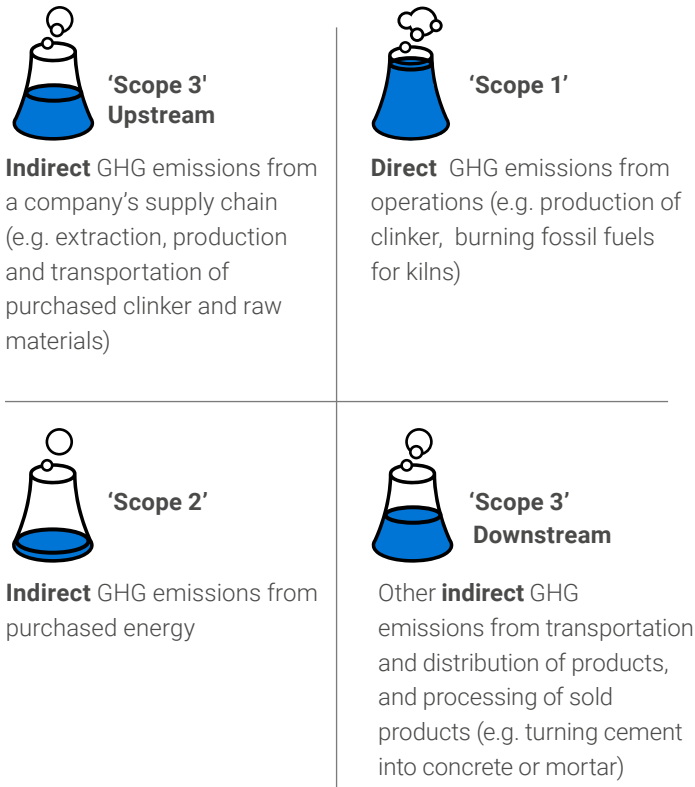



Net zero: cement

To prevent dangerous climate change, greenhouse gas emissions must reach net zero. What does the **cement sector** need to do?

5-6% of human-caused GHG emissions come from the production of cement

Sources of emissions



 Source: UNEP (2019)


Challenges

- Clinker production results in unavoidable CO2 emissions; limited substitutes
- Costs of technological improvements and alternative materials
- Costs of sustainable biofuels and zero-carbon electricity
- Lack of scalable carbon capture


Opportunities

- New business models as industry shifts from cement manufacture to sustainable construction solutions
- Cost savings from fuel and energy efficiency

Companies

Governments

Key levers	Key policies
Alternative building technologies (carbon-cured concrete, 3D printing)	Carbon pricing
Clinker substitution	Policies to reduce embodied carbon
Energy efficiency and renewable energy	Product and design standards
Alternative fuels	Increased recycling and materials efficiency
Carbon capture and storage	Subsidy reform
Design improvements and alternative material	Biofuel regulation



Other environmental considerations

- Pollution from NOx, SOx and particulate matter
- Biodiversity loss, soil erosion, other impacts on local ecosystems and watersheds

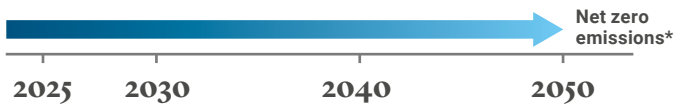
Social impacts and the just transition

- Impacts of carbon costs on affordability of housing

Physical risk impacts

- Disruption to production facilities and supply chains from extreme weather
- Water scarcity

Decarbonisation effort



Easier to achieve

- Optimising clinker usage
- Renewable energy and waste heat recovery
- Biomass and waste as fuel
- Circular design and recycling
- Alternative building materials (e.g. cross-laminated timber)

Possible with effort

- Clinker alternatives
- Use of sustainable biofuels
- Carbon-cured concrete

*To be followed by reducing emissions of other GHGs such as methane to net zero

What is needed?



Company leadership

Investment and R&D for net zero across building life-cycle



Research and innovation

Carbon capture and storage



Consumer behaviour

Developers and public sector customers setting targets for reducing embodied emissions

LGIM will vote and implement investment sanctions against companies falling short of our climate expectations.

How are we assessing companies' net zero pathways?

Net-zero Commitment	<ul style="list-style-type: none"> Does the company support the Paris Agreement target? Does the company have a net-zero target?
Strategy	<ul style="list-style-type: none"> How much capital is being committed to decarbonisation efforts? What percentage of R&D is allocated to low-carbon technologies and operations?
Resilience	<ul style="list-style-type: none"> Is the company analysing the physical climate risks to its portfolio and evidencing measures to manage these? Resilience of business model in – and alignment to – climate scenarios?
Targets	<ul style="list-style-type: none"> Does the company have a target to grow revenue from low-carbon technologies? Targets to reduce airborne pollutants from cement manufacture?
Collaboration	<ul style="list-style-type: none"> Evidence of the company working collaboratively across its value chain to reduce emissions? Is there evidence of the company advocating for meaningful policy action?
Red lines	<ul style="list-style-type: none"> Operational emissions target

For more information...

Please see: <https://www.lgimblog.com/categories/esg-and-long-term-themes/climate-impact-pledge>

Important information

Source: LGIM as at September 2020. The value of an investment and any income taken from it is not guaranteed and can go down as well as up, you may not get back the amount you originally invested. The above information does not constitute a recommendation to buy or sell any security

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