For directors of companies that issue securities on public markets. Capital at risk.

LGIM

Net-zero: Mining

4-7% of human-caused greenhouse gas emissions come from mining sector operations.[1]

What does the **mining sector** need to do to reach net-zero?

LGIM will vote and implement investment sanctions against companies falling short of our climate expectations. LGIM expects companies' boards to oversee and publicly disclose answers to the following:

Net-zero commitment

- Does the company have a comprehensive target for net-zero by 2050 or earlier, covering scopes 1, 2 and material scope 3 emissions?[2]
- Has the company made a commitment to certify/certified this target with the SBTi or other external independent parties?
- Does the company have a net-zero transition plan that includes short- and medium-term targets?[3]

Strategy

- What are the actions and investments embedded in the company's plan to reach net-zero, and what is the contribution of each action towards meeting its targets?[4]
- Does the company place restrictions on investing in the opening of new coal mines?
- Is executive remuneration aligned with the company's short- and/or medium-term emissions targets, as set out in the net-zero transition plan?
- Does the company's decarbonisation strategy address and incorporate the impact of the Just Transition?
- Does any use of offsetting consider the potential impacts and dependencies on biodiversity - for example, in relation to land-use?

Resilience

- Has the company analysed its business model resilience to climate-related risks and opportunities using scenario analysis (including the IEA's net-zero by 2050 scenario and a 'Business as usual' scenario) and disclosed how the output has influenced its strategy?
- Has the company analysed the physical climate risks to its assets and operations, including potential financial impacts, and evidenced measures to mitigate or adapt to them?

Targets

- Does the company have a target for material scope 3 emissions?
- Does the company have targets in relation to energy transition commodities?
- Has the company set targets in relation to its collaborative efforts across its value chain?

Collaboration

- How is the company working collaboratively across its value chain to reduce emissions? (e.g. customers, finance sector, strategic R&D partnerships, sector initiatives etc.)?
- Is the company advocating meaningful policy action, including from regulators, to meet global net-zero targets (e.g. with carbon pricing)?

Red lines

- Has the company committed to net-zero operational emissions?
- Does the company disclose its downstream scope 3 emissions?
- Is the company planning to increase thermal coal capacity?
- Does the company disclose its climate-related lobbying activities, including trade association memberships, and explain the action it will take if these are not aligned with a 1.5°C scenario?

1. McKinsey (2020). Range in operational emissions depends on treatment of warming potential of methane.
2. Aiming to cover all segments of the business, as articulated within the GHG protocol guidance.
3. Short-term refers to 2022 - 2025, medium-term 2026-2035 and long-term 2036-2050.
4. E.g., emission reductions due to efficiency improvements, use of renewable electricity, decrease in fossil fuel sales, etc.

Further areas for company consideration

Biodiversity expectations

Why? The climate and nature crises are inextricably linked.[5] Net-zero requires both emission avoidance and sequestration. Functioning natural systems are essential to this, but increasingly vulnerable due to climate change.

LGIM's expectations: An assessment of the impacts and dependencies on nature and biodiversity, and appropriate mitigation actions.

Sector-specific considerations: Direct impacts result from habitat removal, ground water extraction, infrastructure corridors, waste disposal, air quality and alien species.

Company levers

- Shifting commodity mix to accelerate the energy transition
- Electrification and automation to reduce emissions from operations
- Phasing out thermal coal
- Increased recycling of metals
- Partnerships with vendors and customers

Government policies

- Higher and more widely applied carbon prices
- Carbon border adjustment
- Fugitive methane regulation
- Policies to retrain workforce
- Policies to encourage low-carbon infrastructure

Challenges

Scope 3 accounting uncertainty

Loss of hydrocarbon revenues

Costs and complexity of technologies

Lack of infrastructure

Limited recycling and scrap availability

Young age for some high-carbon industrial facilities

Opportunities

Key enabler of the low-carbon transition (raw materials for renewables, batteries, EVs etc.)

Meet increasing electricity demand with new, low-carbon electricity supply methods

Cost reductions

Increased safety and efficiency

What is needed?

Company leadership

Taking responsibility for supporting decarbonisation across the full company value chain

Research and innovation

New smelting techniques

Green hydrogen

Carbon capture and storage

Low-carbon processing

Consumer behaviour

Increased demand for renewables and low-carbon materials and parts

Demand reduction for thermal coal

5. UN IPCC-IPEBS, Biodiversity and Climate Change workshop report (2021)

Sources of emissions

'Scope 3' Upstream

Indirect GHG emissions from a company's purchased goods and supply chain, employee travel etc.

'Scope 1'

Direct GHG emissions from operations including the use of diesel and gas to power trucks and appliances and fugitive methane from coal mining

'Scope 2'

Indirect GHG emissions from purchased energy

'Scope 3' Downstream

Indirect GHG emissions from the processing and use of a company's products (e.g. burning coal to produce steel or generate power)

Source: McKinsey (2020). Range in operational emissions depends on treatment of warming potential of methane.

'Just Transition' considerations

Potential implications for employees, supply chain, customers, and communities from the transition to a lower-carbon business model

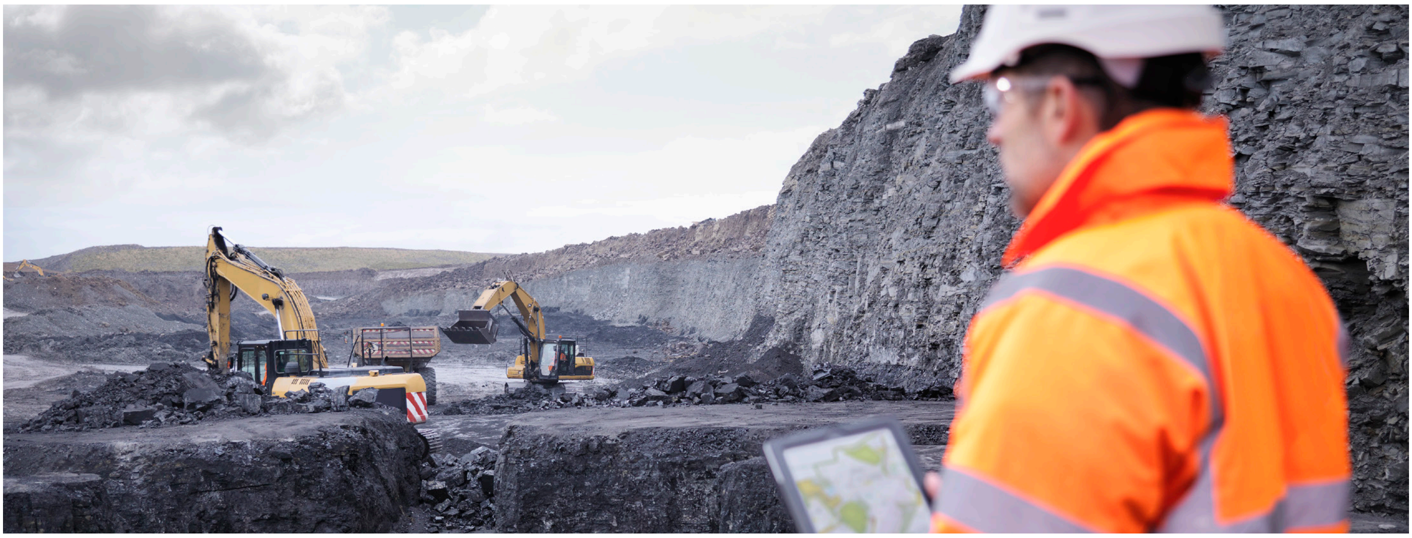
Maintaining social licence to operate/ community rights

Significant local employer

Physical risk impacts

Water scarcity

Heatwaves and flooding can take mines offline and disrupt supply chains



For more information and to see how companies are rated

[LGIM Climate Impact Pledge score]

[LGIM Climate Impact Pledge]

Important information
Source: LGIM as at September 2023. 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.