



Managing the new age of construction risk

10 trends to watch as the
sector builds back better

About AGCS

Allianz Global Corporate & Specialty (AGCS) is a leading global corporate insurance carrier and a key business unit of Allianz Group. We provide risk consultancy, Property-Casualty insurance solutions and alternative risk transfer for a wide spectrum of commercial, corporate and specialty risks across 10 dedicated lines of business.

Our customers are as diverse as business can be, ranging from Fortune Global 500 companies to small businesses, and private individuals. Among them are not only the world's largest consumer brands, tech companies and the global aviation and shipping industry, but also satellite operators or Hollywood film productions. They all look to AGCS for smart answers to their largest and most complex risks in a dynamic, multinational business environment and trust us to deliver an outstanding claims experience.

Worldwide, AGCS operates with its own teams in more than 30 countries and through the Allianz Group network and partners in over 200 countries and territories, employing around 4,400 people. As one of the largest Property-Casualty units of Allianz Group, we are backed by strong and stable financial ratings. In 2020, AGCS generated a total of €9.3bn gross premium globally.

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Overview

The global construction market is set for a sustained period of strong growth, driven by an expected surge in government spending on infrastructure and the transition to net zero. However, the switch to sustainable energy and the adoption of modern building methods will transform the risk landscape, with radical changes in design, materials and construction processes.

The global construction industry is about to embark on a sustained period of growth, driven by the needs of a growing world population and the transition to a more sustainable world. According to a recent report from [Marsh and Oxford Economics](#)¹, the global construction industry is forecast to grow 42% to \$15trn by 2030. The construction industry is expected to be a major driver of economic growth in the coming decade, outperforming manufacturing and services.

The positive growth outlook is based on a number of factors. Rising populations in emerging markets, urbanization and a growing working age population are expected to drive the need for homebuilding, infrastructure and workplace construction. The transition to a low carbon or net zero economy will require significant investment in alternative forms of energy, such as wind, solar and hydrogen, as well as power storage, transmission and supporting services. According to the International Energy Agency ([IEA](#))², pursuing net zero would create a market for wind turbines, solar panels, lithium-ion batteries, electrolyzers and fuel cells of well over \$1trn a year by 2050, comparable in size to the current oil market.

¹ Marsh & Guy Carpenter, Oxford Economics, Future of Construction, September 2021

² International Energy Agency, World Energy Outlook, October 13, 2021



The shift to electric transport will also require investment in new plants and battery manufacturing facilities, as well as charging infrastructure and power generation. Ford alone has committed to an [\\$11bn](#)³ investment in new plants. Huge investment is also required to make buildings more sustainable and lower greenhouse gas emissions. According to the [International Finance Corporation](#)⁴ (IFC), green building in emerging markets represents a \$24.7trn investment opportunity by 2030.

Climate change adaption and mitigation will also give rise to opportunities for the construction sector. Rising sea levels and increased risk of flooding will require new coastal and flood defenses, as well as sewage and drainage systems. Commercial buildings and plants may need upgrading to protect assets from storms and floods, while ageing infrastructure will need to be upgraded to cope with more extreme weather events.

Covid-19 is also likely to give a boost to construction and engineering. The pandemic exposed shortcomings in public services like health and social care, which could translate to increased spending on hospitals. The pandemic also demonstrated the need for more resilient supply chains, which could stimulate construction as manufacturing plants and warehouses are brought closer to home. Digitalization, which accelerated during lockdowns, is also likely to fuel construction activity, requiring telecommunications infrastructure, data centers, logistics and e-retailing hubs.

\$15trn

Forecasted global construction output in 2030

Infrastructure is forecast to be the fastest growth sector for construction with annual average growth of [5.1%](#)⁵ globally during the period from 2020 to 2025, driven by unprecedented levels of government stimulus. The US has passed a \$1.2trn infrastructure bill while the EU has agreed a €723bn Recovery and Resilience Facility. However, given government borrowing during the pandemic, public sector and infrastructure investment is likely to see an increasing need for Public Private Partnerships (PPPs).

This boom in global construction will, however, present challenges for the construction and engineering sector, and their insurers. In the medium term, sudden surges in growth could put supply chains under additional pressure and exacerbate the existing shortage of skilled labor. Longer-term, huge investments in green energy will mean larger values at risk, while the rapid adoption of unproven technology, building methods and materials will require close co-operation between underwriting, claims and risk engineering, as well between insurers and their clients.

³ BBC, Ford announces \$11.4bn investment in electric vehicle plants, September 28, 2021

⁴ International Finance Corporation, Green Buildings: A Financial and Policy Blueprint for Emerging Markets

⁵ Marsh & Guy Carpenter, Oxford Economics, Future of Construction, September 2021

1. Construction trends in the new age of risk



The Covid-19 pandemic has brought about a new age of risk for all industries and sectors of the economy that will continue to dominate business risk mitigation strategies and controls for the foreseeable future.

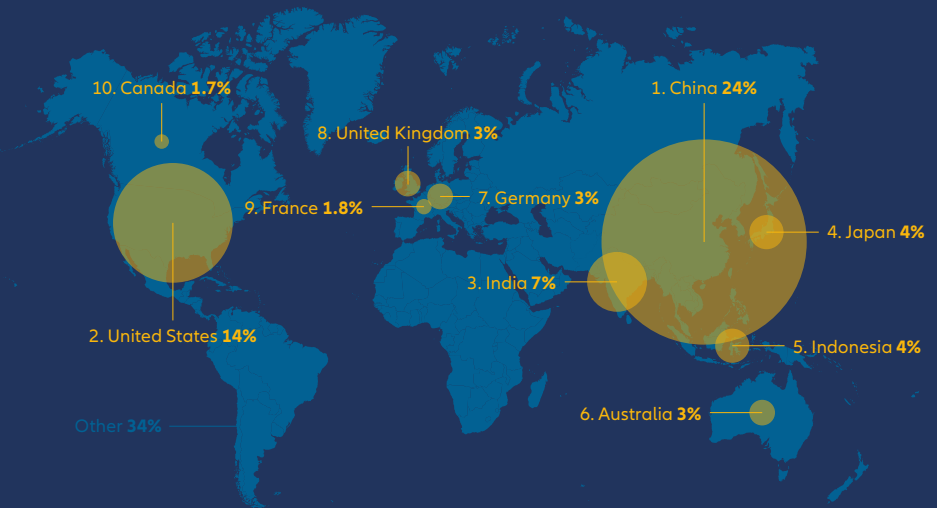
The construction industry rebounded after the initial shockwave of shutdowns, project cancellations and deferrals as it was largely permitted to continue in key markets over the second half of 2020. The UK based consultant [GlobalData](#)¹ has further projected the industry to expand by over 5% in 2021.

Despite a strong recovery the industry is still faced with both short- and long-term challenges in overcoming the shortage of key equipment and materials, the spike in procurement costs, longer lead times, schedule and cost overruns, compromised supply chains, skilled labor shortages, ever-changing workplace protocols, and increased competition for limited work. Consultant Turner & Townsend reported in its [International Construction Market Survey 2021](#)² that “steel rates have shot up in some EU countries by up to 50% due to a combination of iron ore price rises, restricted supply and increased shipping costs.” The report estimates the surging costs will not start to ease until mid-2022.

These challenges come against the backdrop of years-long tight margins in the industry. The Turner & Townsend report indicates the lowest are in the UK (3.9%), followed by Australia and New Zealand at 4.5%, North America at 4.6% and Europe 6.1%. Such limited profit margins in the Covid-19-economy will inevitably lead to a renewed drive to cut costs to secure project execution and delivery outcomes.



Top 10 global construction markets 2030



Global top 10 construction markets see continued shift to emerging markets, with China and US clear leaders in 2030.

These 10 markets are expected to represent two-thirds of global output in 2030.

Source: Oxford Economics/Haver Analytics, *Future of Construction*, Marsh & Guy Carpenter.

Graphic: Allianz Global Corporate & Specialty

The industry will therefore need to accelerate the implementation of efficiency and cost control measures. The Deloitte US [2021 engineering and construction industry outlook](#)³ indicates long-term cost and margin issues can be addressed by modularization and prefabricated designs and the use of advanced construction materials with examples including high-strength concrete, geotextiles and self-healing materials. It also suggests enterprise level technology investments can have benefits of up to 30% saving on engineering hours, 10% reduction in build costs, and up to 20% reduction in operating costs.

“Insurers need to navigate the impact of these developments and the potential risks posed by the industry’s drive to cut costs and shore up Covid-impaired margins,” says **Ronan Gallagher, Global Practice Group Leader for Industry at AGCS**. “The accelerated deployment of cost-cutting strategies and implementation of competitive technologies and designs may well result in accelerated risks for the construction industry and insurers alike. Continued risk monitoring and management controls will be key, especially for new designs, advanced construction materials and innovative technologies. Design reviews and on-site quality controls are essential to safeguard cost-effective project execution and delivery outcomes.”

Analysis by AGCS shows that design defects and poor workmanship are one of the leading causes of construction and engineering claims, accounting for around 20% of the value of engineering insurance losses over the past five years. Faulty workmanship/maintenance is also a major driver of claims frequency, accounting for more than a quarter of such claims that AGCS has received to date in 2021 (as of September 30) – the most frequent cause of loss reported this year.

³ Deloitte, 2021 engineering and construction industry outlook



2. Infrastructure projects – a key element of the post-Covid-19 economic recovery strategy

The Covid-19 crisis has significantly suppressed global economic activity. Now that billions of vaccine doses have been administered governments are endeavoring to stimulate sustainable activity, not only with short-term economic subsidies but also with long-term strategies for a full economic recovery.

Infrastructure investment has long been viewed as an important strategy for economic-crisis management since it creates local jobs and revitalizes communities. Huge public investments have already been announced in some regions, for example in South East Asia or in the US and therefore can be implemented within relatively short time frames: the focus being primarily on 'shovel-ready' projects with the requisite planning and environmental approvals.

Any new investments in large infrastructure projects will come in addition to the numerous projects that had already been scheduled for 2020 but were otherwise postponed to 2021 or 2022 due to Covid-19 restrictions. This will create significant business potential for, but also require capacity and expertise from, the construction and engineering insurance markets.

Infrastructure spending boon

Infrastructure spending will require both private and public capital for various industries, depending on the needs and recovery strategies of different countries. Areas set to benefit include:



Energy

(focus on climate change and the transition to renewables)



Telecommunications

(demand for data and online connectivity has significantly increased)



Healthcare

(the pandemic has illuminated the urgent need for increased investment in healthcare infrastructure in many countries)



Transportation

(repairing/upgrading of ageing infrastructure, new air / rail / road links between global, national and regional freight and passenger transportation hubs)



Infrastructure dedicated to promote climate change resilience

(for example, storm water management projects)



Water treatment and supply distribution

These additional demands on the insurance industry coincide with a transitional period in the construction insurance sector. Major carriers such as AGCS have shown appetite and interest in providing coverage and capacity on such projects for many years and continue to do so – AGCS is the lead construction insurer on the [Oosterweel Link](#), a huge road infrastructure project underway in Belgium’s second city, Antwerp, which will bring many benefits for international trade and local residents.

However, there has recently been a number of new entrants to the sector who will have to accommodate some new “market realities” to secure the benefits of such large-scale opportunities and their successful outcomes.

“Construction insurers will need to overcome a few recurrent and well-identified underwriting challenges – such as extended project durations, natural catastrophe exposures and delay in start-up covers – that are likely to restrict available capacity. The market will also face new challenges of supply chain volatility and spiking material costs, risks of skilled workforce shortages for contractors and heightened focus on Environmental, Social and Governance (ESG) issues, which have an ongoing and accelerating impact on the underwriting strategies of many carriers in the construction sector,” says **Yann Dreyer, Global Practice Group Leader for Construction at AGCS.**

Insurance market placements of Covid-postponed projects that were otherwise tendered prior to the pandemic may be challenging for both clients and their respective brokers. Aside from reduced market capacity for projects located in high-risk natural catastrophe zones, the allowance for insurance costs in pre-Covid tender bids is unlikely to take account of the ongoing market rate increases that have occurred over the last two years. The hardening market has additionally brought about a number of policy wording restrictions that may become problematic, especially for Owner Controlled Insurance Placements (OCIP) and placements involving Public Private Partnerships (PPP). In many cases the policy wording was included in the tender documentation and is therefore integral to the contract, which invariably would not foresee any amendments in the final policy placement process.



Find out more about AGCS’ role as lead construction insurer on the [Oosterweel Link project](#)



As much as 50% of the whole life carbon emissions of a building comes from the manufacturing of materials and the construction process

3. Sustainability will drive changes in risk profile

A global transition to a more sustainable future, including efforts to cut carbon emissions, will have profound implications for construction risk. As a significant contributor to greenhouse gas emissions, the construction industry has been singled out for action by the EU, which has committed to becoming carbon neutral by 2050. According to the [UN Environment Programme](#)¹, buildings and the construction industry account for 38% of all energy-related carbon dioxide (CO₂) emissions. Direct building CO₂ emissions need to halve by 2030 to get on track for net zero carbon building stock by 2050, it said.

If the industry is to reduce its carbon footprint it will need to adopt new materials and construction processes. As much as 50% of the whole life carbon emissions of a building comes from the manufacturing of materials and the construction process, while just six materials account for 70% of the construction-related embodied carbon, according to a [recent study](#)². Cement, for example, accounts for about [8% of](#)³ the world's CO₂ emissions. Reducing greenhouse gas emissions will also require the construction industry to repurpose and refurbish buildings, as well as recycle and reuse building materials, effectively requiring a new industry to be established.

¹ Building sector emissions hit record high, but low-carbon pandemic recovery can help transform sector – UN report, December 16, 2020

² WBCSD, Net-zero buildings: Where do we stand? July 8, 2021

³ Chatham House, Making Concrete Change: Innovation in Low-carbon Cement and Concrete, June 13, 2018

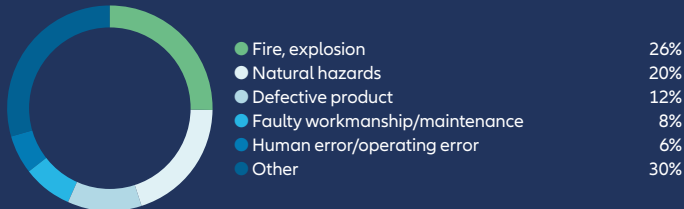


In order to meet carbon reduction, new materials and construction methods will need to be introduced across the market in relatively short periods of time. This will bring an increased risk of defects or unexpected safety, environmental or health consequences. For example, as a sustainable and cost-efficient material, the use of timber in construction has increased in recent years. However, this has implications for fire and water damage (see page 20) risks. AGCS claims analysis shows that fire and explosion incidents already account for more than a quarter (26%) of the value of construction and engineering claims over the past five years – the most expensive cause of loss (see, right).



Top five causes of loss: engineering and construction claims

By value of claims:



FIRE IS RESPONSIBLE FOR MORE THAN A QUARTER (26%) OF THE VALUE OF ALL ENGINEERING INSURANCE LOSSES

By number of claims:



NATURAL HAZARDS ACCOUNT FOR ALMOST ONE IN FIVE CLAIMS BY NUMBER

Percentage totals have been rounded up, so may total more than 100%
 Based on analysis of 29,640 insurance industry claims between January 1, 2016 and December 31, 2020 with an approximate value of €11.3bn (US\$12.8bn).
 Claims total includes the share of other insurers in addition to AGCS.

Source: Allianz Global Corporate & Specialty

4. Upscaling clean energy brings challenging risks

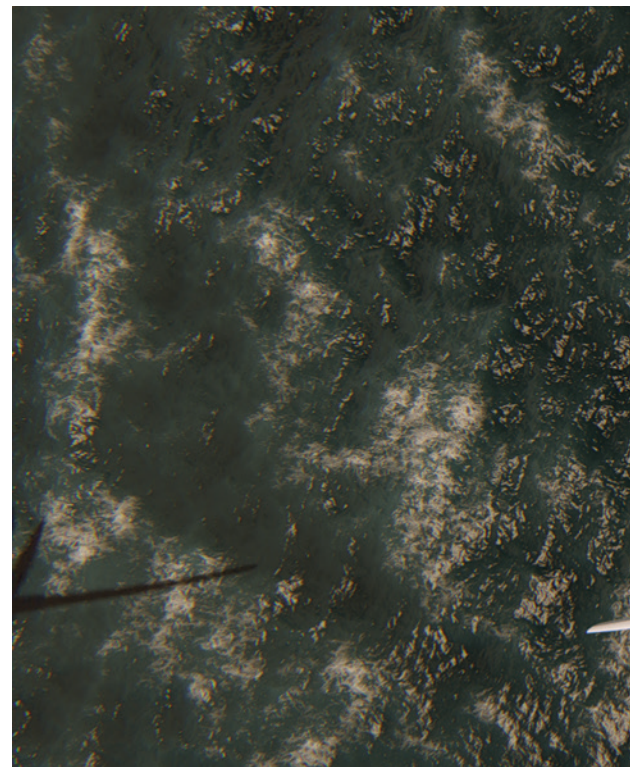
The global drive to reduce greenhouse gas emissions has seen huge investments in renewable energy, in particular wind and solar. At the same time, new low-carbon technologies are being developed, such as battery storage and hydrogen power, that will need to be massively scaled up to meet international emission reduction targets under the Paris Climate Accord.

Renewables already dominate global investment in new power generation, accounting for 70% of the \$530bn spent on all new generation capacity in 2021, according to the [IEA](#)¹. Net zero will see global annual energy investment reach [\\$5trn by 2030](#)², up from today's \$2trn five-year average. By 2050, renewables are predicted to account for 90% of electricity generation, according to the [IEA](#)³.

Offshore windfarms are at the cutting edge of renewables. Projects are growing in size, moving further out to sea and into deeper waters, while wind turbines are up-sizing (the tallest turbines are 260m tall with blades measuring over 100m). The UK, Belgium and Denmark are reportedly considering building [artificial energy islands](#)⁴ in the North Sea to support mega windfarm projects that could potentially include battery storage and hydrogen generation. Next year, Danish wind turbine manufacturer Vestas will put up a gargantuan prototype – a 15-megawatt (MW) wind turbine powerful enough to provide electricity to around 13,000 British [homes](#)⁵. It will be the biggest such turbine in the world, though perhaps not for long. Chinese firm, MingYang, recently announced plans for a device clocking in at 16MW. Just four years ago, the maximum capacity of an offshore turbine was 8MW, meaning today's are already twice as powerful. This trend will likely continue.

AGCS is a lead insurer on the UK's [Dogger Bank project](#), one of the largest offshore windfarms in the world. As offshore projects become larger, and turbines more powerful, so the risks during construction can increase, says **David Wilson, Global Head of Energy Claims at AGCS.**

"The size of investment offshore is huge and can easily run into the billions for a single project. As these projects grow bigger and more complex, they require more capital, and the risk increases. Compared with other forms of renewables, offshore wind construction projects have more potential for delay in start-up (DSU) limit losses when the size of the turbines necessitates unique installation vessels," Wilson explains.



1 International Energy Agency, World Energy Investment 2021

2 and 3 International Energy Agency, Net Zero by 2050, A Roadmap for the Global Energy Sector

4 The Guardian, National Grid in talks over plan for energy island in North Sea, Friday October 8, 2021

5 BBC, Why giant turbines are pushing the limits of possibility, October 15, 2021

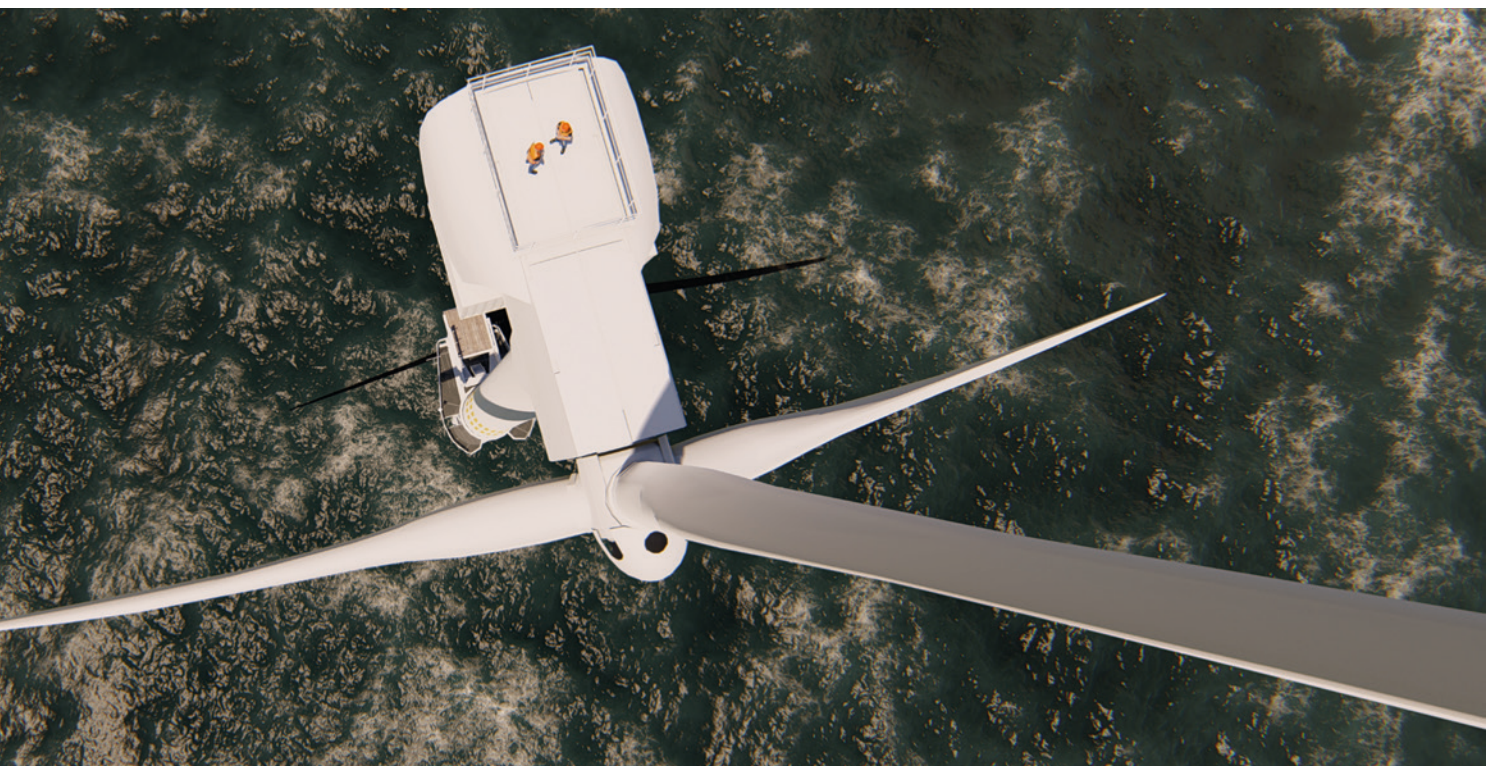
Offshore windfarms are exposed to harsh weather conditions and typically make use of new technologies, which can be pushed to their limits. Construction involves high value components and specialist equipment and vessels. Turbine blade damage or gearbox failure can cost double or triple the amount for an onshore turbine, while underwater cables, connectors and power converters are expensive and time-consuming to repair.

“Offshore wind is a growing business, but it is also complex,” says **Martin Eckel, Senior General Adjuster, Global Claims Key Case Management at AGCS**. “Each new project uses new construction methods and sophisticated, yet sometimes prototype, technology. Turbines are huge, generating double digit megawatts of power, but their foundations can be exposed to defects in installation. We have also seen a number of losses involving gearboxes and turbine blades, which are expensive to repair due to the need for specialist barges.

“Repairs to undersea cables, which weigh thousands of tons and require special ships to lay, can take more than a year. An offshore converter station alone can cost as much as \$1.5bn, comparable to an oil rig. A fire or explosion involving a converter – as seen recently in China – can result in a total loss for insurers.”

Offshore wind farms, as well as onshore wind and solar projects, can also be exposed to serial losses. A design or manufacturing fault in a turbine or solar panel could impact one or more projects. There have also been large claims from faulty foundations in solar parks and farms.

“We know that new technology can create large losses,” says **Olivier Daussin, Construction Underwriting Lead, Chief Underwriting Office – Energy & Construction**. “You can’t grow in the renewable sector without close co-operation between claims, underwriters and risk engineering.”





5. Hydrogen may emerge as a new energy sector but brings risks



Find out more about the management of complex risks in the emerging hydrogen industry [Hydrogen industry can help tackle climate change](#)

Achieving net zero will also require huge investment in entirely new sources of power, storage capacity and distribution infrastructure. For example, a reliance on renewable energy will require large scale battery storage capacity to smooth out supply, while hydrogen gas is being touted as an alternative to natural gas. Green hydrogen – produced using renewable energy – could provide a solution for hard-to-abate sectors such as the steel, petrochemical and cement industries, as well as be used to power long distance transport.

The technology behind gas production is already established – albeit currently using fossil fuels in its production. The majority of hydrogen today is produced on-site in industries like ammonia production, oil refining and power generation. However, the widespread adoption of green hydrogen would require large-scale construction of electrolysis plants, pipelines, storage and export infrastructure, such as port terminals and shipping.

Hydrogen does pose risks. It is highly flammable and leaks are hard to identify without dedicated detectors as hydrogen is colorless and odorless. In 2021, a power plant in South Africa was severely damaged after hydrogen used in the generator cooling system exploded. The [damage](#)¹ is expected to take years to repair and cost in the lower triple digit millions of dollars.

“Hydrogen is one of those sectors where we expect to see investment in coming years,” says **Martin Eckel, Senior General Adjuster, Global Claims Key Case Management at AGCS**. “The technology involved in producing hydrogen is not new and is already in use in other sectors. But it will need to be scaled up.”

“The future green hydrogen sector will need to combine hydrogen electrolysis plants with green power sources like solar and wind,” adds **Olivier Daussin, Construction Underwriting Lead, Chief Underwriting Office – Energy & Construction**. “The hydrogen economy will also need storage facilities, port facilities and pipelines. We already insure many of these risks, but the challenge will be to convert hydrogen into a new industrial sector.”

6. Modular construction is growing, but with enhanced exposures

Recent crises, such as the Covid-19 pandemic, as well as the development of technology, new materials, manufacturing machinery and equipment, and increasing reliance on digitalization, have facilitated the emergence of a number of new trends across the construction industry. One of the most important is modular construction, which has developed over decades, although its market penetration and popularity has only increased in recent years.

The size of the global modular construction market size is projected to grow from \$82bn in 2020 to \$109bn by 2025, at a combined annual growth rate (CAGR) of 5.75%. In terms of value and volume, permanent modular construction is estimated to dominate the market and steel is tipped to be the fastest-growing market segment. The healthcare industry is projected to be the fastest-growing end-use sector through to 2025, with the Asia-Pacific region set to grow at the highest CAGR of any region during this period, followed by Europe and [North America](#)¹.



¹ Markets and Markets, Modular Construction Market By Type (Permanent, Relocatable), Material (Steel, Concrete, Wood), Modules, End-Use (Residential, Retail and Commercial, Education, Healthcare, Office, Hospitality), and Region – Global Forecast to 2025, July 2020



Modular construction is defined as the process in which a building is constructed offsite, under controlled factory conditions, using the same materials and design and built to the same codes and standards as conventionally-built facilities, but in about half the time. Buildings are produced in “modules” which, when assembled and connected onsite, reflect the identical design intent and specifications of a site-built facility.

“Using such a methodology presents some advantages compared to standard onsite building construction methods. For example, the opportunity to provide enhanced quality control due to fabrication being completed at a project site in a controlled environment,” says **Yann Dreyer, Global Practice Group Leader for Construction at AGCS**. “Benefits include less construction waste, a construction timeline cut in half compared to traditional methods, less coordination of individual materials onsite, and reduced disruption to the surrounding environment, among others.”

From a construction insurance perspective – such as a construction-all-risks (CAR), or builder’s risk, policy – this more sustainable method of materials production certainly results in some exposure reduction, for example, with regards to third-party liability risks. However, enhanced exposures include:

Design codes and standards: Many design codes and standards do not have adequate guidance for modular construction, as it is relatively new to the market compared to codes and standards for conventional construction methods which have developed over decades. It is also difficult to assess the resistance of the construction when exposed to extreme natural perils.

Serial loss potential: Since modular units are manufactured using an assembly line process, there’s the potential risk of a repetitive loss scenario. It’s possible that a defective product or component can be installed on numerous modules before the fault is discovered or sub-standard workmanship may have occurred on a specific section of the assembly process.

“There is an increased risk of serial losses with modular and prefabricated methods as the same part is used across several projects,” says **Olivier Daussin, Construction Underwriting Lead, Chief Underwriting Office – Energy & Construction**. “We have seen in the renewable energy industry how problems with wind turbines are replicated across multiple projects.”



Insured parties: Many contractors are new to modular construction and may not have the experience required to design and install modular solutions – a fact that has been observed in countries and territories such as the US, Canada, the UK, Hong Kong and France. A detailed review of a contractor’s experience and capabilities is a key point of consideration when insurers assess the risk relating to a modular construction project. In addition, it’s important to understand and clearly define who the insured is, the dates of coverage and how to avoid any overlap with industrial all-risks (module manufacturing plants) or liability (product liability) insurance products.

Multiple factors determine whether a given market is likely to embrace modular construction – specifically, the two biggest are real estate demand and availability and relative costs of skilled construction labor. In locations such as the western US, southern UK, eastern Australia and Germany’s major cities, labor shortages and large-scale demand for housing intersect, making this building model particularly relevant.

“From an underwriting perspective, each case is assessed on its own merit in view of defining the boundaries of what we think is an adequate insurance solution for all parties. This allows us to gain more knowledge and experience to progressively adapt our insurance offer to accompany the expansion of this sector,” says **Yann Dreyer – Global Practice Group Leader for Construction at AGCS.**

Innovation will see risk shift offsite

Modern methods have the potential to radically transform construction, transferring more risk offsite and incorporating greater use of technology. Elements of projects and components are increasingly fabricated in factories and installed onsite, while modular building techniques enable entire buildings to be prefabricated – often using 3D-printing technology and robotics.

The shortage of skilled labor in the construction industry is likely to further the trend towards offsite manufacturing and automation. The need to reduce greenhouse gas emissions may also hasten the trend as the industry looks to achieve efficiencies and minimize waste.

Modular building methods are already well established in the oil and gas industry, says **David Wilson, Global Head of Energy Claims at AGCS.** “There are new Liquefied Natural Gas (LNG) plants with insured values of \$15bn being almost entirely built using modular construction. We have seen issues, some resulting in large claims from relatively simple causes. For example, we have seen modules using the wrong paint for local weather conditions.”

“We see more and more innovation in the construction industry and there is a clear trend for moving risk from the construction site to manufacturing,” adds **Martin Eckel, Senior General Adjuster, Global Claims Key Case Management at AGCS.** “It is the future, and this will have consequences for claims, underwriting and manufacturing. For example, risk assessments will increasingly need to include offsite manufacturing facilities.”



7. Pandemic increases claims costs and causes materials and labor issues, but **remote inspections** are a success story

The construction industry has proved resilient to the pandemic, with many projects continuing throughout. However, Covid-19 restrictions have increased the cost of some large machinery claims, while material inflation, shortages of labor and supply chain disruption may be storing up problems for the future.

“We expect to see a big investment in infrastructure projects post Covid-19 as governments look to boost the economic recovery,” says **Olivier Daussin, Construction Underwriting Lead, Chief Underwriting Office – Energy & Construction**. While the pandemic is not over yet, we anticipate a surge in construction activity, mostly for infrastructure and PPP.

“If there were to be a sudden surge in activity, some contractors could become overloaded and we may see future supply issues, such as shortages of skilled workers, plant and machinery, as well as critical materials like steel and cement. While manageable, potential shortages, in particular in skilled labor, would need to be considered in underwriting.”

The recovery from the pandemic has already caused problems with the availability of construction materials as well as skilled labor, driving up prices of basic materials such as timber. Travel restrictions have also meant that migrant labor has been restricted while skilled workers have not been able to freely work in emerging markets. Even before Covid-19, the construction industry was experiencing a skilled labor shortage, which could be an issue longer-term as growth in construction gathers momentum with new projects.

As yet, the pandemic has not impacted the frequency of construction and engineering insurance claims, although it has indirectly increased the cost of some machinery breakdown claims, explains **Martin Eckel, Senior General Adjuster, Global Claims Key Case Management at AGCS**.

“We have seen some large machinery damage claims during the pandemic where we were not able to access repair facilities or where it was difficult to get qualified staff on site because of travel restrictions,” says Eckel. “In several cases we have had to charter special aircraft to fly damaged machinery from the Middle East and Latin America to the original equipment manufacturer (OEM) factory in the US for repair.”

Some construction losses have been exacerbated by the unavailability of international expertise. “We had an issue with a plant at a project in India where it took the Japanese engineer six months to get onsite due to Covid-19,” says **David Wilson, Global Head of Energy Claims at AGCS**.

Travel restrictions and Covid-19 measures also affected the ability of insurers’ claims teams to carry out onsite visits and loss adjusting. AGCS was able to maintain service levels through remote claims inspections using technology, which will remain a valuable resource going forward.

“Our business model and pre-existing personal relationships with clients enabled AGCS to service clients during the pandemic, carrying out remote claims inspections and negotiations. But in-person site inspections will still have a very important role to play in future,” says Eckel.

8. Time to build in **extreme** **weather** risks





Hurricane Ida is expected to result in some \$30bn of insurance claims

Extreme weather events have caused large losses for the property insurance market in recent years, driven by climate change and growing economic activity in catastrophe-exposed parts of the world.

Floods in Europe following storm Bernd during the summer of 2021 are expected to cost the insurance industry \$12bn, making the event the most expensive natural catastrophe to hit the continent in modern times. The floods were followed in August by Category 4 Hurricane Ida, one of the most powerful storms to make US landfall, which is expected to result in some \$30bn of insurance claims. Ida, which also caused extreme flooding to parts of the US north east, is expected to be one of the costliest storms to affect mainland US.

Recent years have seen heightened natural catastrophes, and a rising trend in secondary perils, including wildfires, floods and hailstorms. Insured losses during the first half of 2021 were already above the 10-year average, driven by \$15bn¹ in insured losses from winter storm Uri, the most expensive on record. According to the latest [Intergovernmental Panel on Climate Change \(IPCC\) report](#)², even with drastic reductions in greenhouse gases, extremes of heat and cold are predicted, as are more frequent floods and droughts.

Construction sites need to give more consideration to the impact of extreme events, such as wildfires, flash flooding and landslides, in their risk assessments moving forward, according to **Martin Eckel, Senior General Adjuster, Global Claims Key Case Management at AGCS**. Recent events have not generated large claims in the construction and engineering space, although Uri did [temporarily close construction](#)³ sites and infrastructure projects due to safety concerns and power outages, while blackouts disrupted construction sites in Louisiana following Hurricane Ida.

“That is not to say that extreme weather events will not result in large claims in the future,” says Eckel. “The insurance industry is increasingly focusing on the effects of climate change and the impact of secondary catastrophe peril like wildfires and floods. The construction and engineering sector must also keep on top of these perils.”

AGCS claims analysis shows that natural hazards is already the second most expensive cause of construction and engineering losses, behind fire and explosion, accounting for 20% of the value of these claims over the past five years. It is also the most frequent driver of claims over this time period, accounting for 17% by number (see [page 9](#)).



¹ Severe weather events drive global insured catastrophe losses of USD 42 billion in first half of 2021, Swiss Re Institute estimates, August 12, 2021

² Climate change widespread, rapid, and intensifying – IPCC, August 9, 2021

³ Construction Dive, Texas contractors deal with ‘unprecedented’ winter weather, power outages, February 17, 2021



9. Water damage a major cause of loss, especially at weekends and out of hours

Water damage continues to be a major source of loss during construction, in part due to changes in construction methods and materials in recent years. A faulty or incorrectly-installed connector or pipe can cause costly damage on a site, especially in high-rise buildings and projects nearing completion. AGCS has seen a number of surprisingly large losses from leaks from pressurized water or fire systems that go undetected or occur out of business hours, on weekends or during periods when site personnel are not present. AGCS claims analysis shows that water damage is the third most frequent driver of construction and engineering losses in 2021 to date, accounting for 11% of claims received during the first three quarters of this year. It is also the fifth most expensive cause of loss in 2021 to date.

The majority of water losses are preventable or can be mitigated, therefore avoiding expensive repairs and project delays. Following a number of significant water damage losses, AGCS now asks policyholders to take basic risk management measures and mitigate potential losses through technology solutions. Water leak detection and monitoring systems, for example, can reduce the frequency and severity of water damage by implementing an early detection system.

“Water damage losses often occur at the end of the construction period when the value at risk is greatest,” explains **Olivier Daussin, Construction Underwriting Lead, Chief Underwriting Office – Energy & Construction**. “A leakage on a Friday night might go unnoticed, but when workers return on Monday morning, the damage extends to several floors, with no way of mitigating delays ahead of completion.”



Water damage losses often occur at the end of the construction period when the value at risk is greatest



10. Digitalization of construction creates cyber exposures

Even onsite, the use of technology is increasing in the construction industry. Robots are beginning to find more uses, such as carrying out specialist tasks like welding and bricklaying, as well as automated plant like excavators. Connected equipment and tools, virtual reality, sensors, wearable devices and cloud-based platforms are also being introduced to manage supply chains, improve safety and project management.

Most construction projects are not perceived to be exposed to cyber-attacks as, traditionally, they are largely offline. However, the construction industry is rapidly moving towards digitalization, which likely will trigger new risks. Today, the numerous parties involved on a construction site are interconnected through various shared IT platforms, which increases their vulnerability to cyber incidences and their potential consequences.

Cyber risks related to construction projects can encompass a broad range of perils, ranging from malicious attempts to gain access to sensitive data, to disruption of project site control and associated theft, to supply chain disruption to potential corruption of project design data, resulting in delays and ultimately reputational risk for parties involved.



Today, the numerous parties involved on a construction site are interconnected through various shared IT platforms

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