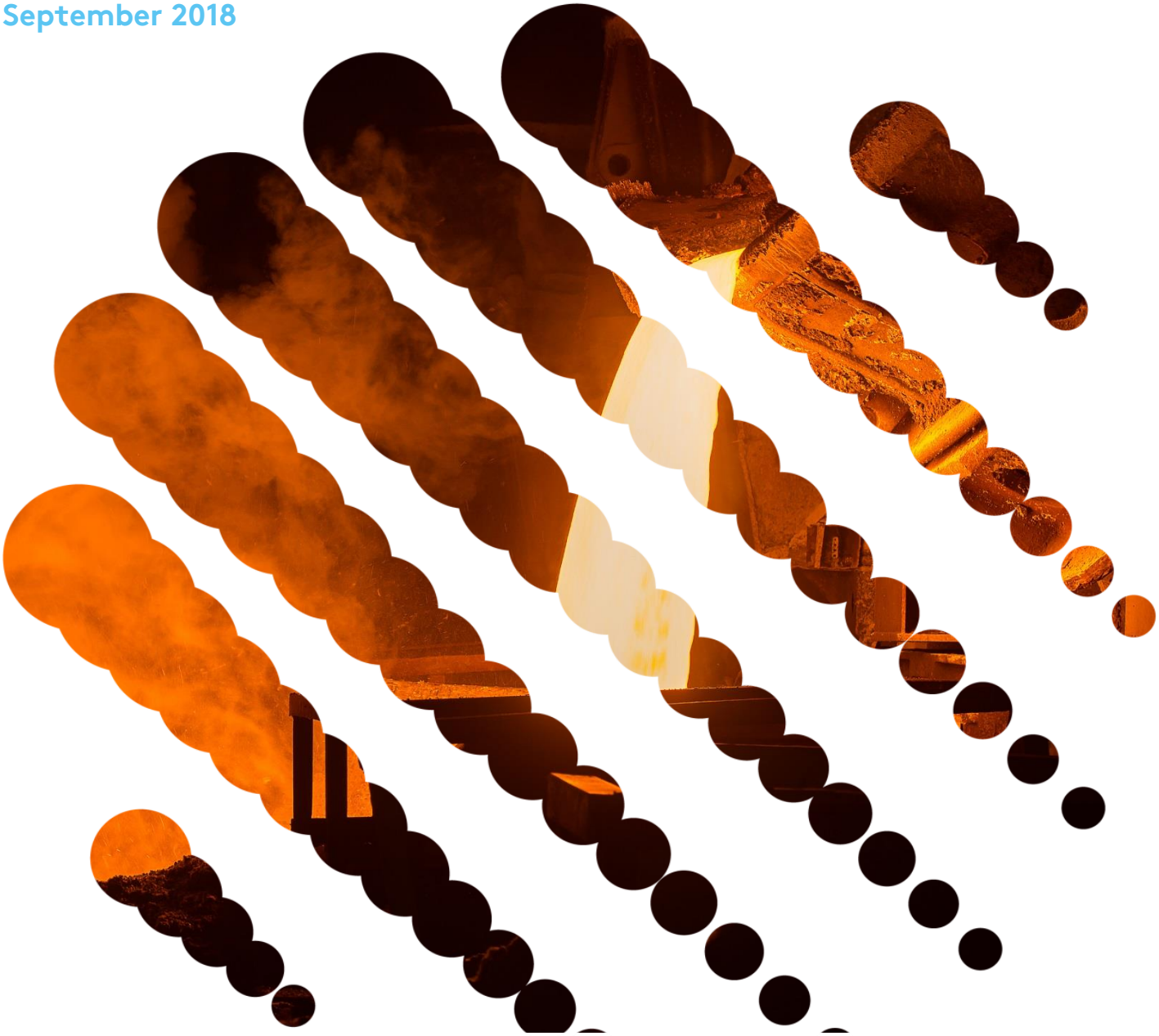
Management Quality and Carbon Performance of steel makers: update

September 2018



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1. Introduction

About the Transition Pathway Initiative

The Transition Pathway Initiative (TPI) is a global initiative led by asset owners and supported by asset managers. Established in January 2017, TPI investors now collectively represent over UK£7/US$9 trillion of assets under management.[1]

TPI assesses the progress of large public companies on the transition to a low-carbon economy. These assessments are updated annually and published through an open access online tool.

The tool, together with further details of how investors can use the data, can be found at: www.transitionpathwayinitiative.org.

This report

This latest TPI report assesses 23 of the world's largest publicly listed steel makers, updating and extending our previous analysis of the sector from September 2017.[1]

Full details of the companies assessed can be found in Appendix 1.

Brief overview of methodology

TPI's assessment is divided into two parts:

1. *Management Quality* covers companies' management/governance of greenhouse gas emissions and the risks and opportunities arising from the low-carbon transition.

2. *Carbon Performance* assessment involves quantitative benchmarking of companies' emissions pathways against the international targets and national pledges made as part of the 2015 UN Paris Agreement.

We assess Management Quality and Carbon Performance separately, because research shows the relationship between them is by no means clear cut. Management Quality assessment focuses on processes, while Carbon Performance focuses on outcomes. Together they are intended to provide a holistic view of companies' progress on the low-carbon transition. The framework is aligned with recommendations of the FSB Taskforce on Climate-related Financial Disclosures (TCFD), tracking companies in relation to TCFD's four recommendation areas: governance, strategy, risk management, and metrics and targets.

Management Quality

TPI's Management Quality framework comprises five levels:

- Level 0 – Unaware of (or Not Acknowledging) Climate Change as a Business Issue;
- Level 1 – Acknowledging Climate Change as a Business Issue;
- Level 2 – Building Capacity;
- Level 3 – Integrating into Operational Decision Making;
- Level 4 – Strategic Assessment.

Companies are allocated to a level based on how they perform against 16 indicators, each of which tests whether a company has implemented a particular carbon management practice. The data underpinning the indicators are provided by FTSE Russell.

Carbon Performance

In this report we benchmark the emissions intensity of steel production against three scenarios that are derived from modelling by the International Energy Agency (IEA):

- *Paris Pledges*, consistent with the emissions reductions pledged by countries as part of the Paris Agreement in the form of Nationally Determined Contributions or NDCs.
- *2 Degrees*, consistent with the overall aim of the Paris Agreement to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels", albeit at the low end of the range of ambition.
- *Below 2 Degrees*, consistent with a more ambitious interpretation of the Paris Agreement's overall aim.

Further details on methodology can be found in our latest Methodology and Indicators Report.[2]

[1] As of 5 June 2018.

2. Management Quality

Overview

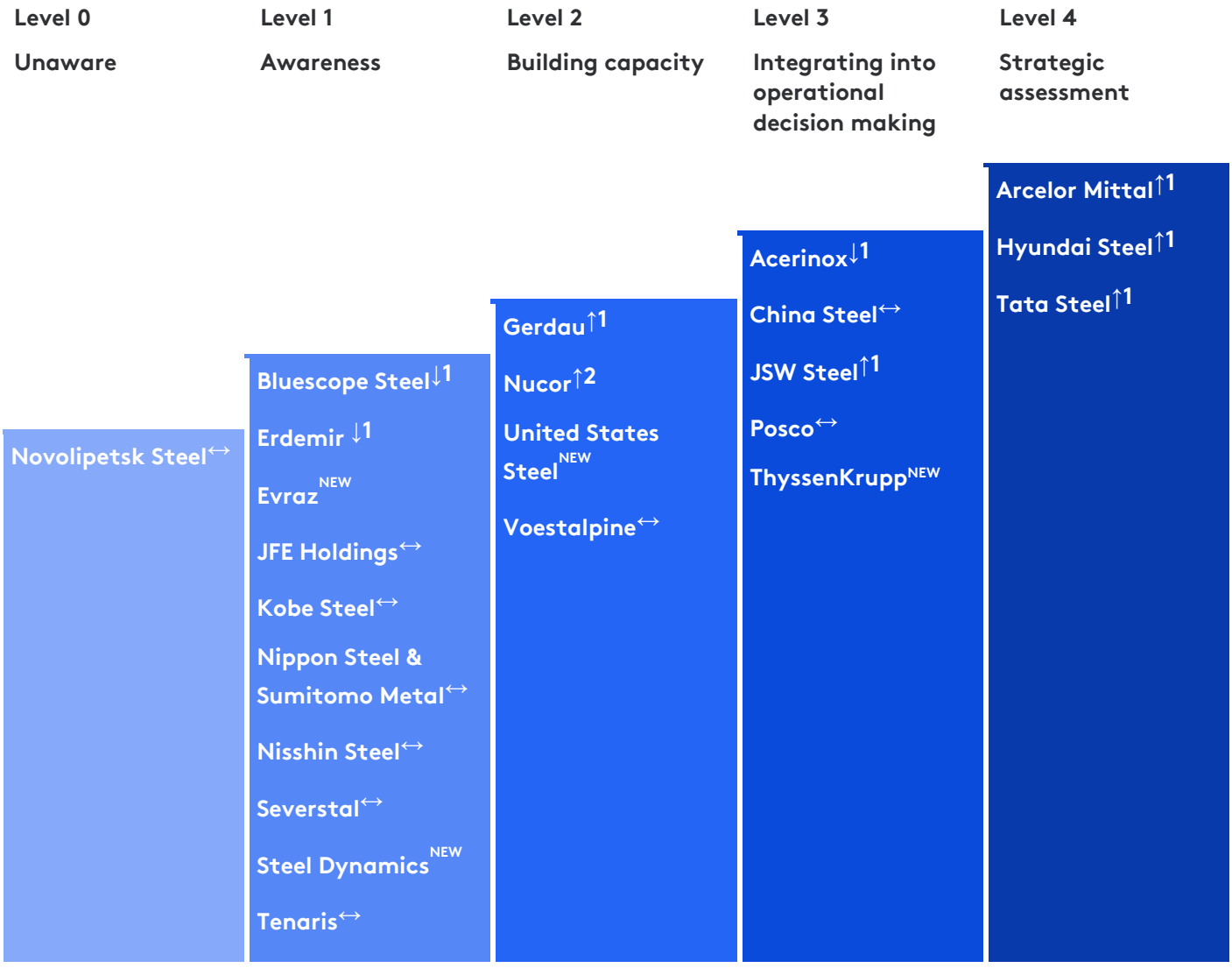
Figure 1 shows where the 23 steel makers sit on TPI's Management Quality staircase. Steel makers' average Management Quality score is 2.0, meaning that a representative company in this sector would sit exactly on Level 2 – Building Capacity.

A company on Level 2 has made a policy commitment to act on climate change and has explicitly recognised climate change as a relevant business risk/opportunity. It is also at the point of disclosing its operational (i.e. Scope 1 and 2) greenhouse gas emissions and setting an emissions reduction target, but being on Level 2 means that it has not yet implemented at least one of these two carbon management practices.

The steel sector has the lowest sector average of the 7 sectors assessed by TPI so far. While only one company is on Level 0, 10 companies are on Level 1 and only two companies have reached Level 4.

Four companies are newly assessed this year. Of these, Evraz and Steel Dynamics are on Level 1, United States Steel is on Level 2, and ThyssenKrupp is on Level 3.

Figure 1. Management quality of the world's top steel makers



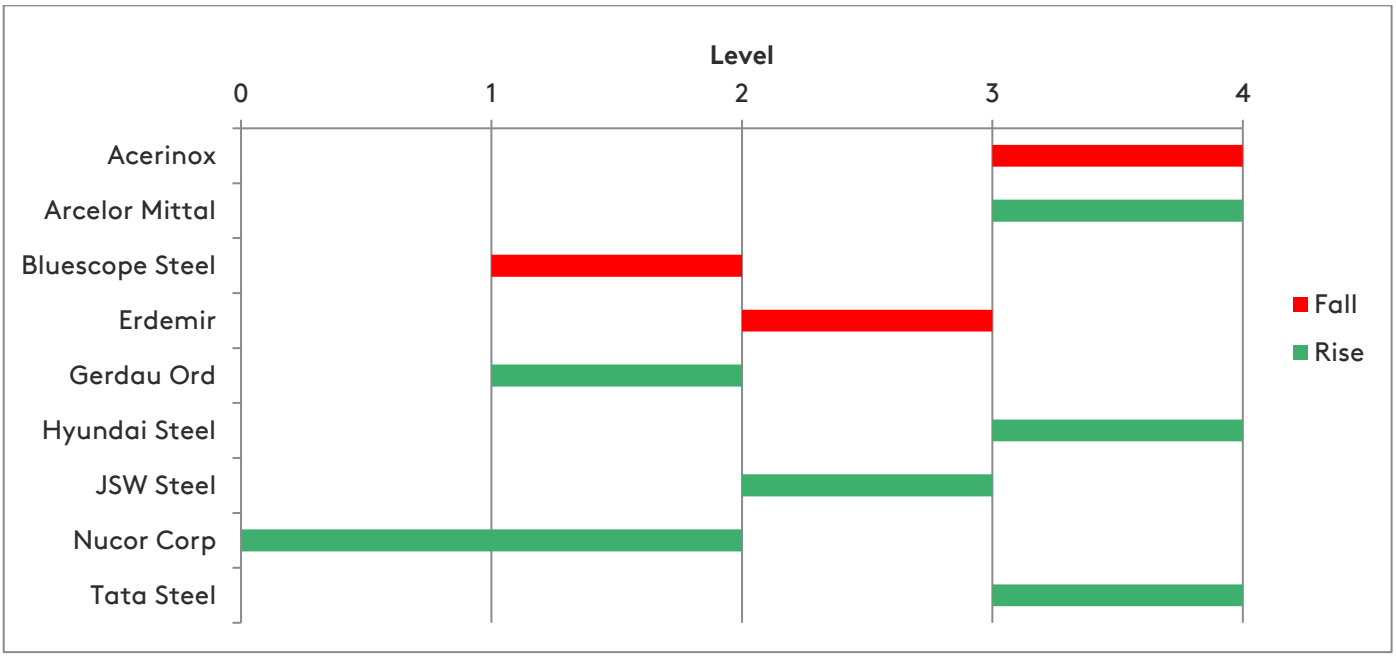
Trends in Management Quality

In terms of the sector average, we see an improvement in the performance of steel makers since they were first assessed by TPI in September 2017. At that time, the average level score was 1.8, which was also the lowest of all sectors assessed.

The improvement is driven by six companies moving up at least one level. Of these, Nucor moves up from Level 0 to Level 2 by explicitly recognising climate change as a relevant risk and/or opportunity to the business, and introducing a policy commitment to act on climate change. However, Nucor does not currently implement any of the other 13 carbon management practices assessed by TPI.

Arcelor Mittal, Hyundai Steel and Tata Steel move up to Level 4 for the first time this year. Both Arcelor Mittal and Hyundai Steel achieve this by assigning board responsibility for climate change, as well as demonstrating their support for domestic and international efforts to mitigate climate change. Tata Steel also moves up by satisfying this latter criterion of demonstrating the company's support for domestic and international efforts to mitigate climate change.

Figure 2. Companies that have moved up or down levels since the TPI 2017 assessment

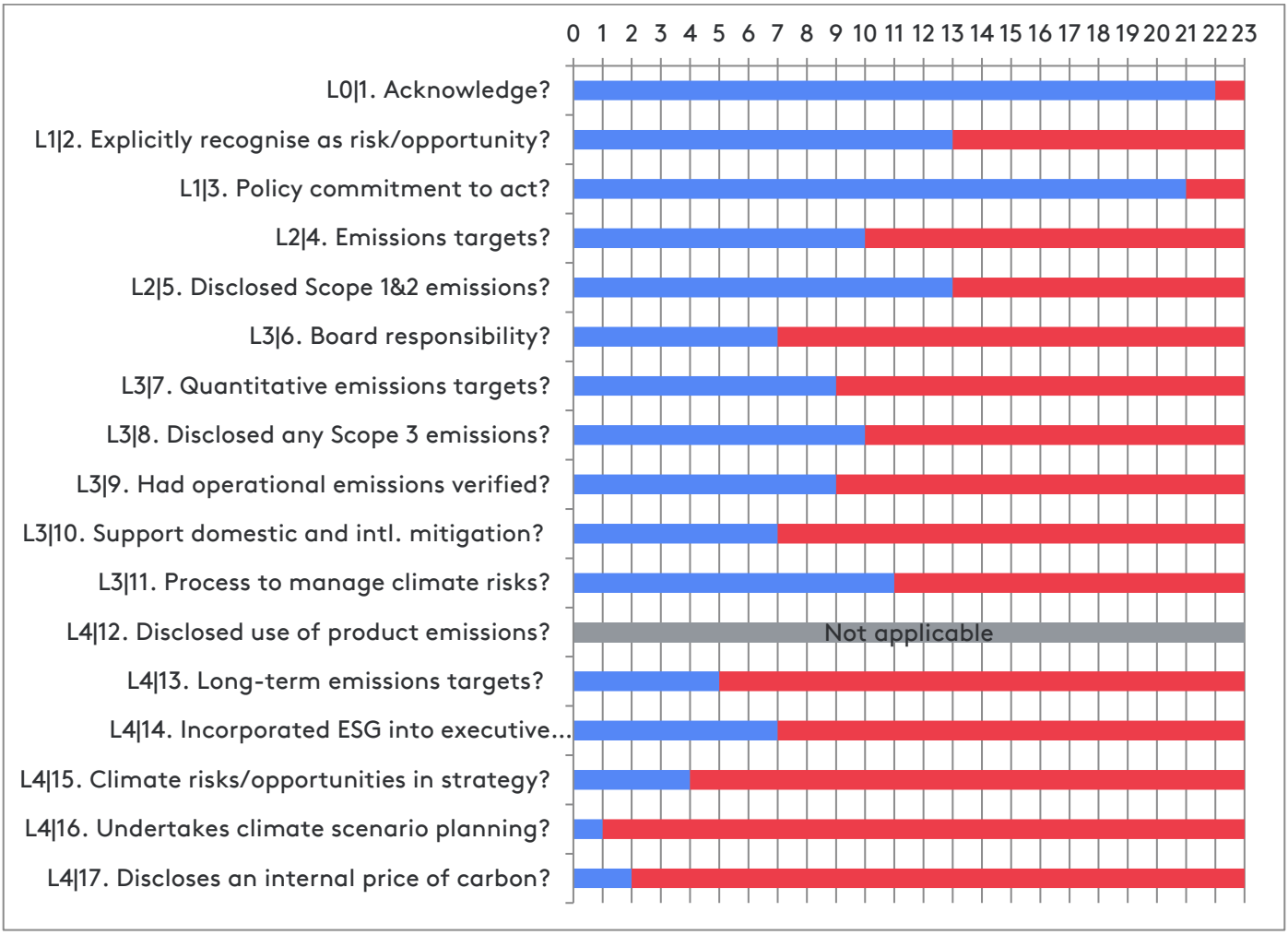


Indicator by indicator

Only four indicators are satisfied by a majority of steel companies: (Q1) acknowledgement of climate change as a significant issue for the business; (Q2) explicit recognition of climate change as a relevant risk/opportunity; (Q3) having a policy commitment to act; and (Q5) disclosure of operational (i.e. Scope 1 and 2) emissions (**Figure 3**).

Notably few (5 out of 22) companies have a long-term, quantified target to reduce their greenhouse gas emissions.

Figure 3. Number of companies scoring Yes (blue) against individual criteria, and No (red)



3. Carbon Performance

Table 1 summarises Carbon Performance data for the 23 steel makers covered by this report. The traffic light scheme indicates that a company with an emissions intensity of steel production that is below the benchmarks can be said to be aligned with those benchmarks and therefore with the international commitments underpinning them. A company whose emissions intensity is above the benchmarks is not aligned.

Table 1. Company emissions intensity pathways and steel sector benchmarks, 2014-2030

Company	Emissions intensity of steel production (tCO_2 / t crude steel)				
	2014	2015	2016	2017	2020
Acerinox	0.550	0.590	0.600	0.494	0.177
Arcelor Mittal		1.970	1.980	1.970	1.770
Bluescope Steel	2.100	2.020	1.820	1.670	
China Steel	2.254	2.290	2.320	2.305	2.260
Erdermir					
Evraz	2.400	2.370	2.410	2.270	
Gerdau					
Hyundai Steel	0.835	0.865	0.840	0.846	0.645
JFE Holdings	2.060	2.080	2.030		
JSW Steel	2.505	2.493	2.310	2.423	
Kobe Steel	2.350	2.340	2.342		
Nippon Steel & Sumitomo Metal					
Nisshin Steel	2.170	2.180	2.170		
Novolipetsk Steel					
Nucor		0.860	0.880		
Posco	2.000	1.910	1.880	1.910	2.000
Severstal					
Steel Dynamics					
Tata Steel	2.420	2.540	2.180	2.004	1.476
Tenaris	0.870	0.910	0.850	0.820	
ThyssenKrupp		1.949	1.961	1.770	1.440
United States Steel					
Voestalpine					
Below 2 Degrees	1.669	1.612	1.556	1.499	1.329
2 Degrees	1.669	1.640	1.612	1.583	1.500
Paris Pledges	1.669	1.668	1.666	1.664	1.660

Key ● Aligned with Below 2°C ● Aligned with 2°C ● Aligned with Paris Pledges ● Not aligned

TPI's Carbon Performance assessment is based on companies' public disclosures of their historical emissions, as well as quantitative targets they have set to reduce their emissions in the future.

Historical Carbon Performance data are available for 15 out of 23 steel makers (65%), the same proportion as last year.

What is particularly notable about the steel sector is that only seven out of 23 companies have set a company-wide, quantitative target to reduce their emissions, which we can use to estimate future Carbon Performance in 2020. Although this constitutes an increase of two companies on last year, it is low relative to other sectors whose Carbon Performance has been assessed by TPI. Moreover none of these targets extends beyond 2020.

In 2020, we project that three companies will have an emissions intensity of steel production above the benchmarks (Arcelor Mittal, China Steel and Posco). Two companies will be aligned with the 2 Degrees benchmark: Tata Steel and ThyssenKrupp. Both of these companies have set ambitious targets, which would result in their emissions intensity of steel production falling substantially over the coming few years.

Two further companies will have achieved an emissions intensity low enough to be aligned with the most ambitious Below 2 Degrees benchmark (Acerinox and Hyundai Steel). Both of these companies have a very low historical emissions intensity. As we observed in our assessment of the steel sector last year, one of the primary sources of variation in companies' emissions intensity is the production route/technology a company uses to make steel, in particular whether it is via integrated mills, where iron is made in a blast furnace, or whether it is via scrap-based minimills, where the major source of emissions is the electric arc furnace. Blast furnaces are much more emissions-intensive per tonne of steel product than electric arc furnaces, and minimills have a particularly low emissions intensity. Both Acerinox and Hyundai Steel produce steel via the electric arc furnace route.

In this year's assessment, there is a substantial downwards revision in the benchmarks. The primary reason for this is that IEA has revised its modelling of the steel sector.[3] We use IEA modelling to derive the benchmarks (see our steel sector *Methodology Note* on the TPI website). Another reason for the downward revision is an improvement in how we calculate the benchmarks, by now taking into account the share of steel makers' electricity consumption that is met by their own electricity generation.[2]

[2] Last year's assessment assumed that steel makers purchased all the electricity they consumed, whereas, across the sector as a whole, some proportion is generated by steel makers' themselves. Using CDP data, we estimate this proportion to be about 1/3.

Appendix 1. List of steel makers covered in this report

Company	Country listing	Market cap. (million USD) after investibility weight
Acerinox	Spain	1,871
Arcelor Mittal	Netherlands	19,533
Bleuscope Steel	Australia	7,805
China Steel	Taiwan	9,743
Erdemir	Turkey	3,016
Evraz	United Kingdom	3,408
Gerdau	Brazil	3,472
Hyundai Steel	Korea	3,894
JFE Holdings	Japan	10,594
JSW Steel	India	5,793
Kobe Steel	Japan	3,066
Nippon Steel & Sumitomo Metal	Japan	15,870
Nisshin Steel	Japan	648
Novolipetsk Steel	Russia	2,310
Nucor	United States	21,278
Posco	Korea	22,557
Severstal	Russia	3,059
Steel Dynamics	United States	10,620
Tata Steel	India	2,251
Tenaris	Italy	8,158
ThyssenKrupp	Germany	13,131
United States Steel	United States	6,260
Voestalpine	Austria	5,873

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[1] S. Dietz, C. Garcia-Manas, W. Irwin, B. Rauis, R. Sullivan, and J. Sung, "Management Quality and Carbon Performance of Steel Makers: a Commentary," London, 2017.

[2] S. Dietz, C. Garcia-Manas, W. Irwin, B. Rauis, and R. Sullivan, "Methodology and Indicators Report: Version 2.0," London, 2018.

[3] International Energy Agency, *Energy Technology Perspectives 2017*. International Energy Agency, 2017.

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