LGIM

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

'Scope 3' Upstream

Indirect GHG emissions from a company's supply chain (e.g. extraction, production and transportation of purchased clinker and raw materials)

'Scope 1'

Direct GHG emissions from operations (e.g. production of clinker, burning fossil fuels for kilns)

'Scope 2'

Indirect GHG emissions from purchased energy

'Scope 3' Downstream

Other **indirect** GHG emissions from transportation and distribution of products, and processing of sold products (e.g. turning cement into concrete or mortar)

Source: UNEP (2019)

Companies

Key levers

Alternative building technologies (carbon-cured concrete, 3D printing)

Clinker substitution

Energy efficiency and renewable energy

Alternative fuels

Carbon capture and storage

Design improvements and alternative material

Governments

Key policies

Carbon pricing

Policies to reduce embodied carbon

Product and design standards

Increased recycling and materials efficiency

Subsidy reform

Biofuel regulation

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

Other environmental considerations

Pollution from NOx and SOx and particulate matter

Biodiversity loss, soil erosion, other impacts on local ecosystems and watersheds

Social impacts and the 'just transition'

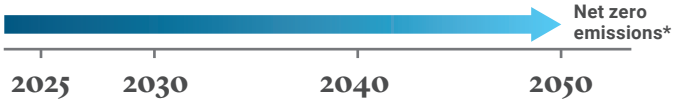
Impacts of carbon costs on affordability of housing

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	• Does the company have a net-zero target, and has this been certified by the SBTi? • Has the company disclosed a net-zero transition plan, including interim targets?
Strategy	• How much capital is being committed to decarbonisation efforts? • What percentage of R&D is allocated to low-carbon technologies and operations?
Resilience	• 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	• Does the company have a target to grow revenue from low-carbon technologies? • Targets to reduce airborne pollutants from cement manufacture?
Collaboration	• 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	• Operational emissions target

For more information...

Please see: https://www.lgim.com/landg-assets/lgim/_document-library/responsible-investing/climate-impact-pledge-brochure-uk-eu-2021.pdf