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Risk revealed by Lloyd's

Clean technologies and hard-to-abate sectors

Lloyd's Futureset

AON

Low carbon buildings

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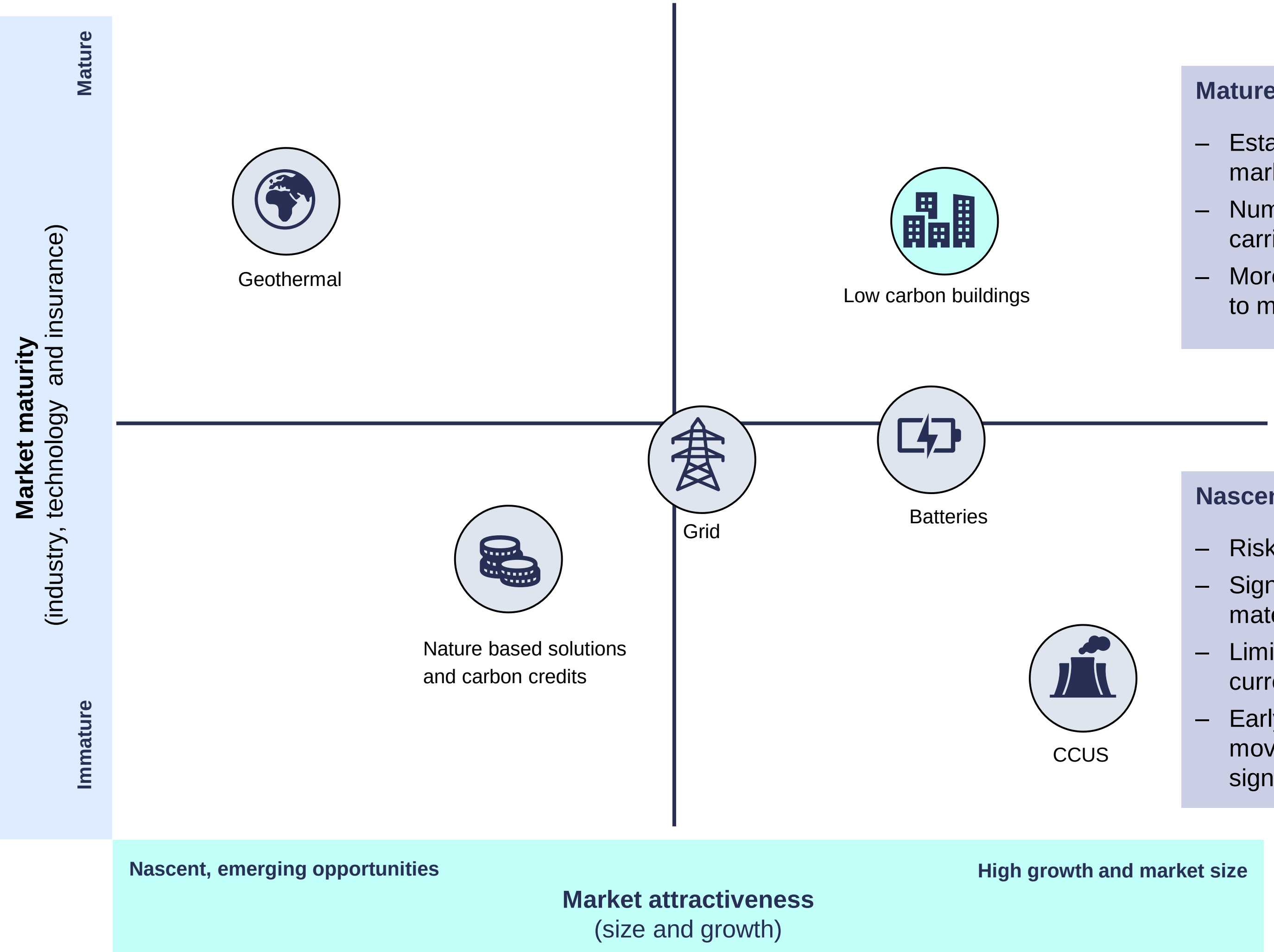
Building a larger presence in emerging 'transition' technologies could help the insurance industry to lead innovation and grow sustainably

Opportunity assessment

The relative positioning of opportunities for the insurance industry have been weighted by:

1. **Attractiveness,** which considers both the growth and size of the market, and
2. **Maturity,** which takes into account both the wider industry and insurance market

	Criteria	Weighting
Market attractiveness	Growth	50%
	Size	50%
Market maturity	Maturity of industry	25%
	Maturity of tech	25%
	Insurance capacity	25%
	Insurance product maturity	25%



Mature, sizeable existing markets

- Established insurance products in market
- Number of existing products and carriers
- More innovative products required to meet emerging risks

Nascent, emerging opportunities

- Risks currently less known
- Significant opportunity expected to materialise in the longer term
- Limited insurance capacity currently
- Early action could support early mover advantage and capture significant future growth

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Buildings account for a large proportion of global energy consumption and GHG emissions, making retrofits and green property coverage critical components of the net zero transition

Industry and insurance market dynamics

Retrofitting aims to reduce the associated environmental impacts through upgrading the building using modern technologies to retrofit better energy management and efficiency, improving ventilation, and reducing heat loss

Green property is any plan, project or technique that might lessen or eliminate negative environmental impacts whilst minimising future impacts e.g. by installing new heating tech such as Heat pumps and Hydrogen boilers

c.40% **of global energy consumption is through buildings, along with 25% water usage, and 33% greenhouse gas emissions**

Developers/investors/ manufacturers	Government organisations	Financial institutions
In most markets developers/ investors will be responsible for insurance	In certain jurisdictions the government is responsible for insurance and are key owners of low efficiency buildings	Owners of large real estate portfolios will be likely key clients
Honeywell; Worcester Bosch Group	European Investment Bank; Infrastructure Ontario	J.P. Morgan; Blackstone
Johnson Controls; Viessmann	New York Sate of Opportunity; Canada Infrastructure Bank	Schroders; Brookfield Asset Management

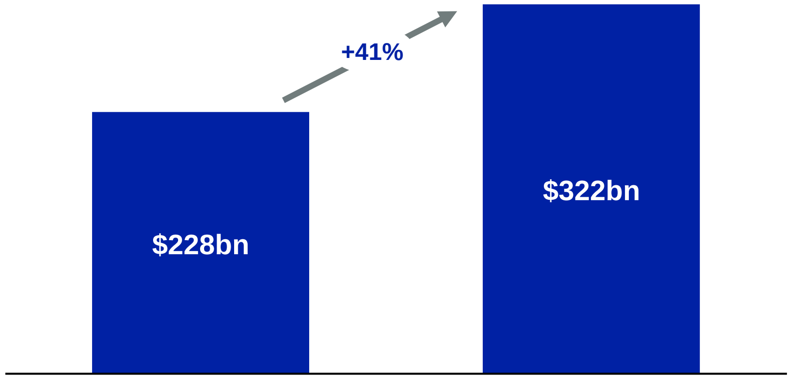
Key growth drivers	Headwinds
Legislation	Greenwashing
Futureproofing	Supply chain issues
Net zero targets	The role of technology

Classification: Unclassified

While investment is expected to grow, a lack of consistency in policy is likely to hamper acceleration of retrofits for commercial properties

Global investment breakdown

Retrofits and green buildings (heating[1]) investment, 2025 – 2030 ($bn)[2]



Current market trends

- The Renovation Wave in the European Green Deal aims to renovate 35 million inefficient buildings by 2030, funded by NextGenerationEU and private institutions
- However, it is estimated that €200bn p/a would be needed to meet the current net zero targets, and the current rate of retro-fitting would need to be tripled
- Lack of long-term clarity and certainty about the policy and regulatory strategy for decarbonising buildings and lack of trust due to previous policy failures is likely to hamper acceleration of retrofits for commercial properties

Growth drivers

Legislation and incentives – The UK government now requires all >£5m a year government contracts to commit to net-zero by 2050, whilst from 2027-30, in the EU, it will be mandatory to disclose all potential emissions over the building's lifecycle. In the US, the Inflation Reduction Act of 2022 included >$5 Billion incentives to drive low carbon procurement in buildings and construction

Futureproofing – In a post-pandemic world, there is a renewed drive to shift towards sustainable practices, whilst minimising shocks to livelihoods and ensuring societal changes are resilient to any future, unexpected economic shocks

Net zero targets – It is estimated that the global construction sector must decarbonise by almost 100% by 2050 to ensure Paris Climate agreements are achieved

Headwinds

Greenwashing – 'greenwashing' claims may arise against construction professionals as developers focus on sustainability and energy performance. Developers may make bold 'net zero' claims, with a resultant risk of litigation if those claims aren't met

Supply chain issues – Post pandemic there have been supply issues with building materials. The drive to build green may exacerbate these issues with the requirement to only use green materials, therefore leading to delays on completion dates or the installation of non-green products

The role of technology – From June 2022, all new residential buildings in England and Wales required to have electronic vehicle charging points. As buildings become smarter and more connected with technology this increases the potential for technology failure and cyber risks

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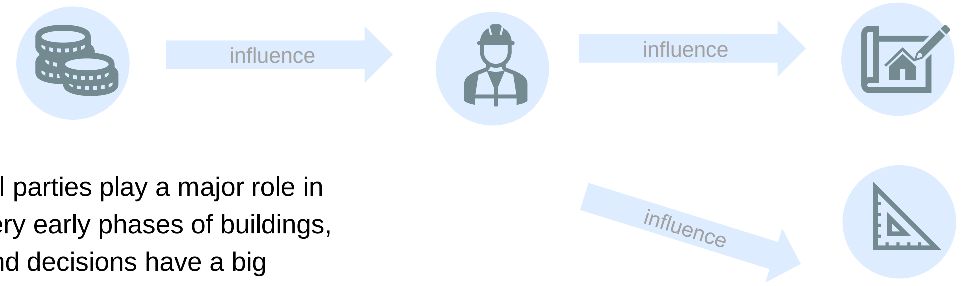
The buildings and construction value chain is complex, with low-carbon solutions adding further demand for tailored insurance solutions

Building value chain

Manufacturing	Construction	Real Estate	Uses
Stakeholder – Manufacturers of building materials **Technology applications** – Low carbon materials used to reduce embodied carbon in manufacturing of materials e.g. mass timber	**Stakeholder** – Contractors carrying out the construction of buildings/infrastructure **Technology applications** – Electrification of equipment including site vehicles – Use of heat pumps – Design and process optimisation for demand reduction	**Stakeholder** – Real estate owners and investors **Technology applications** – Carbon credits – Decarbonisation of assets and portfolios	**Stakeholder** – Occupants of buildings including residential and commercial **Technology applications** – Smart devices – Renovation of buildings: use, maintenance, repair, replacement, refurbishment – Energy and water operation

Influencer value chain

Stakeholders



All parties play a major role in very early phases of buildings, and decisions have a big influence on how much carbon the buildings will emit in the future

Responsible for determining if and how constructed

Companies in the value chain must cooperate and engage to collectively reduce indirect emissions of the building system while meeting their respective reduction goals

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As global policies mature in line with transition pathways, investment in retrofits will follow, presenting a material opportunity for the insurance industry to support clients

(Re)insurance class of business impact

(Re)insurance class of business	Impact
Accident and health	-
Casualty	High
Cyber	-
Financial lines	Med
Marine, aviation, transport (MAT)	-
Motor	-
Property	High
Other	High

Impact

High	Med	Low	-

Key coverage sought for projects

Financial lines: Professional indemnity to cover against breach of contractual obligation to exercise reasonable care and skill from contractors, engineers and architects involved in design and construction works. Warranties or energy performance guarantees related to efficiencies gained by the technology could be increasingly important as regulations tighten. These would typically sit outside existing policy provisions and would likely need to be covered through an add-on.

Casualty: Public and employers' liability to provide cover against the associated risks within buildings projects including personal injury or death

Other (Construction): Anticipated growth in construction/erection all risks (CAR/EAR), decennial liability and delay in start-up (DSU) coverage, as new projects exit design phases and begin construction in the coming years

Other (Cyber): Connected devices and smart technology is likely to be increasingly utilised in combination with energy efficiency, creating additional cyber risks

Gaps in coverage currently offered

- There is limited capacity currently available for **energy performance guarantee** – this is a crucial element to provide investors with cover should the investment in retrofits and energy efficient technology not be covered by the actual energy savings
- Warranties and performance guarantees require careful consideration to ensure the cover is insurable
- There is a potential for developers to make bold net-zero claims, with a resultant risks of litigation if not substantiated. BNY Mellon were charged in 2022 of misstatements and omissions about ESG considerations in making investment decisions. Given this is an emerging risk, there are no specific products but could be included under **errors & omissions (E&O) policies** in future
- Constructing and improving buildings to be more sustainable does not create materially different risks to existing **property and liability construction exposures** and would generally fall within markets appetites. However, carriers will need to consider the impacts of new technologies and/or materials to the exposure. For example, increasing the likelihood and severity of fire losses through the greater use of timber and structural insulation panels in new construction projects
- **Prototypical methods of construction and materials** being used can materially alter the exposure profile, particularly for latent defects (which can take a number of years to emerge), and result in unexpected losses which could also be complex and expensive to settle. These challenges will need to be addressed by insurance markets to ensure a sustainable insurance offering for low carbon buildings
- **Cyber risk** from smart technology in homes generally can be covered under traditional Home Insurance currently however for businesses as this technology becomes more prolific there may be a need for separate cover. As the market matures, the growth in connected devices and distributed energy resources is expanding the potential cyberattack surface of electricity systems, raising cyber risks with wide reaching consequences

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Change is being driven from both ends of the insurance lifecycle, with a growing number of innovative products available and commitments to 'Build Back Better' through the claims process

Example market offerings

Provider	Product description
AXA XL Insurance Reinsurance	– **Builders risk insurance programmes** provide risk-specific coverage for mass timber project risks – Accelerates use of cross-laminated timber across construction projects
Munich RE	– **Energy efficiency insurance** designed for those investing in energy-saving measures – Covers cost of installed assets, project revenue, and annual gaps in energy savings
Marsh	– **Resilient Repairs** clause encourages the replacement and repair of assets in environmentally friendly way, with additional cost covered by insurers
AIG	– **Property coverages** evaluate environmental variables like flood and fire to offer insurance against a specific risk profile of new sustainable construction supplies & methods
Liberty Specialty Markets	– LSM provide **eco-friendly upgrades** that allow customers to replace damaged property with products of equal value, while covering additional costs associated with upgrades of a higher green standard. – This could include replacing a damaged roof and covering the cost of adding solar panels
Halifax	– **Halifax Home Insurance** have partnered with Ideavate Limited to make homes greener – During the claims process Halifax will then provide options for how they can structure the repair to include options such as wall insulation and solar panels
FLOOD RE	– The **Build Back Better scheme** enables homeowners to install property flood resilience measures, up to £10k, when repairing their properties after a flood – There are 10 participating insurers signed up to the programme including Hiscox, LV NFU Mutual, Aviva etc

Example industry partnerships

Sustainable Markets Initiative

SMI Sustainable Buildings Taskforce

– Made up of global CEOs from throughout the building industry

– Collaborating to accelerate delivery of net zero buildings to reduce carbon emissions

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Notes & Sources (1)

Page number	Source	Notes
3	IEA; International Council on Clean Transportation; PwC	**1.** Another key element to building retrofits and green buildings is use of green materials which is not included in our model **2**. According to the Base Case – Forecast Policy Scenario (UN PRI)
4	The Building System Carbon Framework; McKinsey: Climate risk and the opportunity for real estate	
5	McKinsey; IEA; UN PRI	
6	McKinsey; IEA; UN PRI	
7	IEA; UN PRI; Carrier websites; SMI ITF 2022 products and services showcase	1. Percentage split according to the Base Case – Forecast Policy Scenario (UN PRI)

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