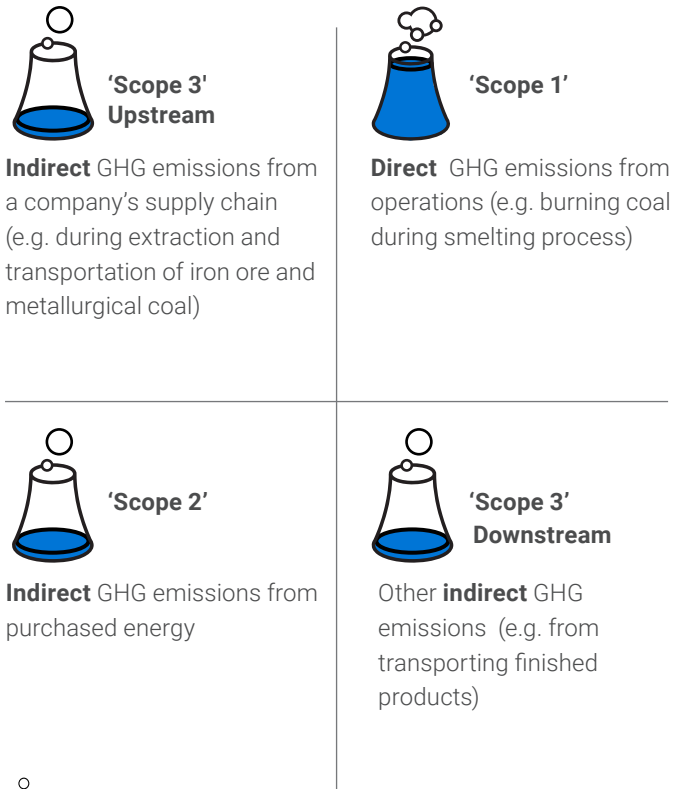


# Net zero: steel

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

**7%** of human-caused GHG emissions come from the production of iron and steel

## Sources of emissions

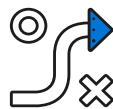


 Source: UNEP (2019)



## Challenges

- 'Carbon leakage' and competitiveness
- High costs of new technologies and infrastructure in low-margin industry
- Availability of low-cost renewable energy/ biomass reductants/ green hydrogen



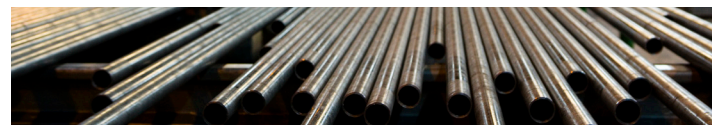
## Opportunities

- Significant anticipated growth in steel demand
- Steel as key enabler of emissions reductions (e.g. lightweighting, production of wind turbines); increased partnerships across sectors
- High recycling potential

## Companies

## Governments

Key levers	Key policies
Growing consumer demand for low-carbon steel	Carbon pricing (and border adjustments)
Energy efficiency	Green steel minimum standards and labels across the value chain
Alternative reductants in primary production	Low-carbon public procurement
Increased secondary production and improved demand management	Incentives for hydrogen infrastructure
Carbon capture and storage	Increased recycling and support for circular design



## Other environmental considerations

- Pollution
- Water usage

## Social impacts and the 'just transition'

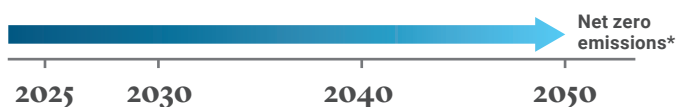
Industry is source of employment and key contributor to provision of basic necessities (e.g. shelter)

## Physical risk impacts

Disruption to production facilities from extreme weather

Water availability

## Decarbonisation effort



### Easier to achieve

- Energy efficiency
- More effective scrap collection and sorting
- Renewable energy for electric arc furnaces
- Gas-based direct reduced iron

### Possible with effort

- Carbon capture and storage
- Green-hydrogen-based iron reduction

\*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 value chain



### Research and innovation

Electrolysis: low-temperature ('electrowinning') and high-temperature (using molten oxides)



### Consumer behaviour

Willingness to pay for low-carbon products

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

## How are we assessing companies' net zero pathways?

<b>Net-zero commitment</b>	<ul style="list-style-type: none"> <li>Does the company have a net-zero by 2050 target, which ideally has been certified by the SBTi?</li> <li>Has the company disclosed a net-zero transition plan, including interim targets?</li> </ul>
<b>Strategy</b>	<ul style="list-style-type: none"> <li>How much capital is being committed to decarbonisation efforts?</li> <li>What percentage of R&amp;D is allocated to low-carbon technologies? Is the company evidencing action to advance key novel decarbonisation technologies?</li> </ul>
<b>Resilience</b>	<ul style="list-style-type: none"> <li>Is the company analysing the physical climate risks to its portfolio and evidencing measures to manage these?</li> <li>Resilience of business model in – and alignment to – climate scenarios?</li> </ul>
<b>Targets</b>	<ul style="list-style-type: none"> <li>Does the company have a target to grow revenue from "green" steel?</li> <li>Does the company have targets to increase production rates of recycled steel?</li> </ul>
<b>Collaboration</b>	<ul style="list-style-type: none"> <li>Evidence of the company working collaboratively across its value chain to reduce emissions?</li> <li>Evidence of the company advocating for meaningful policy action?</li> </ul>
<b>Red lines</b>	<ul style="list-style-type: none"> <li>Operational emissions target</li> </ul>

## For more information...

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

### Important information

**Source: LGIM as at September 2021. 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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