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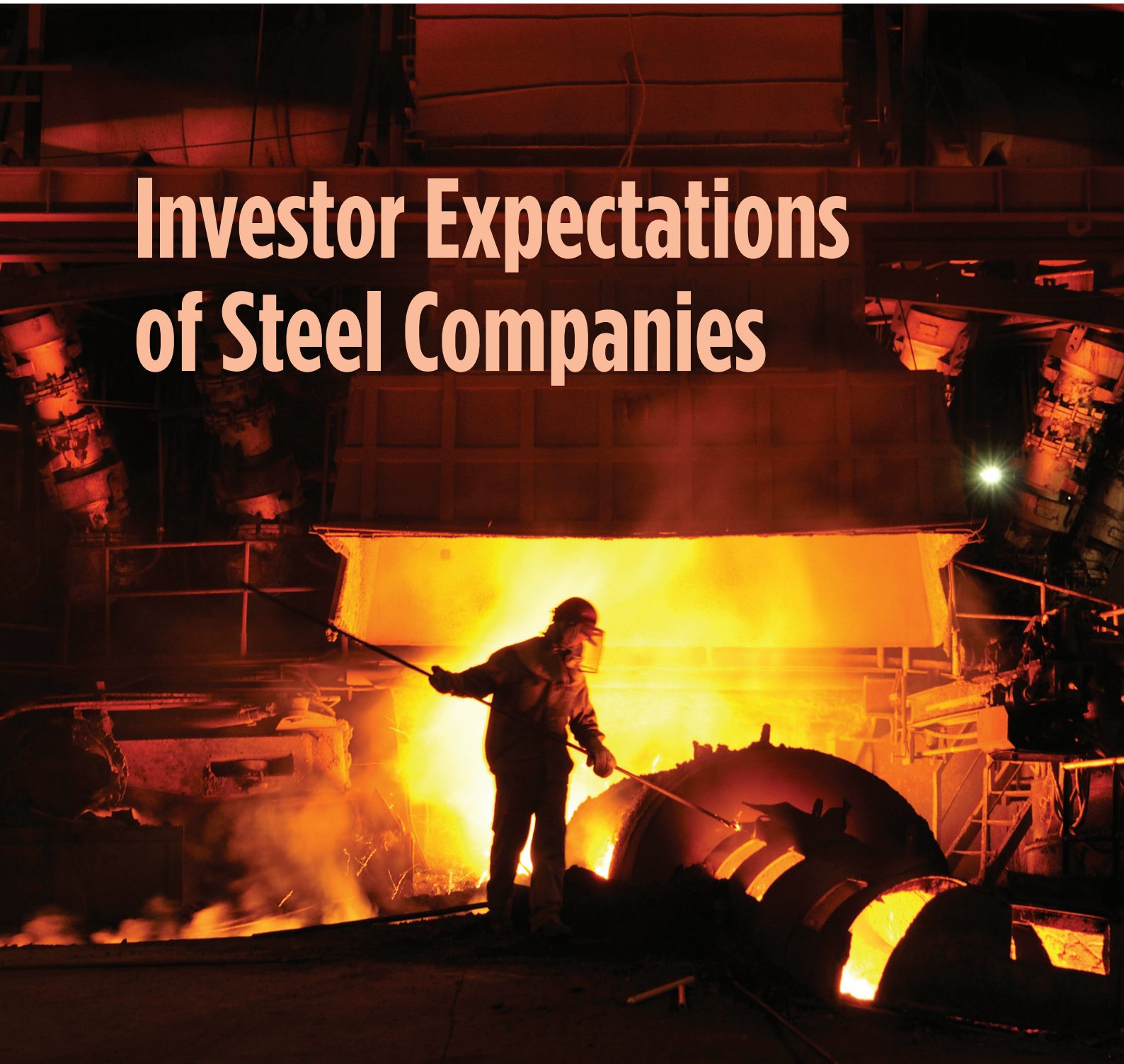
The Institutional Investors Group on Climate Change

Investor Expectations of Steel Companies



The Asia Investor Group on Climate Change (AIGCC) is an initiative to create awareness among Asia's asset owners and financial institutions about the risks and opportunities associated with climate change and low carbon investing. With 25 members and $1.8trn in assets under management, AIGCC provides capacity for investors to share best practice and to collaborate on investment activity, credit analysis, risk management, engagement and policy.

With a strong international profile and significant network, AIGCC represents the Asian investor perspective in the evolving global discussions on climate change and the transition to a greener economy.

www.aigcc.net

Ceres is a sustainability nonprofit organization working with the most influential investors and companies in North America to build leadership and drive solutions throughout the economy. The Ceres Investor Network on Climate Risk and Sustainability comprises more than 160 institutional investors, collectively managing more than $25 trillion in assets, advancing leading investment practices, corporate engagement strategies and policy solutions to build an equitable, sustainable global economy and planet.

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The Investor Group on Climate Change (IGCC) is a collaboration of Australian and New Zealand institutional investors and advisors, managing over A$2 trillion in assets under management and focusing on the impact that climate change has on the financial value of investments. IGCC aims to encourage government policies and investment practices that address the risks and opportunities of climate change.

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The Institutional Investors Group on Climate Change (IIGCC), is the European forum for investor collaboration on climate action and the voice of investors taking action for a prosperous, low carbon, future. It has over 160 mainly mainstream investors or asset manager members, across 11 countries with over €21 trillion assets under management. IIGCC's mission is to mobilise capital for the low carbon future by amplifying the investor voice and collaborating with business, policymakers and investors to encourage public policies, investment practices and corporate behaviours that will address the long-term risks and opportunities associated with climate change.

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Acknowledgements

We would like to thank the lead authors of this publication, Adrienne Hill-Strathy (Aegon Asset Management) and Valeria Dinershteyn (Kempen).

We would like to thank the following investors for their contributions to the content of this publication: Harald Walkate (Aegon Asset Management), Heike Cosse (Aegon Asset Management), Stephanie Maier (HSBC Global Asset Management), Matthias Narr (Ethos Foundation), Tessa Younger (LAPFF), Julia Trofimenko (Moody's), Anke Richter (Moody's), Gianmarco Migliavacca (Moody's), Kai Hu (Moody's), Francis Condon (UBS Asset Management), Patrick Arber (Aviva Investors), Thibaud Clisson (BNP Paribas Asset Management), Nathalie Van Toren (NN Investment Partners), Carlota Garcia Manas (Church Commissioners) and Matt Crossman (Rathbones).

IIGCC staff members involved in the production of this paper are Oliver Grayer, Rachel Ward, Stephanie Pfeifer and Tom Fern.

We would like to thank the following colleagues from across the Global Investor Coalition on Climate Change: Emma Herd (IGCC), Rebecca Wright (AIGCC), Cynthia McHale (Ceres), Sue Reid (Ceres) and Dan Seligman (Ceres).

Introduction

Investors increasingly recognise climate change as a system-wide risk, as the highly significant costs associated with rising temperatures will be felt across markets and will be difficult to avoid.[1] Accordingly, a growing proportion of investors are committed to the mitigation of climate change and therefore support the goal of the Paris Agreement: to limit global warming to well below 2°C above pre-industrial levels.[2]

Researchers anticipate that global greenhouse gas (GHG) emissions must decline rapidly between 2018 and 2050, reaching net-zero around 2050, in order to deliver the goals of the Paris Agreement. The steel sector currently accounts for between six and seven percent of total GHG emissions.[3] This means that the steel sector needs to dramatically reduce its GHG emissions, to support the transition to a low-carbon economy and help mitigate the systemic financial risks that might result from unchecked climate change.[4]

A growing number of investors wish to support the steel companies they invest in managing the transition to a low-carbon economy. As of October 2018, investors representing $32 trillion in assets – equivalent to 40% of funds managed by the world's largest 500 investment managers[5] – have joined **Climate Action 100+**, a new initiative aiming to facilitate dialogue with 161 companies on reducing emissions in line with the Paris goals.

To support productive dialogue, members of the Institutional Investors Group on Climate Change (IIGCC) have produced documents clearly setting out investor expectations regarding climate strategy of the companies they invest in. This series has to date been developed for and focused on the oil & gas, mining, utilities and automobile sectors.

This document sets out investor expectations for climate strategies of companies operating in the steel sector, drawing from and building on **the recommendations** of the Financial Stability Board's Taskforce on Climate-Related Financial Disclosures (TCFD), and linked to the engagement goals of Climate Action 100+. Investors can use these expectations to inform dialogue and their approach to proxy voting with companies in the steel sector.[6]

Are there climate-related financial risks for the steel sector?

Climate transition risks relevant to the steel sector can be organised into three primary categories: **policy risks**, **technology risks** and **market risks**.

The TCFD anticipates financial impact from climate-related risks on revenues, expenditures and capital, and financing requirements of steel companies. Some examples of these risks are highlighted below.

Policy risks

Companies with production in markets where the introduction of carbon prices is likely (or existing carbon prices are likely to increase), will be exposed to additional costs, unless such costs can be passed on to customers. A 2018 Carbon Tracker paper estimates that EU carbon prices are on course to rise from €4.38 per tonne in May 2017 to between €25 and €30 per tonne by 2020 and, if the EU moves to align its policy

[1] For example, see University of Cambridge (2015), Unhedgeable risk: how climate change sentiment impacts investment, (https://www.cisl.cam.ac.uk/publications/publication-pdfs/unhedgeable-risk.pdf)

[2] CDP, AIGCC, Ceres, IGCC, IIGCC, PRI, UNEP FI (2018), 2018 Global Investor Statement to Governments on Climate Change, (http://www.iigcc.org/files/publication-files/GISGCC_FINAL_for_G7_with_signatories__update_4_June.pdf)

[3] Moody's (2018), Carbon transition raises risk for steelmakers but effects will vary widely, (https://www.moodys.com/research/Moodys-Global-steel-industry-faces-evolving-credit-risk-from-carbon--PR_381106)

[4] IPCC (2018), Special Report on Global Warming of 1.5ºC, (http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf)

[5] Reuters (2017), Global assets under management hit all-time high above $80 trillion, (https://uk.reuters.com/article/uk-global-funds-aum/global-assets-under-management-hit-all-time-high-above-80-trillion-idUKKBN1CZ11L)

[6] See the recent IIGCC paper, Voting for better Climate Risk Reporting, (http://www.iigcc.org/files/publication-files/IIGCC_2018_Voting_and_Climate_Risk_v11.pdf)

framework with the Paris Agreement, may reach a price of €55 per tonne by 2030.[7] During September 2018, the price of European Emission Allowances hit a 10-year high of just above €25 euros a tonne.[8] Schroders have suggested that the steel sector could see profits fall by 80% if higher carbon prices emerge.[9] In addition, in considering the potential impact of the energy transition on credit ratings in the sector, Moody's has identified regulatory uncertainty as the main risk the steel industry is exposed to.

While it is estimated that in the coming years 70% of the world's steelmaking will face a carbon price,[10] they are unlikely to be the same across the globe. In Canada, India, and South Korea, a number of provincial carbon taxes have been instituted, while the US is yet to move to regulate carbon in this way. Crucially for the steel sector, China has pledged to reduce its emissions per unit of GDP by 40-50% compared to 2005 levels and is expanding the scope of GHG emissions covered by emissions trading system from 9% to 16%.[11] Differences in carbon pricing in different regions has led to concern regarding 'carbon leakage' – where steelmaking relocates to areas with lower costs. With a carbon pricing scheme emerging in China, the scope of carbon leakage to China remains to be seen.

Carbon pricing is not the only potentially costly regulatory intervention for the steel sector; other efforts to reduce pollution may also result in financial impact. For example, China has put in place strict cuts to steel production in an effort to limit air pollution.[12]

Technology risks

The type of production facilities owned by steel companies is an additional consideration of relevance in assessing exposure to climate-related financial risk, given that the two main types of steel production differ substantially in their energy intensity. The most common method is the basic oxygen furnace (BOF), accounting for around 70% of global production, which produces new steel from iron ore and is highly carbon intensive because of the fuels required.[13] The second method is the electronic arc furnace (EAF), which uses electricity to heat scrap steel to create new products, and is 36% less emission-intensive than the basic oxygen furnace.[14] Steel companies mainly reliant on basic oxygen furnaces for production will therefore be more exposed to costs related to carbon pricing, or other policy interventions, than those whose production is mainly via the electric arc furnace.

Market risks

Financial risks may also come from new or competing products driven by changes in customer preferences for materials supporting the energy transition. For example, auto manufacturers may shift from heavier materials like steel to lighter-weight materials like carbon fibre. This means that steel producers with a diversified range of end-use products are likely to be most resilient to climate-related market risks.

According to Moody's, companies in the steel sector typically have low profitability, with an average EBITDA margin below 8% over the last five years and debt ratings skewed towards high yield, meaning additional climate risks may be felt more keenly. This is to say nothing of possible increases in trade tariffs that may distort or limit trade of iron and steel.

[7] Carbon Tracker (2018), Carbon Clampdown, (https://www.carbontracker.org/reports/carbon-clampdown/)

[8] Reuters (2018), Europe's carbon market bull run hits a wall, (https://www.reuters.com/article/europe-carbontrading-prices/europes-carbon-market-bull-run-hits-a-wall-idUSL5N1W02OG)

[9] Schroders (2017), Schroders unveils climate change investment model, (http://www.schroders.com/en/media-relations/newsroom/all_news_releases/schroders-unveils-climate-change-investment-model/)

[10] CDP (2016), Nerves of Steel, (https://www.cdp.net/en/investor/sector-research/steel-report)

[11] IETA (2016), China's National Emissions Trading System Implications for Carbon Markets and Trade, (https://www.ieta.org/resources/China)

[12] The Financial Times (2017), China steel production cuts set to take effect, (https://www.ft.com/content/df5b1478-a1df-11e7-9e4f-7f5e6a7c98a2)

[13] Ecofys (2017), Manufacturing a Low-carbon Society, (https://www.ecofys.com/files/files/cat-2017-decarbonisationseries-industry-briefing.pdf)

[14] Moody's (2018), Carbon transition raises risk for steelmakers but effects will vary widely, (https://www.moodys.com/research/Moodys-Global-steel-industry-faces-evolving-credit-risk-from-carbon--PR_381106)

What is carbon leakage and what does it mean for the European steel sector?

Carbon leakage refers to the situation that may occur if, for reasons of costs related to climate policies, businesses transfer production to other countries with laxer emission constraints. This could lead to an increase in emissions otherwise reduced. As a result of this risk, steel and other heavy-emitting companies have long argued for special treatment within the EU Emissions Trading System, warning that jobs will be lost to third party countries with lower or no costs resulting from climate policies. Steel sector concerns have been incorporated into the system of free allowance allocation as part of the Emissions Trading System, whereby sectors considered to be most at risk from carbon leakage are given a proportion of their allowances for free – in some cases up to 100%.

The Phase IV revisions to the EU Emissions Trading System and associated carbon leakage lists, protect the steel sector, meaning companies will most likely receive a 100% free allocation of credits up to 2030 – protecting them from compliance costs and even presenting an opportunity for windfall profits.

Various reports have however questioned the carbon leakage argument, most notably the OECD's 2016 report 'Do environmental policies affect global value chains?'.[15] While the OECD's research showed that some carbon-intensive sectors like steel were put at a slight disadvantage, this was balanced out by growth in cleaner industries. OECD chief economist Catherine Mann has said, "there may be reasons for being concerned about competitiveness in Europe, but environmental stringency isn't one of them," drawing attention to other factors like trade tariffs, market size, and local employment and social regulations. The OECD therefore argued that rather than green policies negatively affecting EU competitiveness, on the contrary it was companies who looked to retrain workers and invest in low-carbon innovations who would most likely reap competitive advantages.

Will the steel sector address climate-related financial risks and decarbonise consistently with the goals of the Paris Agreement?

According to the Science Based Targets Initiative, which develops sectoral decarbonisation pathways for companies in different sectors using the IEA 2°C Scenario as a reference, by 2050 the steel sector will need to reduce emissions to 2,044 gigatons CO_2 versus a 2010 baseline of 2,955 gigatons.[16] This equates **overall to a 31% reduction in gross emissions and 55% reduction in emissions intensity**. Companies and investors should note that the IEA 2°C Scenario (now referred to as the IEA Sustainable Development Scenario) is not as ambitious as the goal of the Paris Agreement of limiting warming to well below 2°C and only assumes a 50% probability of achieving the goal,[17] meaning that the trajectory of emissions reductions from the sector may need to be steeper.

Efficiency improvements are unlikely to be enough

While the energy efficiency improvements of the electric arc furnace relative to the basic oxygen furnace are commendable, the electric arc furnace is not expected to increase its share of production by more than 10% between 2018 and 2035. This means that the possible efficiency gains won't be realised by the market

[15] OECD (2016), Do environmental policies affect global value chains? (https://www.oecd-ilibrary.org/economics/do-environmental-policies-affect-global-value-chains_5jm2hh7nf3wd-en)

[16] SBT (2015), Sectoral Decarbonisation Approach Report, (https://sciencebasedtargets.org/wp-content/uploads/2015/05/Sectoral-Decarbonization-Approach-Report.pdf)

[17] Oil Change International (2018), Off Track, (http://priceofoil.org/content/uploads/2018/04/Off-Track-IEA-climate-change1.pdf)

as a whole.[18] Ecofys recommends that "given the constraint of scrap availability, R&D programmes on innovative primary steel production routes such as the Ultra-Low-carbon Dioxide Steelmaking (ULCOS)[19] programme should be intensified to accelerate the transition to a fully decarbonised iron and steel sector".[20]

Innovative technologies are still nascent and will need to be deployed at scale rapidly

Technologies that might be able to support the rapid reduction in emissions up to 2050 are some way from commercialisation; zero-carbon electricity in electric arc furnaces, carbon capture and storage (CCS), carbon capture and utilisation (CCU), hydrogen, electrolysis, biomass and using charcoal in lieu of coal are among the most likely to succeed in reducing emissions substantially but are not yet deployed at scale.[21] Moody's conclude that "new steelmaking technologies that would result in substantially reduced carbon intensity are in early phases of development, lack either commercial or technical viability, and are unlikely to gain widespread adoption in the next 10 years".[22]

Ultra-Low-carbon Dioxide Steelmaking (ULCOS)

The ULCOS Programme is a consortium of 48 European companies and organisations from 15 European countries that have launched a cooperative research and development initiative to enable drastic reduction in Carbon dioxide (CO_2) emissions from steel production. The consortium consists of most major EU steel companies, energy and engineering partners, research institutes and universities and has been supported by the European Commission. The aim of the ULCOS programme is to reduce CO_2 emissions of today's best routes by at least 50%.

The programme began in 2004. See here and here for further details.

Some pilot projects show potential to achieve the required decarbonisation

These obstacles notwithstanding, some companies are looking to rise to the challenge. In June 2018, SSAB, a Nordic and US-based steel company, commenced construction of a new facility that aims to replace coking coal – one of the carbon intensive inputs into the steel making process – with hydrogen to create the first fossil-free steel plant.[23] SSAB aims to have a solution for fossil-free steel by 2035, which would reduce the carbon footprints of Sweden by 10% and Finland by 7%.[24] Intensive action and major investment are likely required for such pilots to reduce the industries' GHG emissions as a whole in line with the Paris goals. Also, McKinsey notes that, "steelmakers in Brazil have found it profitable to use charcoal instead of coal in virgin steel production," though widespread adoption of the technique would require steelmakers to rebuild their blast furnaces.[25]

Companies are seldom setting long-term targets to align with the Paris Agreement

Few companies within the sector have committed to follow the pathway required by setting targets according to the Transition Pathway Initiative (TPI). TPI notes that only five companies have set 2020 emissions intensity targets of which only two are aligned with a 2°C trajectory. None of the 20 companies assessed by TPI had set long term targets for 2030 or later.[26]

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[18] World Steel (2017), World steel outlook 2017-2018 and challenges ahead, (https://www.worldsteel.org/en/dam/jcr:ed7b2035-32c8-4811-bece-4606cb658b1c/Platts_Mumbai_worldsteel_2017_11_09.pdf)

[19] IETD (2018), Ultra-Low CO_2 Steelmaking (ULCOS), (http://ietd.iipnetwork.org/content/ultra-low-co2-steelmaking)

[20] Ecofys (2017), Manufacturing a Low Carbon Society, (https://www.ecofys.com/files/files/cat-2017-decarbonisationseries-industry-briefing.pdf)

[21] World Steel, Addressing climate change through technology transfer and research, (https://www.worldsteel.org/steel-by-topic/sustainability/environmental-sustainability/climate-change.html)

[22] McKinsey, Decarbonization of Industrial Sectors: The Next Frontier, (https://www.mckinsey.com/business-functions/sustainability-and-resource-productivity/our-insights/how-industry-can-move-toward-a-low-carbon-future)

[23] SSAB (2016), HYBRIT – Toward fossil-free steel, (https://www.ssab.com/company/sustainability/sustainable-operations/hybrit?dcFilter=&dcSearch=)

[24] SSAB (2016), HYBRIT – Toward fossil-free steel, (https://www.ssab.com/company/sustainability/sustainable-operations/hybrit?dcFilter=&dcSearch=)

[25] McKinsey, Decarbonization of Industrial Sectors: The Next Frontier, (https://www.mckinsey.com/business-functions/sustainability-and-resource-productivity/our-insights/how-industry-can-move-toward-a-low-carbon-future)

[26] Transition Pathway Initiative (2017), Management Quality and Carbon Performance of Steel Makers: A Commentary, (http://www.lse.ac.uk/GranthamInstitute/tpi/wp-content/uploads/2017/09/Steel-combined-report-21-Sept.pdf)

Investor Expectations of Steel Companies

In order to ensure robust, responsive and resilient business strategies, and encourage a smooth transition to lower carbon energy system, this document sets out expectations and guiding questions for investors to raise in their discussions with the board and management of steel companies.

1 Governance

Expectation

- **Clearly define board and management governance processes to ensure adequate oversight of climate-related risk and the strategic implications of planning for a transition consistent with 2°C and efforts to pursue 1.5°C.**

Questions for the board

Board expertise and process for understanding climate-related risks

- **What expertise and knowledge exists at the board and senior management level to understand climate risks and opportunities?**
- **What experience does the board have in delivering business transformations that require significant investment in new and innovative technology like those required to transition the steel industry?**

Strategy oversight

- **How does the board oversee how climate-related risks are factored into strategic planning, risk management frameworks, final investment decisions, capital efficiency, setting and managing KPIs?**
- **What processes does the board have in place to ensure that climate-related risks are carefully and diligently assessed?**

Incentivising strategy

- **How is the remuneration committee ensuring that incentives are aligned with a strategy consistent with the goals of the Paris Agreement?**

Public policy

- **Does the board support national, regional and international efforts to limit global warming to well below 2°C?**
- **How do the board and management ensure that the trade associations to which the company belongs, do not block or lobby against climate policy?**

2 Transition plan

Expectation

- Take action to reduce GHG emissions across the value chain, consistent with the Paris Agreement's goal of limiting global average temperature increase to well below 2°C compared to pre-industrial levels.

Questions for the board

Targets and transition plan

- Does the company have a long term (2030 or beyond) emission reduction target set in line with the level of de-carbonisation required to keep the average global temperature increase well below 2°C?
- Will the company develop specific investment plans to ensure that its Scope 1, 2 and most material 3 emissions, are reduced consistently with the ambition of the Paris Agreement goal of limiting global average temperature increase to well below 2°C compared to pre-industrial levels?

Research and development, and new business opportunities

- What is the company's R&D strategy and capital expenditure (as a percentage of overall capital expenditure) with respect to carbon reduction technologies?
- Is R&D expenditure sufficient to bring about the development of technologies that will enable the business to align with the Paris Agreement?
- How does the company report the anticipated impact (in financial and carbon terms) that it expects from such investments?
- What are the company's windfall profits from carbon pricing systems such as the EU Emissions Trading System over the past ten years?
- What percentage of these windfall profits have been invested in decarbonisation research or technological innovation?
- Is the company actively engaged with universities and research institutions to develop innovative technologies relating to decarbonisation?
- Is the company actively seeing public funding available for funding part of the innovative projects the company has embarked or is planning to start in the next two to five years?
- What is the proportion of public funding for research the company has been awarded so far compared to internal company funding, and how is the proportion expected to develop based on available public funding the company has applied or is planning to apply for?

3 Disclosure

Expectation

- Provide enhanced corporate disclosure in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) to enable investors to test the robustness of the company's business plans against a range of climate scenarios, including well below 2°C, and improve investment decision-making.

Questions for the board

Disclosure commitment and location

- Will the board be formally supporting the recommendations from the FSB Task Force on Climate-Related Financial Disclosures?

Disclosure location

- Does the company have plans to disclose information related to its exposure to and management of climate-related financial risks and opportunities in its financial filings?
- Will the company explain in its financial filings how climate-related risks and opportunities may impact its financial statements?

Metrics

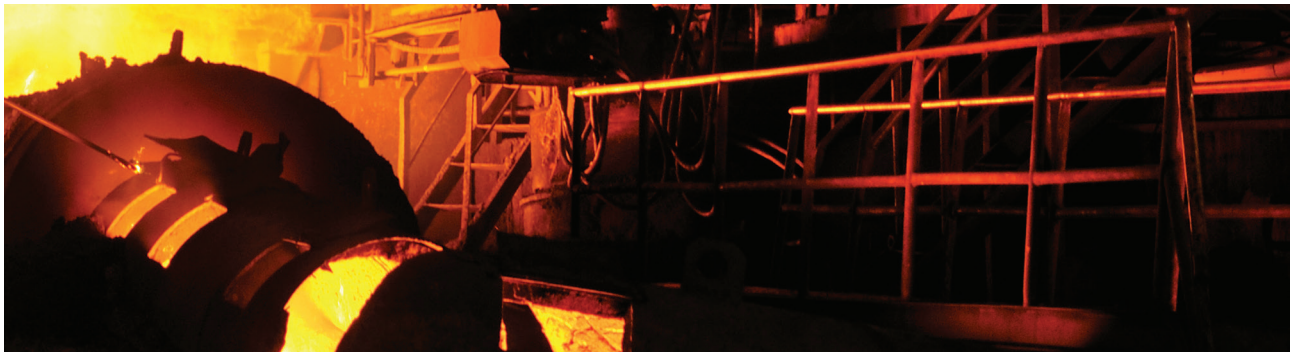
- Does the company disclose scope 1, 2, and/or 3 emissions?
- Will the company deploy and disclose financial metrics related to the management of climate risk and opportunity? For example, revenues/savings from investments in low-carbon alternatives (e.g. R&D, equipment, products or services); expenditures (OpEx) for low-carbon alternatives (e.g. R&D, technology, products, or services); and investment (CapEx) in low-carbon alternatives (e.g. capital equipment or assets); and value at risk from carbon pricing systems.
- Has the company publicly disclosed specific emissions intensity for the BOF and EAF production methods?
- What percentage of the company's assets are exposed to a carbon price?

Risk Management disclosure & business implications

- What climate-related risks and opportunities has the company identified over the short, medium, and long term?
- What are the key risk factors for various assets, business lines, and strategies?
- How does the board ensure there is sufficient flexibility within the business to respond to changing policy dynamics (e.g. a sudden onset of carbon price)?

Regulatory exposure

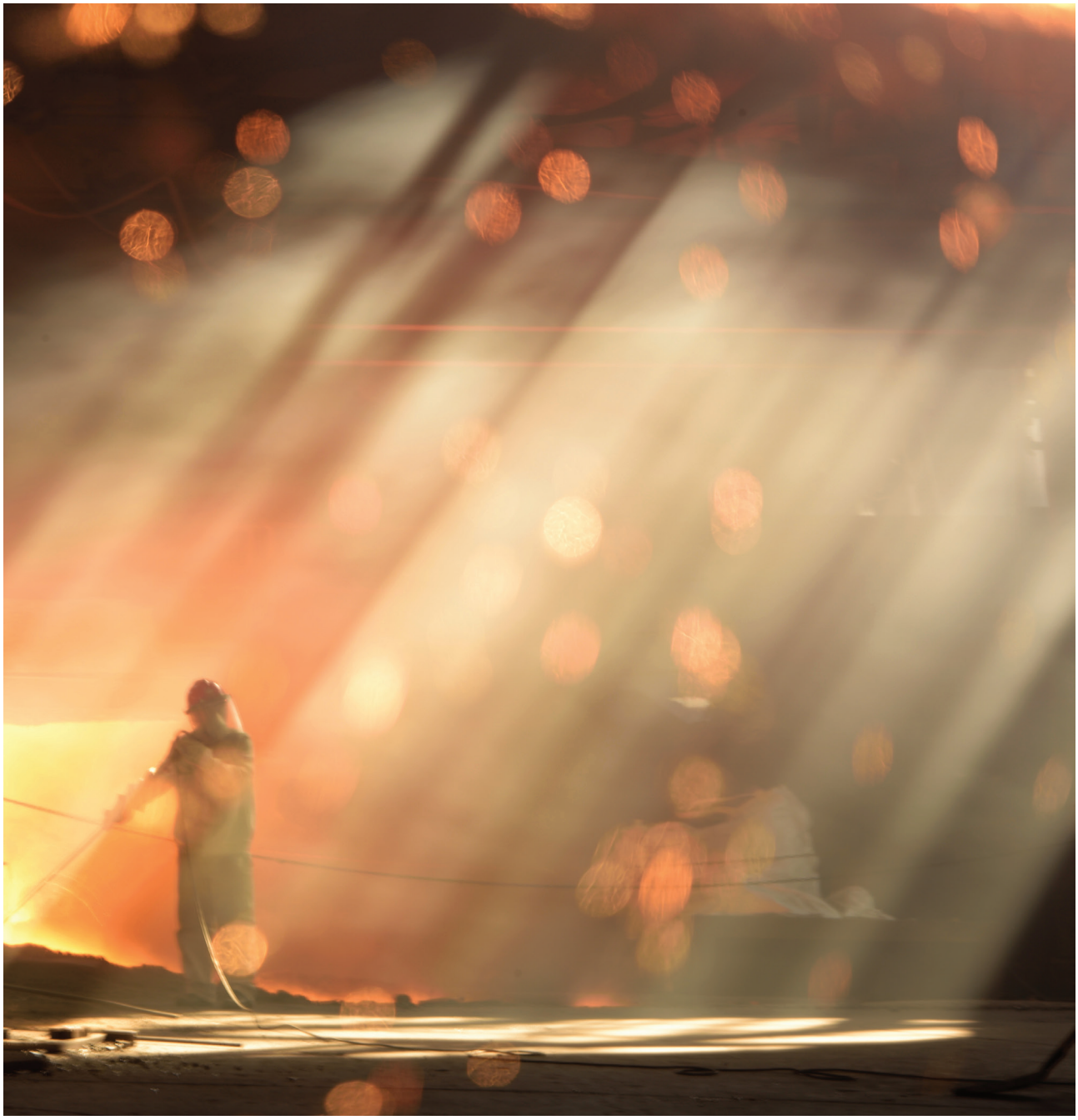
- Does the company report the number of installations covered by emissions trading systems (or equivalent regulatory systems)?
- Does the company report the volume of emissions in tonnes that are covered by such systems?
- Does the company report the coverage of exemptions to such systems (such as the carbon leakage list for the EU Emissions Trading System)?
- Does the company report the volume of credits it holds of such systems and how the volume of credits will reduce over time (particularly during phase 4 of the EU Emissions Trading System)?



3 Disclosure continued

Scenario Analysis

- Has the company undertaken and disclosed the results of its scenario analysis?
- What are the key input assumptions and ranges tested with respect to: speed and alignment of regional and national policy measures to deliver on the Paris Agreement; technology break-through and penetration (such as CCS, electrolysis, and biomass and how these variables might impact steel prices?
- Will the company produce sensitivities to higher carbon pricing?
- Are there specific recommendations or actions that can be developed from the results of scenario analysis and stress testing?
- Has the scenario work resulted in changes to the business model?
- Regarding carbon pricing, what is the company's break-even carbon price (e.g. at what carbon price can the company's installations continue to be profitable)?



Glossary

BOF	Basic Oxygen Furnace
CO_2	Carbon Dioxide
CCS	Carbon Capture and Storage
CCU	Carbon Capture and Utilisation
EBITDA	Earnings before interest, tax, depreciation and amortisation
EAF	Electric Arc Furnace
EU	European Union
FSB	Financial Stability Board
GHG	Green-house Gas
IEA	International Energy Agency
IIGCC	Institutional Investors Group on Climate Change
OCED	Organisation for Economic Development and Cooperation
TCFD	Taskforce on Climate-Related Financial Disclosures
TPI	Transition Pathway Initiative

Contact for further information

Oliver Grayer
Project Director
Institutional Investors Group on Climate Change
Adam House
7-10 Adam Street
London WC2N 6AA
+44 (0) 7733 444 941
ograyer@iigcc.org

IIGCC

The Institutional Investors Group on Climate Change

Design by Guy Batey | raggedright.co.uk