

integrated

ISSUE 15

**"YOU'VE
GOT TO GET
DIRTY, TO
GET GREEN"**

**THE ENERGY TRANSITION AND
THE FUTURE OF MINING**

**CURRENT CHALLENGES
FACING THE MINING INDUSTRY**



CONTENTS

03 "YOU'VE GOT TO GET DIRTY,
TO GET GREEN" →

05 HOW FAST-MOVING
TECHNOLOGY GENERATES
FAST-CHANGING RISK →

07 CURRENT CHALLENGES
FACING THE MINING
INDUSTRY →

09 AGREED BASIS OF
BUSINESS INTERRUPTION
MEASUREMENT →

11 BRIDGING THE
INSURABILITY GAP →

13 WHY FLOATING
OFFSHORE WIND? →

15 INTEGRA ON
THE ROAD →

17 GROWTH
FOR INTEGRA →



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Welcome to issue 15 of Integrated, our magazine devoted to the specialty insurance lines marketplace, a source of knowledge, experience and insights to improve claims and risk management. We encourage interaction and discussion, so please reach out to our authors directly to provide feedback or discuss topics in more detail.

The transition from fossil fuel-based energy production and consumption to more renewable energy continues to be the 'hot topic' of discussion globally as we look to achieve the net-zero target by 2050.

In the past, Integrated has covered floods, weather bombs and other effects of global warming, as well as potential energy solutions such as hydrogen, carbon capture and offshore wind.

This issue follows a similar theme, but from a different perspective. Simon Marshall talks about the implication for insurance of the fast-evolving EV battery production process. Leo Dixon hosts an informative discussion with Conrad Biegel and Brad Ebel from MDD on the Future of Mining, in which they highlight how a number of years of 'dirty work' will be required to obtain a greener future. Meanwhile, an article by Torben Bell summarises discussions at the MIRA conference in November 2023.

Over the last year, Integra has continued to support the global insurance markets with loss insight, technical advice and new product/service offerings. You can find out more about some of these in this issue.

Ewan Creswell considers a simplified approach to refinery losses and addresses some of the underwriting concerns in his article on Agreed Basis of Business Interruption Measurement, while Paul Latimer and Szen Ong comment on the release of the International Association of Engineering Insurers working paper on Floating Wind, and implications for risk management, underwriting and claims.

From a construction perspective, Liam Gilhooly covers the topical subject of modern methods of construction (MMC), identifies the challenges underwriters face when presented with MMC proposals and offers guidance on how to mitigate.

I hope you enjoy reading Integrated 15. Together with the rest of the Integra team, I would like to thank you for your continued support.

Best wishes,

**Doug Horne, Global Head of
Marketing and Communications**

"YOU'VE GOT TO GET DIRTY, TO GET GREEN"

THE FUTURE OF MINING



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Following MDD's Energy Insights Event in January, Integra CEO, Leo Dixon, caught up with Conrad Biegel and Brad Ebel from MDD to delve a little deeper into their presentation on the day.



Conrad Biegel



Brad Ebel

"WE ALL WANT THE FUTURE TO BE GREEN BUT IT'S GOING TO REQUIRE SOME 'DIRTY WORK' OVER THE NEXT 10 TO 25 YEARS TO GET THERE."



I'm going to kick off with the soundbite of your presentation, "You've got to get dirty, to get green" Can you elaborate on that?

Conrad: That's connected to the energy transition. It requires critical minerals, which we don't have enough supply of, and the only way to obtain more is by mining. We all want the future to be green but it's going to require some 'dirty work' over the next 10 to 25 years to get there.

Do you think all the UN nations and their populations signed up to COP understand this point?

Conrad: I think so. Their critical mineral strategies concentrate on locking down supply for the energy transition. So, I think the countries do understand but, the general population, that's a different story.

Brad: I believe all the significant countries are aware of this, but they're not all on the same page. What we're seeing right now is how the West is trying to keep their supply chain and simultaneously we're seeing China starting to protect their monopoly as well. So, it's going to be very challenging in the geopolitical sense. China has already gone through all the

hard lessons and it has been incredibly dirty. They've learned how to do it and they decided per the statement emanating from Beijing on 21st December 2023 that they're no longer exporting their critical mineral processing technology outside of the country.

This a competitive advantage situation, with China leaping ahead, whilst other countries are left behind?

Conrad: You're exactly right. It's not only solar panel production, but we see exactly the same with battery production as well. China produces 75% or more of EV batteries globally and they use coal as a production energy source, so it's a bit of a conundrum for them to achieve the greener new future. And right now, they're in the dirty phase.

You referred to the 'future of mining' and the possibility of mines operating in a greener way. Could you elaborate on this?

Conrad: The most energy-intensive areas are loading and hauling. As you know, this typically involves large vehicles running off diesel fuels. There are plans to electrify fleets, but the technology is not ready at present. Another option is to convert to using biodiesel fuels. Finally, mines can reduce their carbon footprint in activities like crushing, grinding and conveying, all of which use electricity, by purchasing from renewable sources if available.

Brad: The challenge is there's very little way to reduce power consumption in a mine's mill operations. When you're moving 20,000 tonnes a day, how does an operator make milling less dirty? You can't! You can't reduce the power consumption; you've just got to find a cleaner source of power that's as cost-effective as coal. And that's the challenge, the greener sources of power are typically the most expensive.



On the back of China's defensive position regarding the mining of critical minerals, there's a significant amount of mine construction expected around the globe. An example being Canada constructing 102 new mines. How long do you think the construction period would be in Canada?

Brad: I'd say five to 10 years. Some of the construction projects that have already started are up to three, four or five years old, but some still haven't even dug ground yet.

Conrad: Yes, it really depends. Some of these planned sites are close to the Arctic. There's no road networks, no energy grid, not even places to live up there. So, it's more than just the construction of the mine that's required. It's everything that is required to support it and its workforce that needs to be constructed. So, five to 10 years but I wouldn't be surprised if it's more like 20 for some of the sites that are more remote.

Where do you see the opportunities and challenges for the mining insurance sector?

Brad: There's going to be a boom in construction and that will create all the challenges - shortage of skilled labour, shortage of equipment and the necessary transportation to deal with it. Some projects will carry more risk, so underwriters will have to decide how they feel about that. There are also insurers who have declined to insure the sector due to their ESG guidelines. I think they will need to revisit these guidelines as a result of China's position, as without access to heavy rare earths, we may not reach the planned production of EV cars in 2050.

Keep in mind that governments know these projects need to have insurance and if insurers don't step up, there may be some governmental intervention.

Conrad: I think the question for insurers and brokers is how do you hope to achieve the planned net-zero targets if you don't support some of this dirty work at the front end which will help enable us to get there?

You've touched on supply chain and labour shortages. In the past when these have occurred, what effect has it had on large claims? And secondly, do you think it's going to change miners' approach to holding spares and stock?

Brad: In BI claims, it's the classic 'time is money'. At times it's not only the large items that drive the critical path of a repair project. Even small items have to be examined to make sure they can be brought in on time or on a fast-tracked basis.

Conrad: The mining equipment market is supposed to triple in the next decade so, if you have some critical piece of equipment that fails or breaks and you need to replace it, all of a sudden you have three times the competition out there for the same parts and equipment. This heightened demand for equipment could delay the repair timeline.

Some industry sectors are known for their collegiate response to major incidents, and history has shown competitors sometimes collaborate and share parts or cede positions in OEM's production queues. Do you have experience of the mining sector behaving that way?

Brad: I've seen that over and over in certain industries. But mining process equipment is so bespoke to the site and the process and I've rarely seen critical equipment that could be found elsewhere. As well, the mining world isn't that well known for having bigger, more costly units as spares.

The position that 'we've got to get dirty before we get green' is not factored into many (if any) commentators' graphs that illustrate the pathway to 1.5°C above pre-industrial levels in 2050. Were it to be factored into temperature outcome graphs, it would likely illustrate an increase in temperature over the next 10 years before a more rapid decrease towards 1.5°C levels as we approach 2050. Only time will tell what the shape of the actual temperature achieved graph will look like in 2050. For now, there appears significant opportunities for the insurance sector to support the construction of new mine sites in order to achieve the forecast production of EV cars in 2050.

THERE'S GOING TO BE A BOOM IN CONSTRUCTION AND THAT WILL CREATE ALL THE CHALLENGES - SHORTAGE OF SKILLED LABOUR, OF EQUIPMENT AND THE NECESSARY TRANSPORTATION TO DEAL WITH IT.



HOW FAST-MOVING TECHNOLOGY GENERATES FAST-CHANGING RISK



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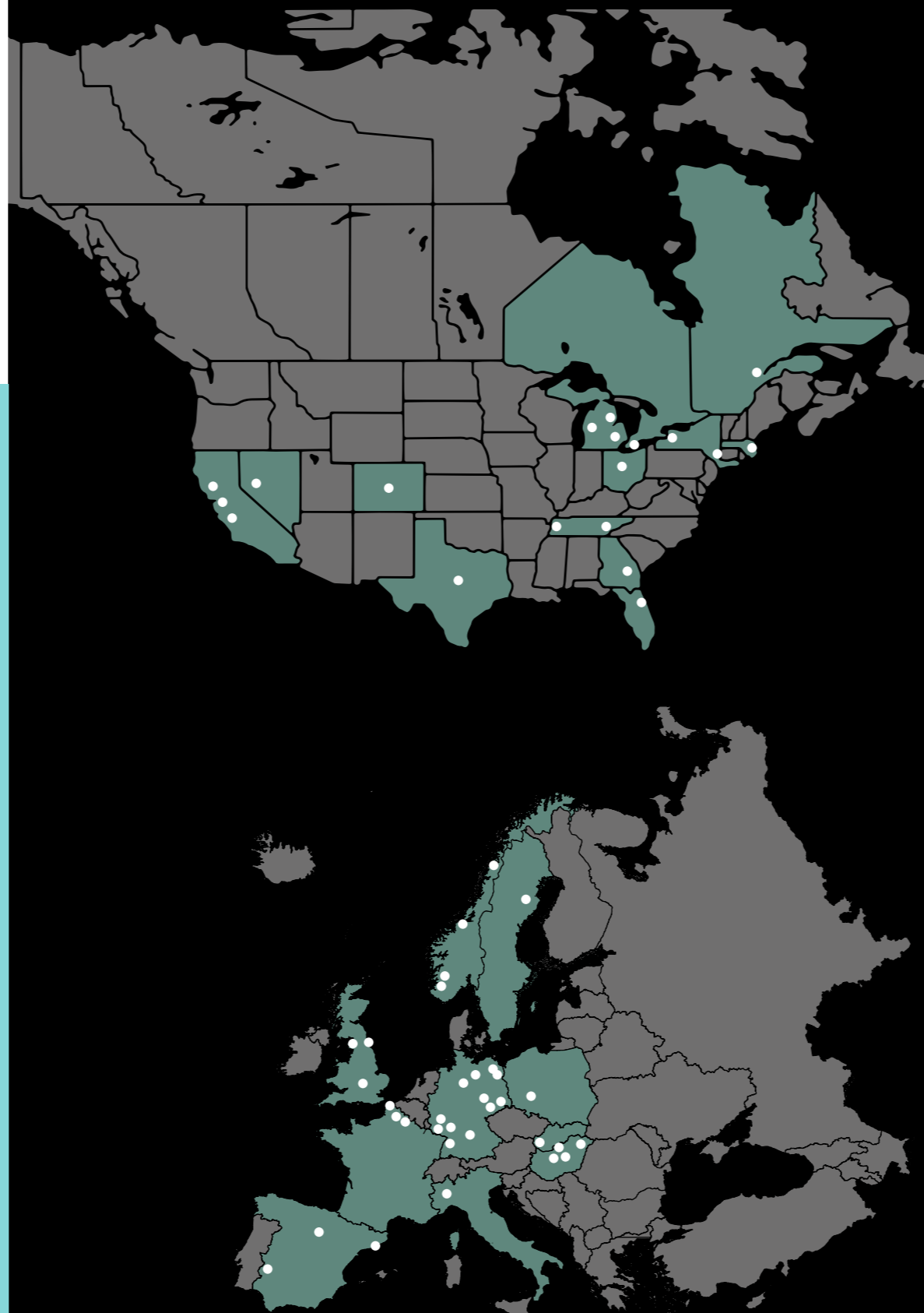
As the world pivots from fossil-fuelled internal combustion engines (ICEs) to electrically powered vehicles (EVs), global capacity for battery production is set to grow exponentially in the next few years. This article examines where and how EV batteries are made, and why this fast-evolving production process could have profound implications for insurers.

WHAT IS POWERING EV GROWTH?

In 2020, electric vehicles accounted for just 5%** of all global car sales. This rose to 9% in 2021 and 14% in 2022 when over 10 million EVs were sold worldwide. Rapid YOY growth is fuelled by government incentives, expanding charging networks, lower entry costs and improved vehicle range and performance. Car brands are responding to rising demand and aligning with regulation to de-carbonise the motor sector. In the USA, 71%* of drivers express an interest in their next vehicle being electric, and UK legislation dictates that by 2030 80%^ of new cars sold must be EVs, rising to 100% by 2035.

* 2022 Consumer Reports
^ 2023 Statista
** 2023 Virta Global
*** Visual Capitalist 2023

NORTH AMERICAN GIGAFACTORIES



FAST-GROWTH BATTERY PRODUCTION

Manufacturers are ramping up battery production to support spikes in EV sales. In 2019 there were only two working battery manufacturing plants in North America. Today there are almost 30 planned, under construction or operational. In the UK and mainland Europe, more than 50 battery plants will be coming on-stream by 2027. Meanwhile China's dominance is predicted to continue, owning over 77% of the world's manufacturing capacity (893 GWh) *** in 2022 and set to retain 69% of the global market (6,197 GWh) by 2027.

ANATOMY OF AN EV BATTERY

EV batteries are mostly based on lithium-ion technology with cell voltages of 3.6 to 3.8 volts. Groups of cells are linked together in series to form a battery module. Multiple modules are connected in parallel to achieve the required capacity. Typically, EVs operate at a range of between 400 and 800 volts, which requires each module to comprise 100 to 250 cells. The number of modules dictates the power and range of each vehicle.

Each cell consists of an anode, cathode, separator and electrolyte, arranged in layers (like a Swiss roll), arranged in a prismatic or cylindrical configuration and housed in a metal casing. Anode active materials are generally carbon-based, while cathodes are typically composed of oxides of lithium cobalt, lithium manganese and lithium nickel manganese cobalt. Separators are often made of polyolefin plastic, and most electrolytes are non-aqueous solutions in which lithium hexafluorophosphate salt is dissolved in an organic carbonate. Ongoing research is exploring alternative electrode materials to boost efficiency, increase output and reduce cost.

EUROPEAN GIGAFACTORIES



BATTERY MANUFACTURING PROCESS

The first stage of manufacture, preparation of the active electrode materials, involves grinding, milling and drying of raw materials into a fine powder and mixing with solvents and binders to form a paste. Next, the paste is applied to thin metal foils which are dried, compacted and cut to size. During cell assembly, the foil electrodes are wound together with separators, electrical tabs are added, and the unit is inserted into a casing, filled with electrolyte and capped. Finally, the cells are charged and discharged to form a solid electrolyte interface. Once tested and quality-checked, the batteries are packed for storage or shipment.

While some facilities handle the end-to-end manufacturing process, others outsource the electrode material preparation to external plants. Preparation processes require solvent extraction systems on site for solvent recovery and environmental control. Typically, the solvent for cathode materials is N Methyl Pyrrolidone (NMP), a flammable liquid. Cell assembly takes place in a clean, dry environment to prevent contamination, which could lead to product failure. Often a facility will produce batteries for a range of vehicle manufacturers and completed cells may be shipped to other locations to be combined into modules and packaged into battery packs.

CONSTRUCTION RISKS

EV battery factories are typically large, steel-panel-on-steel-frame buildings with a relatively large number of smaller manufacturing equipment and centralised utilities. While under construction, they may present the following risks:

- **Ground Conditions:** None of the equipment (apart from milling machinery) is particularly large or heavy so ground loads rarely require significant piling.
- **Equipment Lifting:** Generally, loads are not large so lifting hazards are reduced. However, extended reach is required to lift lighter loads over pre-installed facilities. The electrical power intake yard is an exception as processing and battery charging demand large supplies of electricity.
- **Weather/Natural Hazards:** Exposures are generally location-specific and easily identifiable from the outset.
- **Fire Loads:** Risk from construction materials is likely to be low, but high volumes of equipment packaging waste are expected.
- **Water Ingress:** Failed weather protection or leakage of fluids is a significant exposure, especially towards the end of construction.
- **Equipment Failure:** Risk of installed equipment failing before the facility is operational.

TESTING/OPERATIONAL RISKS

Biggest exposures are during plant testing and commissioning:

- **Dust Explosion:** Requires installation of explosion relief, inerting and static control systems during electrode material preparation.
- **Low Flash Point Solvents:** NMP has a flashpoint of 90C, and all organic carbonate electrolyte solvents have low flash points. Fire risk increases when solvents are vapourised in drying ovens at over 100C.
- **Fire from Battery Charging:** Defective batteries may catch fire or explode due to overheating or internal short-circuits.
- **Poor Assembly Conditions:** Failure to maintain clean, very low-humidity conditions during battery assembly could interrupt production.
- **Construction Material Failure:** Sealants, lubricants etc must operate reliably in ultra-low humidity environments.
- **Skills Shortage:** Plants must recruit, train and retain highly skilled teams to keep operations running effectively.

UNDERWRITING CONSIDERATIONS

Every case is unique and driven by a different blend of risk factors. Variables range from the experience of contractors and operators to susceptibility to natural hazards, plant design, extent of fire precautions, and operating conditions, scale and flexibility. Policy coverage for each battery manufacturing facility should be tailored against these variables.

CHARGING INTO THE FUTURE

EV battery technologies are evolving quickly to meet the competing demands of car brands. Innovations such as silica anodes and lithium air batteries are already in-market, and the next generation of devices promises to be more powerful, compact and longer lasting. Manufacturing technology is fast developing too, with China's pre-eminent role set to ease as the West matures its production capacity and builds its own manufacturing solutions.

The exponential demand for EV batteries is sure to create a proportional growth in manufacturing plants. New products, manufacturing techniques and technologies will bring a new raft of challenges for the insurance community. To provide equitable terms and conditions for all parties, underwriters will rely on a strong understanding of the fast-changing EV battery landscape and its associated risks.

CURRENT CHALLENGES FACING THE MINING INDUSTRY



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On behalf of the
Integra Mining Team

Whilst attending the Mining Insurance Risk Association (MIRA) Conference in Vancouver, Canada in November 2023, I was interested to hear views on some of the more pressing challenges facing the mining industry.

The issues experienced by miners worldwide are significant and diverse, but there are some which are commonplace across the globe. Four of these were highlighted at the MIRA Conference: climate change, geopolitical tensions, supply chain challenges and digital transformation.

While, to most, the above might seem common knowledge, the strategies being considered and adopted by mining companies to address these issues are novel, complex and sophisticated.

ALTHOUGH THE REQUIREMENT FOR OIL, COAL AND GAS MAY DIMINISH, THE DEMAND FOR ALTERNATIVE RESOURCES LIKE COBALT, NICKEL AND LITHIUM WILL ONLY GROW.

GEOPOLITICAL TENSIONS

The 2023 World Economic Forum Risk Report lists geopolitical uncertainty as being amongst the top risks facing a range of industries including mining. These risks relate to events such as the Russian/Ukrainian war, the Israeli/Palestinian conflict, ongoing volatility across Africa and instances of political/criminal unrest in regions across both Central and South America.

Notwithstanding this, the location of the resources required between now and 2050 will dictate the regions within countries where miners will need to operate, whether geopolitical pressures exist there or not.

Dynamic strategies will be necessary to try and mitigate the political volatility, accommodate the local regulatory requirements and address the issue of resource nationalisation.

SUPPLY CHAIN

Miners rely on complex supply chains to procure the raw materials required for mining operations. While many of the acute supply chain issues experienced during the Covid-19 pandemic persist, strategies continue to be developed to work around these challenges. Again, while there remains a need to mine and it is economically viable to do so, mining companies will find a way.

The fact is that miners will continue to mine while the demand for mined resources remains. You only have to look at the article entitled 'How Fast-Moving Technology Generates Fast-Changing Risk' to see the targeted number of electric vehicles on the road by 2050 illustrates why mined resources will be required for at least the foreseeable future.

CLIMATE CHANGE

The very nature of mining activities dictates that operations contribute to greenhouse gas emissions and environmental disruption.

Interestingly, while the type of resources required may change due to global net-zero targets, more renewable sources of energy/power and the transition to a more sustainable world, increased volumes of resources will still be required. Although the requirement for oil, coal and gas may diminish, the demand for alternative resources like cobalt, nickel and lithium will only grow.

DIGITAL TRANSFORMATION

The MIRA presentations highlighted the extensive work being done by mining companies globally to explore how digital transformation can improve operational efficiencies, safety and sustainability. Artificial Intelligence will become commonplace in mining operations, as miners use it to interpret data and enhance operational safety and efficiency.



AN ADJUSTER'S PERSPECTIVE

A decade ago, I worked on a claim for malicious damage at a mine in Southern Africa, where disgruntled representatives of a local community had set fire to a range of installations at the mine and targeted critical items of plant and equipment.,

On face value, it was assumed that the miner had established the site based upon factors that maximised profits, and without any regard for the impact on the local community. This resulted in members of the community taking action to protect their wellbeing and environment.

However, this could not have been further from the truth. In areas up to (approx) 100km from the mine, rural communities had benefited from significant infrastructure upgrades, including road networks, newly-built community structures, residences, schools and medical facilities. Investigations established that the mine was wholly responsible for all infrastructure improvements across these local settlements and had become the primary employer for these communities.

The suspected miscreants were identified by the local authorities as members of communities located outside the upgraded areas. Despite living well beyond the areas where the mine could reasonably be expected to extend its influence, they expected to receive similar employment and community benefits.

Following the incident, the mine's attitude and strategy to negate further incidents involved discussions around what more it could do to assist additional local communities. This was diametrically different to the scenarios consistently reported in the media.

Having an intimate knowledge of the Southern Africa landscape, I was also reminded of the level of employment offered in these territories, the positive impact of the development available to local communities and the overall beneficial influence of the mining companies in this region.

MINERS' RESCUE INSURANCE

More recently, our involvement as the nominated adjusters on a global Miners' Rescue Insurance product (the brainchild of Dan Rouse at Aegis in London, which is gaining traction with several mining companies) has demonstrated the mining companies' collective awareness and concern for the human side of the industry.

While the benefits of Miners' Rescue Insurance are wide-ranging, a major element of the product relates to the care, safety and welfare of those employees (and their families) potentially involved in a mining catastrophe.

MINING: A BALANCED PERSPECTIVE

While I appreciate the nature of mining activities can result in negative consequences, it is only fair that we reflect in equal measure on the positive influence that mining can bring to the world we live in.

Apart from the fundamental principle that miners procure resources which are critical to the global economy and essential to all of our everyday lives, there are so many more positive impacts from mining which seldom receive the media coverage they deserve.

I ask only that the next time we contemplate a media report that highlights the negative influence of a mining company somewhere across the world, we apply a more balanced perspective and acknowledge the positive influences of mining, and the fundamental need we all have for miners to continue to do what they do.

At the MIRA Conference, it was refreshing to listen to the myriad of strategies being explored by mining companies to address the challenges of the day.

I would encourage all those with business interests within the mining insurance community to participate in MIRA, and to regularly review its technical articles and those published by the miners themselves.

AGREED BASIS OF BUSINESS INTERRUPTION MEASUREMENT



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After 45 years of handling technically-based mining, power, construction, engineering and oil, gas and petrochemical claims, I can safely say that refinery losses with time element exposure are the most challenging property claims. These losses require knowledge of process engineering, refinery configuration, the licensed technologies employed by the insured and the economics of the markets served. Furthermore, business interruption issues are not exclusive to larger losses, but merely take on a greater emphasis as the associated quantum grows. Typically, when a claim is concluded, parties ask how the process could be streamlined and whether the extent of data requested by insurers' various consultants is truly necessary.

S&P GLOBAL COMMODITY INSIGHTS-DERIVED MODEL

Against this backdrop, I set out to find a simplified approach to refinery losses and address some of the pertinent underwriting concerns. My aim was to design an Agreed Basis of Business Interruption Measurement, as opposed to an agreed value of quantification, which is fraught with challenges when introduced to the refining sector.

At the heart of the solution is an impartial third party, the consulting team at S&P Global Commodity Insights. Comprising consultancies at IHS Markit, Purvin & Gertz, PFC, CERA and CMAI, Commodity Insights also has access to Platts price data. Its adaptable refinery yardstick linear programmes can model any refinery worldwide, and the Commodity Insights-derived model, combined with the insured's NDA-protected, refinery-specific information, becomes the basis for quantifying both premium and indemnity.

ACCURACY OF EARNINGS DATA

First, the solution addresses the provision of accurate earnings data, upon which underwriters calculate the appropriate premium. Currently this is provided by insureds as part of the underwriting information. They make best efforts to look forward through the insurance period and (tentatively) for a further 24 months or longer. Unsurprisingly, these assessments are often way off-mark, which is why (in part) volatility clauses were introduced to limit the indemnity available by capping excursions above declared amounts by a percentage applied on a monthly and/or annual basis.

REFINERY-TAILORED LPs

To overcome this challenge, Commodity Insights provides the insured with the refinery modelling results, tailored to the subject refinery, so they can validate the relevant capacities and outputs. Each customised LP is based on Commodity Insights data, analysis and forecasts. The prices of crude oil, intermediates and finished products are adjusted for factors that might affect margin, such as logistics costs, local market pricing and the insured's refinery operations/performance. Using public data and the insured's, Commodity Insights calculates feedstock values delivered to the refinery and refinery gate product prices, based on the Cash Cost of Light Products (CCLP), derived from the following formula:

$$\text{CCLP} = \frac{\text{Feedstock costs} + \text{Fixed/Variable* Operating costs} + \text{RVOs**} - \text{By-Product Credits (\$/day)}}{\text{Production of light products^ in BPD}}$$

* Variable operating costs are from the LP model. Fixed operating costs are estimated from the refinery configuration
^ Light products are gasoline, jet and diesel from the LP model
~ By-products relate to revenue from other streams excluding the above, e.g. residuum, aromatics, LPG etc.
** RVO is Renewable Volume Obligations, or cost of RINS etc.



Many facilities are not solely fuels refineries, so where the insured produces specialty products (e.g. petrochemical feedstocks, biofuels, lubricants and asphalt), these can be reflected in the customised model.

Next, the LP projects the gross earnings for the period of insurance, which is used to calculate the premium. Commodity Insights reviews margin history and provides outlooks 12 months in advance (policy period), or longer to reflect the actual indemnity periods. The model forecasts are then updated with actual input and output price data from a quarterly analysis provided by Commodity Insights and relevant data from the insured (e.g. material changes in crude slate, planned turnarounds, de-bottlenecking etc). At the end of the period, the cumulative quarterly reconciliations indicate the actual earnings of the refinery and provide a basis to undertake premium adjustment.


LOSS SCENARIOS

In the event of a loss, Commodity Insights provides the anticipated revenue and gross margin projections from the same model for the facility during the period of interruption. Use of the latest quarterly update as the start-point of the underlying calculation enables early and accurate claim assessments and assists with reserving and cash flow projections for payments on account. Commonly other downstream process units are affected, but these can also be reflected in the model, as well as post-loss mitigation (e.g. altered crude slate, by-passes and workarounds) so long as process unit capacities are known.

CALCULATING INDEMNITY

In simple terms, the indemnity is the difference between the LP output of earnings (had no loss occurred) and that achieved during the period of indemnity, less savings. Realisation of mitigation and identification of non-recurring variable costs are still part of the adjustment process, as appropriate. Insurers also retain mechanisms to ensure appropriate 'Increased Cost of Working / Expense to Reduce Loss' and expedite expenditure.

Once all payments on account have been made at the conclusion of the interruption, a "truing up" exercise is performed by Integra, Commodity Insights and the insured and any balances due are paid to complete the indemnification.



MANY FACILITIES ARE NOT SOLELY FUELS REFINERIES, SO WHERE THE INSURED PRODUCES SPECIALTY PRODUCTS (E.G. PETROCHEMICAL FEEDSTOCKS, BIOFUELS, LUBRICANTS AND ASPHALT), THESE CAN BE REFLECTED IN THE CUSTOMISED MODEL.

SOLUTION BENEFITS

- Margin volatility clause may not be as relevant
- Premium assessment is on the same basis as claim evaluation
- In the event of a claim, improved speed and accuracy of reserving, and frequency of interim payments during the period of interruption
- Minimised subjectivity in the claim assessment reduces scope for disagreement and litigation
- Reduced personnel time input at the placing stage and in the event of a claim
- Speedier and more accurate claim resolutions
- Insurer and insured maintain a closer relationship through ABBIM which could lead to mutual commercial advantage

ABBIM: NEXT STEPS

This concept has already been brainstormed with major refiners prior to sharing with insurers to determine whether they would be prepared to underwrite it. Numerous questions were raised during this process. Who pays for it? Does it increase the level of indemnity? Can it deal with interdependencies and price spikes? Will it reduce the overall energy premium pool? Today, all these points have been satisfactorily resolved and the concept is being trialled. We foresee its introduction as an endorsement rather than an attempt to alter the fundamentals of the provision of indemnity.

ABBIM is likely to appeal to sophisticated insurance buyers and those familiar with the challenges of presenting business interruption claims. Clearly, there is interest from both sectors as we continue work to bring this to life as a viable alternative method of Business Interruption measurement.

BRIDGING THE INSURABILITY GAP

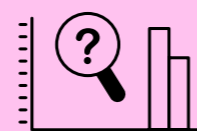
MODERN METHODS OF CONSTRUCTION FROM AN INHERENT DEFECTS PERSPECTIVE.



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In January 2024, the House of Lords Built Environment Committee challenged the UK Government regarding failures of several high-profile manufacturers of offsite volumetric housing (category 1 of the MMC framework¹). Its inquiry and subsequent report 'Modern Methods of Construction – What's Gone Wrong?'² reveal some of the challenges confronting volumetric manufacturers. In this article, we look at how these might impact insurers. We address three of the challenges faced by the insurance market and consider how these might be mitigated.



1. LACK OF PERFORMANCE DATA

When an insurance policy runs for 10 years, its performance will take even longer to determine, which makes it challenging for insurers to quickly adapt their risk appetites. Construction underwriters might only have a few years of exposure on the projects they underwrite, whilst inherent defects underwriters face a much longer period of exposure to risk.

The repair cost of volumetric systems may also exceed the cost of traditional (particularly if the manufacturer is insolvent) and what might have been partial losses could result in more total losses. Whilst the board of an insurance company might encourage the acceptance of off-site risks to help achieve growth and ESG criteria, underwriters will still be required to demonstrate they have mitigated this evolving risk profile as far as reasonably possible.



2. SYSTEMIC RISK

Systemic risk is the risk of a single cause giving rise to losses across multiple developments and often multiple years of account. It drives the insurer's reserves for this class of business (particularly the more complex home warranties/building guarantees) and all insurers should be keen to control it. Solvency II requires insurers to reserve against the impact of a 1-in-200 year event and achieving this capital requirement is made more difficult by the lack of performance data for novel and highly homogenous volumetric systems. If the manufacturing process introduces a repeated defect in the design or construction of the product, it is easy to foresee scenarios resulting in losses on all exposed generations.

These are not just theoretical considerations. Large Panel System (circa £6bn), Precast Reinforced Concrete Homes (£7bn-£8bn), Grenfell (plus related wide-scale fire-safety issues £15bn-£25bn) and Reinforced Aerated Autoclaved Concrete failures can each be thought of as 'modern methods' that involved systemic failure of off-site components or systems.

Whilst every type of construction is exposed to systemic risk (including things as traditional as concrete³), it is perceived to be greater for new systems due to their unproven nature.



3. UNCERTAINTY OVER REGULATORY REQUIREMENTS

The UK Government has decided that the 'Approved Documents' supporting building regulations do not apply to offsite volumetric buildings as it is not a "common building situation". It has yet to publish any guidance on how such systems might comply with Schedule 1⁴ of The Building Regulations 2010 in England. This could leave underwriters and their technical auditors unsure of how to judge such subjective performance.

1 gov.uk >

2 committees.parliament.uk >

3 constructionnews.co.uk >

4 legislation.gov.uk >



POTENTIAL MITIGATIONS

So what can be done to mitigate these challenges? Secondly, what role can brokers take to assist their clients from the outset?

DATA

By considering the underwriter's need for data from the outset, manufacturers can make their product more attractive to insurers. Reviewing published guides, such as RISC Authority's IQ8⁵, can provide additional insight into underwriter requirements.

Early interventions include ideas such as designing in probes and inspection hatches to allow the capture of as-built performance data. For example, this can demonstrate that moisture within cavities is within designed parameters and would be of particular benefit in coastal exposures.

Building a database of numbers of units sold and related claims performance would also give some indication of the developing loss ratios, rather than presenting each risk in isolation.

Providing data on all testing undertaken will build confidence that nothing is being hidden. This is particularly relevant to any fire-safety testing. 'RISC 501⁶: Fire Test and Assessment Method for External Cladding Systems' provides some excellent guidance as to the open and transparent type of approach that should be adopted.

REGULATIONS

Can product compliance with building regulations be demonstrated, given that the UK Government has withdrawn from providing guidance under the 'Approved Documents' (whilst simultaneously pushing for greater use of MMC)?

Can manufacturers demonstrate the necessary UKCA and/or CE markings for the product? A marking that cannot be seen after an element is closed up may require additional forms of assurance, such as video evidence of installation in the factory.

Are there clear limitations as how the product may be used, such as the number of storeys or occupancy type?



INDEPENDENT ASSURANCE

If underwriters and their risk engineers can be provided with independent assurance that the design has gone beyond simply aiming for building regulations compliance and takes on board their underwriting requirements, they are far more likely to be willing to provide cover. The up-front cost in additional design work before it hits a production line will be far lower than the cost of retrofitting later, or not being able to sell the product because clients cannot obtain insurance.

The benefits of independent assurance also follow through to the output from the factory (does the built product match the design?) and the contractors involved on site (their mistakes will damage your reputation, and it is your system's failure that will hit the headlines). It may be beneficial to appoint an independent Clerk of Works on site, dual-instructed and with a duty of care to insurers.

OTHER METHODS

There are methods of reducing the data gap through contractual risk reductions, such as partnering with long-term asset owners (the BTR, RSL and PBSA sectors) in order to share performance data, or by ensuring you have adequate product liability/recall cover.

Working with partners to develop documented handover inspections and on-site storage controls again reduces the risk of future defects after the product has left your factory.

IN SUMMARY

By working in partnership with insurers, and utilising the strengths brokers can add to the presentation of risk, manufacturers will increase the likelihood of their product being insured. Open and transparent communication between all stakeholders at the design stage is the most efficient route to simultaneously create the necessary confidence in what is an otherwise unknown performance, and help reduce the chances of systemic failure.

Whilst off-site volumetric will always present a challenge to insurers, it need not be an insurmountable one.

5 thefpa.co.uk >

6 thefpa.co.uk >



WHY FLOATING OFFSHORE WIND?

**A WORKING GROUP PAPER FROM THE IMIA
(INTERNATIONAL ENGINEERING INSURANCE ASSOCIATION)**



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“With the world transitioning away from fossil fuels and towards renewable energy sources and with an anticipated share of roughly 33% of the world’s electricity production by 2050, wind energy is set to play a key role in this transition.”*

OFFSHORE WIND: FROM 0.2GW TO 250GW

Today, most wind energy is generated onshore, although offshore wind is gaining in importance as it promises the potential for much higher capacity. Widespread political support for offshore wind is driving significant growth targets. As a result, it is anticipated that offshore wind will account for 13% of global electricity production by 2050 (11% fixed bottom and 2% floating assets)**.

For floating offshore wind, this means the installed capacity is set to grow from less than 0.2GW today to around 250 GW over the next 30 years (DNV ETO, 2022).

This staggering growth ambition will create significant investment opportunities, but not without significant risk. It is safe to say that floating offshore wind marks the next frontier in the offshore wind industry. Deeper-water locations, harsher weather conditions and unproven technology all pose significant challenges for the risk management community.

* DNV (2022): Energy Transition Outlook (ETO) 2022
<https://www.dnv.com/energy-transition-outlook/download.html>

**DNV (2022): Floating Offshore Wind: The Next Five Years
<https://www.dnv.com/focus-areas/floating-offshore-wind/floating-offshore-wind-the-next-five-years/>

**DEEPER-WATER LOCATIONS,
HARSHER WEATHER CONDITIONS
AND UNPROVEN TECHNOLOGY
ALL POSE SIGNIFICANT
CHALLENGES FOR THE RISK
MANAGEMENT COMMUNITY.**



EXECUTIVE SUMMARY

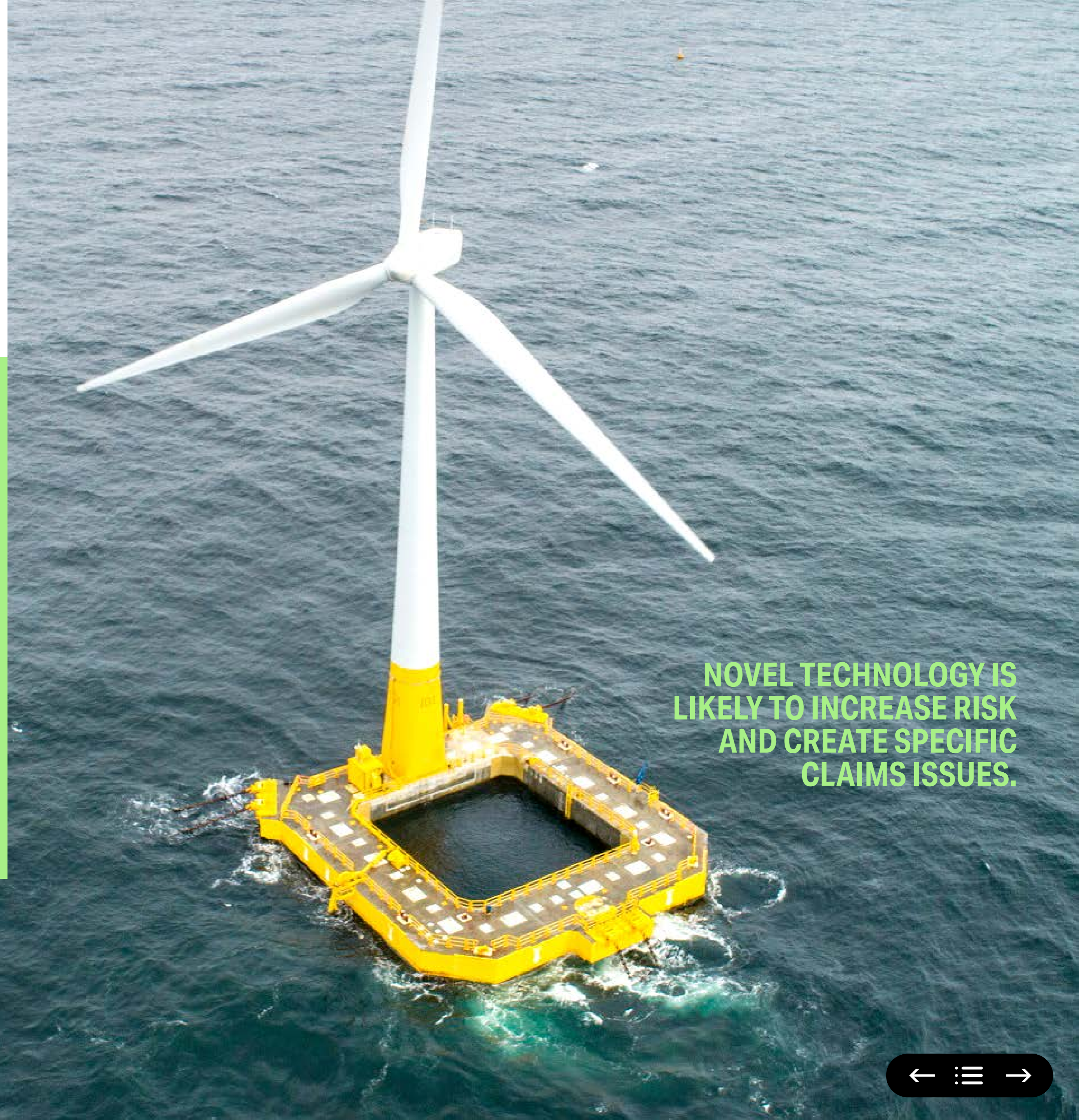
Below is an extract of the executive summary from the IMIA Working Group paper on Floating Offshore Wind: **Risk Management & Insurance**, published at the end of 2023.

The IMIA Working Group was comprised of 13 insurance and independent individuals, including Integra's **Paul Latimer** and **Szen Ong**. It was commissioned to explore the industry and technological background of floating wind, share its assessment of emerging technical risks, create awareness and support of risk management best practices, and enable educated discussions and decisions concerning underwriting and claims management.

KEY TAKEAWAYS:

- ▶ Costs are likely to decrease as the industry matures, but risks will probably increase in the short term
- ▶ Dynamic cable designs differ from static cable designs and come with new risks
- ▶ Wet-towages of modules and port availability are some of the increased risks associated with floating projects
- ▶ The landscape of standards for floating offshore wind is still developing and being paired with existing standards from similar technologies
- ▶ Full project certification is key for risk management
- ▶ Important exposures are: site conditions, design maturity, manufacturing processes, installation methods, grid connection setup, repair and maintenance plans, and logistics and supply chain specifics
- ▶ Novel technology is going to increase risk and create specific claims issues

READ THE FULL REPORT HERE >



NOVEL TECHNOLOGY IS LIKELY TO INCREASE RISK AND CREATE SPECIFIC CLAIMS ISSUES.

INTEGRA ON THE ROAD



Doug Horne

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Over the last 12-14 months, Integra had the pleasure of supporting a number of industry events throughout the world, both through attendance and giving presentations to delegates on topical issues and trends. Here is a brief summary of some of those events.

ASIA POWER FORUM, SINGAPORE



The conference runs over two days with an afternoon primer session for new entrants to the industry followed by the main event the following day. Integra was a co-sponsor of the conference, which was yet again a sell out with around 450 delegates and not a seat spare in the auditorium and four packed networking sessions. Attendees came from various countries from Asia, Australasia, Europe, Middle East and the UK.

In attendance from Integra were Daniel Cole, Dilan Surendrakumar, Anand Javaji, Sumeet Bhardwaj, Alex Radcliffe, Nick Hide and Tony Chapman.

ENERGY INSURANCE AMERICAS

In May 2023, Integra Engineering Adjuster, Szen Ong, took part in a deep-dive discussion at Energy Insurance Americas where the panel discussed the technical reasons why offshore wind related claims are materialising while also considering the effect of supply chain difficulties.

MINING INSURANCE RISK ASSOCIATION CONFERENCE

In November 2023, Integra sponsored the MIRA Conference in Vancouver with Torben Bell, Integra Mining Lead and Managing Director, Australia & New Zealand attending. The conference consisted of presentations and panel discussions on some of the pressing challenges facing the mining industry, included climate change, geopolitical tensions, supply chain and digital transformation. Torben, an Executive Board member of MIRA, also took part in the Q&A session that closed the event. More on this in the article - 'Current Challenges Facing the Mining Industry'.

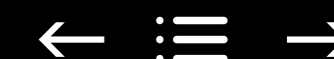


ONSHORE ENERGY CONFERENCE, LONDON



Onshore Energy Conference (OEC) took place in London in November 2023 with a focus on energy transition and insurance. With many aspects of the energy industry and insurance needing to be fully engaged and participating, understanding the risks and providing appropriate innovative solutions, the question of the day was 'Are We Ready?'.

Integra's Global Head of Power Generation, Nick Hide, entertained a packed room during his lunchtime 'TED style' talk about the effects of energy transition on power risks and insurance losses. During the talk he challenged the audience with his honest view that although the growth of renewable energy will grow, conventional power will still play a significant role due to increasing demand – by 2050, energy demand is reported to double.





INTEGRA 25TH ANNIVERSARY CELEBRATIONS

In September, over 100 guests from the UK, Europe, US and Asia Pacific dodged biblical rain storms to descend on Fishmongers Hall in London to celebrate Integra's 25th Anniversary. Following a welcome from Integra's founder and chairman, Ewan Cresswell, guests settled down to enjoy good food, fine wine and lively conversation, in between Peter Lunzer's educational insights into the history and production of the various wines being sampled. The evening ended with a toast from the market to Ewan delivered by Richard Gurney.

LOSS EXECUTIVES ASSOCIATION ANNUAL MEETING & EDUCATIONAL CONFERENCE

In January 2024, Integra's CEO Leo Dixon, Managing Director Americas, Phil Moretti, Senior Executive Adjuster Aaron Prefontaine and Loss Adjuster Mike Benvenuti attended the LEA Annual Meeting in Fort Lauderdale, Florida. During the two days, Aaron presented on the topic of 'Subrogating Highly Technical Claims in the Market Share World' where the panel discussed the pinch points involved for a complex claim and how to anticipate those issues before they grow into real problems.

OTHER EVENTS

Throughout the year, representatives from Integra attended and spoke at various industry events that have included The International Association of Engineering Insurers (IMIA) conferences, European Wind Turbine Committee seminar in Zurich and Singapore College of Insurance, among others.

IN-HOUSE PRESENTATIONS

At Integra, we take pride in sharing insightful data and information. Our adjusters have accumulated a wealth of experience in handling multiple speciality claims. Their learnings provide a set of unique perspectives, many of which are of great value to our clients and industry partners.

Throughout last year, we conducted a number of presentations to industry bodies, insurers and brokers, either at client locations or at Integra offices. Subject matter covered issues and concerns arising from claims coming out of the Ukraine-Russia conflict, various construction themes, including BI & DSU to renewable energy encompassing testing and commissioning, subsea cabling, floating wind and EV battery manufacturing plants.

To find out more about these presentations and other topics covered by Integra, or to request your own specific talk, please contact Doug.Horne@integratechnical.com



GROWTH FOR INTEGRA

FY 2023 has seen yet more growth for Integra. Take a look at our stats* or visit integratechnical.com

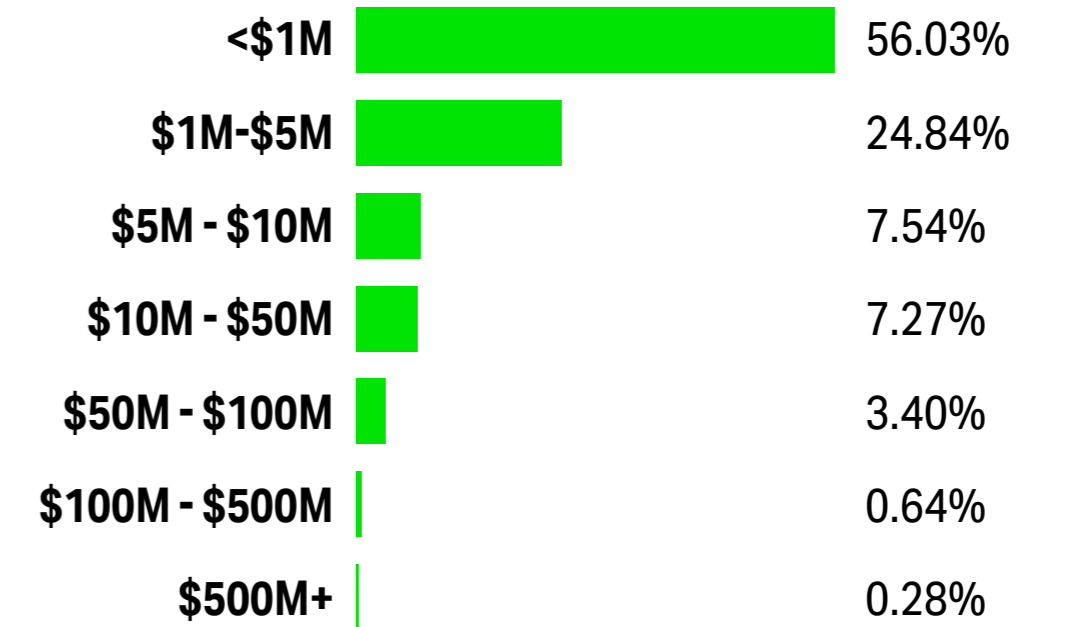
54 ADJUSTERS, 3 EXEC TEAM 25 OPERATIONS & FINANCE

NEW STARTERS:

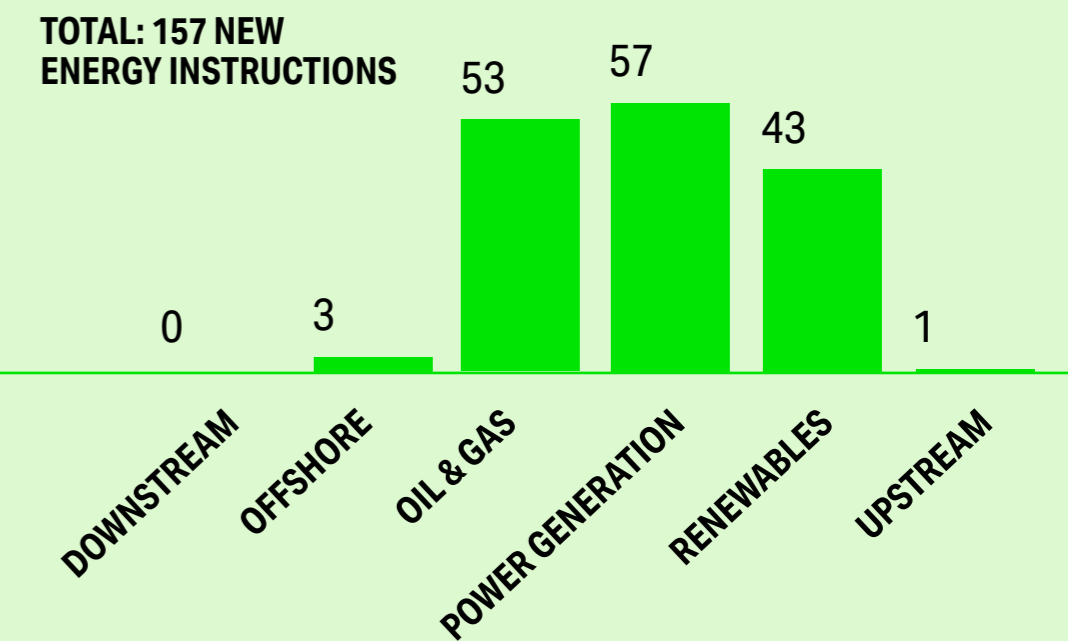
 RAVALI ALLADI	 ROBERT INNES	 HARMEET RAYET
 JULIANA BRUM	 KEITH KOH	 TROY RONDENO
 DANIEL COLE	 JESSICA LUMISTE	 ALBERT STASSEN
 STEPHEN CROMB	 KARIM MANSOOR	 EDDIE WALSH
 LIAM GILHOOLY	 TONY MAXWELL	 JASMINE WATTS
 NICK HIDE	 TANYA MOISEYENKO	

[VIEW THE WHOLE TEAM >](#)

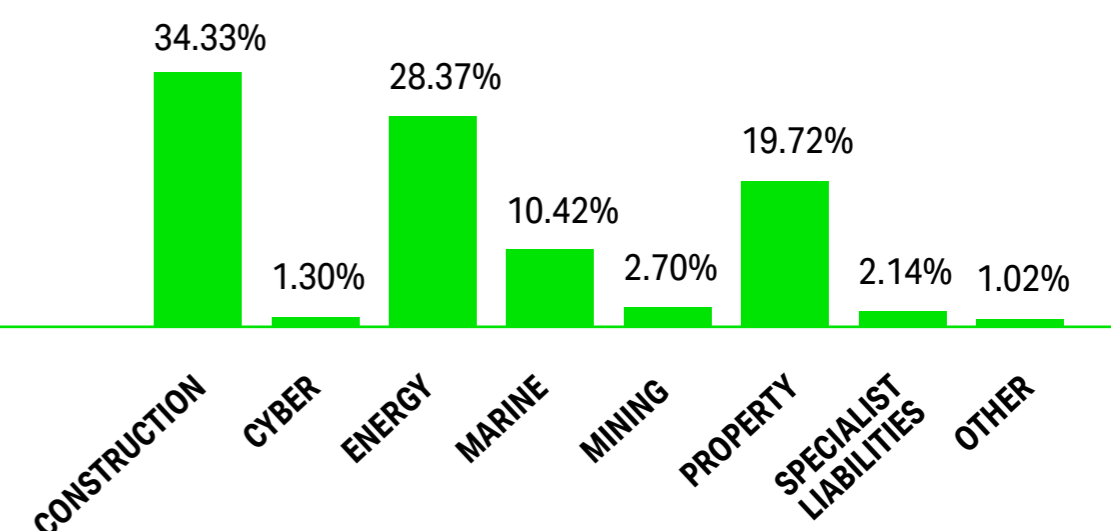
GROSS CLAIM VALUE (FY 2023)



NEW ENERGY INSTRUCTIONS BY SUB-SECTOR (FY 2023)

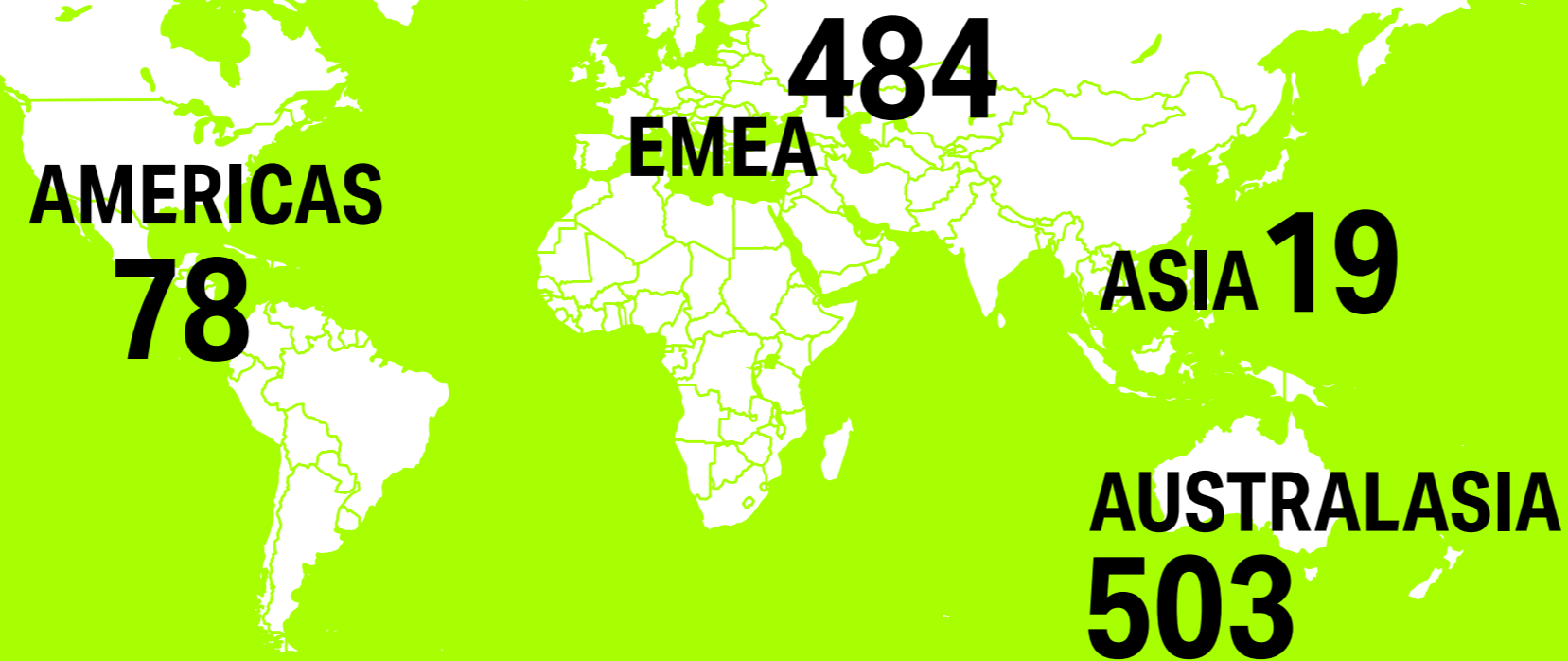


NEW CLAIMS BY SECTOR (FY 2023)



INSTRUCTIONS BY REGION

TOTAL: 1084





integrated

ISSUE 15

This publication is for the benefit of insureds, insurance brokers, insurers and other stakeholders involved in the services that are provided by Integra Technical Services Ltd. It is not legal advice and is intended only to highlight general issues relating to its subject matter but does not necessarily deal with every aspect of the topic. Produced by Integra Technical Services, 6th Floor, 117 Houndsditch, London EC3A 7BT.



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