Norway. All AIG Norway business will be transferred to be underwritten in London at renewal.

Losses

As recorded elsewhere in this Review, the Upstream market continued to be profitable for insurers in 2019 with very few losses of note recorded.

Rating levels

Despite the good loss experience and profitability of the sector, leaders are demanding moderate increases of 2.5-7.5% for clean sought-after renewal business, representing a comparatively gentle, yet sustained upswing when compared with the prior year.

Changes in strategy

We have witnessed a tightening of scaling provisions in respect of Defence Costs in package liability wordings, otherwise policy conditions are not being amended and coverage is not being withdrawn or restricted. Due to its profitable nature, Upstream underwriters are keen to write as much Upstream insurance business as they can whilst maintaining underwriting discipline on rating.

Outlook for 2020

The collapse in the oil price at the time of writing, if sustained for a significant period into 2020, will undoubtedly have a profound effect on investment, OPEX and explorations costs into 2021 and beyond. Access to funds for pure exploration companies and the entry conditions for smaller new entrants onto the shelf could both become more difficult. We see further consolidation as more likely at low oil prices with insurance budgets perhaps coming under pressure as oil companies look for cost savings.

Certain traditional oil and gas producers have set themselves decarbonization targets are increasingly looking for opportunities to diversify their income streams by also investing in green and renewables projects. Platforms powered from shore by electricity generated from renewable sources and carbon capture are but two examples of how some of the larger players are seeking carbon neutrality at the current time.



James Locke is an Executive Director at Willis Towers Watson AS, Oslo.

“The collapse in the oil price at the time of writing, if sustained for a significant period into 2020, will undoubtedly have a profound effect on investment, OPEX and explorations costs into 2021 and beyond.”

Singapore

Downstream

2019 began with any existing assumptions relating to the changing market conditions becoming rapidly short-lived. The market has now officially turned, and we are seeing evidence of pure rate increases for Asian clients on all classes of business.

Indeed, Asia is now well in tune with global market activity, with more consensus between Asian Downstream insurers and their counterparts in London. Whilst theoretical capacities have remained, deployment has been extremely cautious, with dollar deployments decreasing and a more robust referral process being followed prior to capacity being spelt out.

The previous gap between Asia and London is therefore bridging quickly, with the latest rate increases ranging from 15% to 25% at the very least if loss free to averaging circa +25% on loss-free programmes and significantly higher for risks where claims have been reported. Energy portfolios remain distressed globally and the scrutiny is now “overall portfolio” basis rather than on the regional basis that we have seen during the last 18 months. Loss loadings have been overwhelming, and programmes which have enjoyed preferential underwriting in the past have been at the receiving end of this process.

We are expecting the situation to worsen; we understand there are three major losses in Thailand that we believe may wipe out the premium pool for that region for 2020. Losses continue to roll in and insurers are pressing for rating increases at any opportunity, with no compromises. Buyers seem to be accepting the new status quo, based on what they are hearing from their brokers, insurers and counterparts; accordingly, they are no longer surprised when we inform them that they should expect a minimum 25% increase on their renewal, if not more. Interestingly, we are seeing insurers declining to negotiate any renewal terms on any programme in advance of three months of the renewal date in question. Insurers are holding off to see how the market is moving and are avoiding early commitment on rates, knowing that they are likely to be able to charge more as the overall market continues to harden.

Some insurers, such as HDI, are openly restructuring their portfolios and will wait until the last few days before renewal to commit to their participation. This strategy is designed to enable them to leverage the highest increase possible, by observing how the programme renewal activity is developing. In our view they are being very opportunistic, in line with others who believe that they were abused during the long soft market.

Other major insurers, such as Allianz and AIG, have significantly reduced their capacity on certain programmes, sometimes by as much as 50% of their expiring participation; this is putting a lot of pressure on brokers to complete placements at the quoted terms. Chubb is another insurer that is clearly making the most of the continuing market rate increases; they are quoting a significant number of programmes and are now leading many of those they quote. Their engineers are actively reviewing and assessing risks, which allows them to benchmark them against their technical rating model and thereby support a case to lead and/or write more programmes. Chubb have been dormant for many years in Asia, but are now very active, with all brokers knocking their door for lead terms. Chubb (and to an extent AIG) are sometimes reluctant to quote if they believe that their terms will be second guessed and not fully supported to get the programme home. In addition, AIG are to close their energy underwriting capability in Oslo. Currently AIG underwrites Energy out of 26 offices around the globe and this will reduce to 3 being London (HQ), Singapore and Houston. Nicole Guttormsen will leave AIG Norway at the end of April 2020 and Karin Sommer has accepted another position within AIG Norway. All AIG Norway business will be transferred to be underwritten in London at renewal.

Upstream

Upstream working capacity in Singapore has reduced significantly since last year; Swiss Re are cutting back, Markel have stopped writing Offshore Construction risks, Asia Capital Re has gone into run-off and Talbot, following their acquisition by AIG, have pulled out of the Lloyd's Singapore platform.

However, the loss record continues to be benign, with only one loss in excess of US\$50 million recorded to our database.

Operational programs with clean records are facing increase of about 2.5% to 5%. However, Offshore Construction rates have doubled compared to a year ago and rates on pure subsea projects are now three to four times those quoted this time last year.

Meanwhile some insurers are going through consolidation and restructure. The AGCS energy team has been absorbed by their engineering team. MS Amlin now has formed a Natural Resources unit to handle Oil & Gas & Renewables; meanwhile Swiss Re is focusing on their bottom line with an emphasis on technical underwriting. Insurers are shifting attention to renewables to reduce their carbon footprint, and to position underwriters in Asia with the authority to underwrite Renewables business.

In short, the outlook for the remainder of 2020 is uncertain; we detect a loss of confidence in the Singapore market as this hub is often no longer seen as the most competitive. Rates are turning and markets are holding firm.



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WTW422706/04/20

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