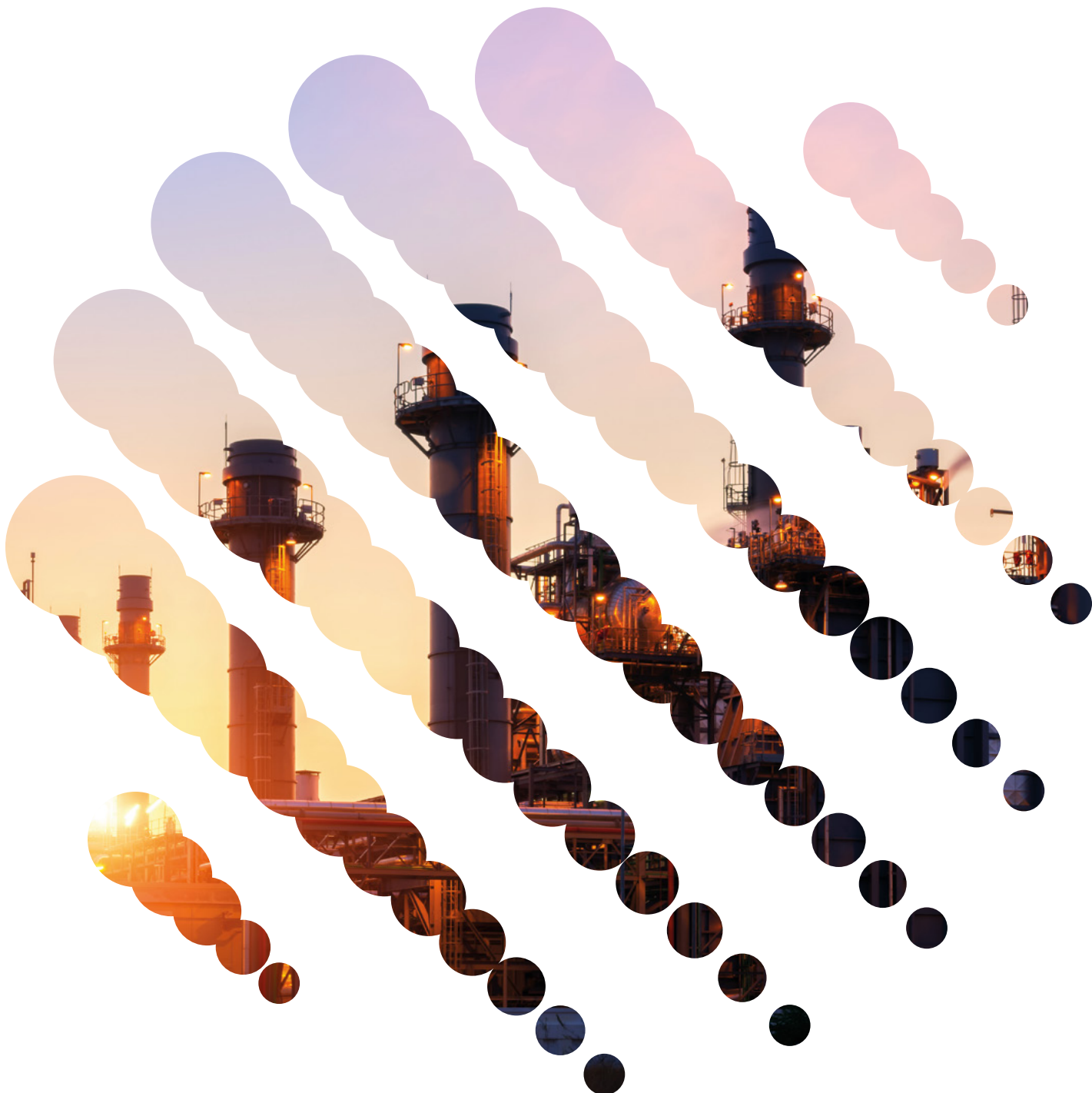
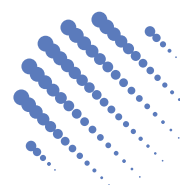


TPI State of Transition Report 2020



Simon Dietz, Rhoda Byrne, Dan Gardiner,
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**Transition
Pathway
Initiative**

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.

Aimed at investors, it assesses companies' progress on the transition to a low-carbon economy, supporting efforts to address climate change. Over 67 investors globally have already pledged support for the TPI; jointly they represent nearly US\$19 trillion combined Assets Under Management and Advice. Using companies' publicly disclosed data, TPI:

- Assesses the quality of companies' management of their carbon emissions and of risks and opportunities related to the low-carbon transition, in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).
- Assesses how companies' planned or expected future Carbon Performance compares with international targets and national pledges made as part of the 2015 Paris Agreement on climate change.
- Publishes the results via an open-access online tool: www.transitionpathwayinitiative.org.

TPI strategic relationships

The **Grantham Research Institute on Climate Change and the Environment** at the London School of Economics and Political Science (LSE) is TPI's academic partner. It has developed the assessment framework, provides company assessments, and hosts the online tool. **FTSE Russell** is TPI's data partner. FTSE Russell is a leading global provider of benchmarking, analytics solutions and indices. The **Principles for Responsible Investment (PRI)** provides a secretariat to TPI. PRI is an international network of investors implementing the six Principles for Responsible Investment.

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Foreword



**Adam C.T. Matthews and Faith Ward, Co-chairs,
Transition Pathway Initiative (TPI)**

Heart-breaking scenes of devastation caused by the heatwave and fires that swept through Australia in December 2019 ended what had already been a year during which many lives were lost, biodiversity destroyed and billions of dollars of damage incurred. The physical impacts of climate change were felt on every continent in every economy. 2019 was also the year that saw millions of people across the world take to the streets and protest at the lack of action on climate change.

The clock is ticking – according to the Intergovernmental Panel on Climate Change’s *Special Report on Global Warming of 1.5 Degrees*, we have now entered the final decade in which to take action to avoid catastrophic climate change.

We established the Transition Pathway Initiative (TPI) in 2017 with the aim of defining what the transition to a low-carbon economy looks like for companies in high-impact sectors such as oil and gas, mining, and electricity generation. Our mission was to enable asset owners and other stakeholders to make informed judgements about how companies with the biggest impact on climate change are adapting their business models to prepare for the transition to a low-carbon economy. This would then enable asset owners to include this information in their investment decision-making, to support their funds’ alignment with the goals of the Paris Agreement and to inform their engagement with companies.

Use of TPI data has continued to grow considerably with 67 funds representing nearly US\$19 trillion in Assets Under Management now using TPI’s insights. The period 2017 to 2020 was very much about proof of concept, demonstrating that it was feasible to objectively and robustly assess these companies’ quality of management and current and future carbon performance in a readily accessible way to influence investment decision-making and corporate behaviour. TPI has created a common assessment framework that supports a new form of robust, outcome-oriented engagement. We were delighted that TPI was selected to provide the assessment framework for

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Climate Action 100+, the US\$40 trillion-backed global engagement initiative. In January 2020 we also saw the launch of the FTSE TPI Climate Transition Index series, which provides the first passive product imbedding forward-looking climate data and enables passive investing to support the low-carbon transition.

Priorities for 2020 and beyond

In 2019 we reviewed TPI's progress from when it was first established. While there was much to be proud of, we recognised that we needed to scale up and accelerate our efforts in response to investor demand for independent, academically robust and non-commercial tools to support the transition. Our workplan for the period 2020 and beyond reflects that urgency. We will be developing and implementing our priorities in partnership with TPI supporters, and alongside our partners in research (the London School of Economics' Grantham Research Institute on Climate Change and the Environment), data (FTSE Russell) and administration (Principles for Responsible Investment [PRI]). Those priorities include:

- Extending the coverage of our listed equity universe to encompass approximately 800 listed companies. In total, these companies account for around 80 per cent of the greenhouse gas emissions associated with listed markets.
- Extending the TPI assessment framework to include corporate fixed income.

- Extending the TPI assessment framework to include sovereign bonds.
- Extending the TPI framework to analyse the role investors and finance can play in supporting net zero pathways for key sectors and subsectors such as aviation, automotives, shipping, road freight, steel and cement. Through adding a sector-wide lens to TPI's company-specific framework, we can better understand how investors can finance the low-carbon transition.
- Building analytical tools that enable asset owners and asset managers to assess whether their investment portfolios are aligned with a 2°C or 1.5°C temperature rise, and that enable stakeholders to assess the credibility of net zero commitments.
- Building a framework that enables investors to assess if corporate lobbying is aligned with the goals of the Paris Agreement.

We are immensely grateful to all the organisations that have worked with us over the first three years of TPI. Based on all that has been achieved in that time we have a high ambition agenda and look forward to working with all partners and supporters to enable us, the investment community, to take action that seeks to protect the investments of our clients and beneficiaries and to protect the world into which they and their families will live.

March 2020

“TPI has created a common assessment framework that supports a new form of robust, outcome-oriented engagement”

Summary

This 2020 State of Transition Report from the Transition Pathway Initiative (TPI) is the latest in a series of annual stocktakes of the progress being made by the world's biggest and most emissions-intensive public companies on the transition to a low-carbon economy.

We have assessed 332 companies on their 'Management Quality' and 238 of these on their 'Carbon Performance'. Management Quality tracks companies' management/governance of greenhouse gas emissions and the risks and opportunities arising for those companies from the low-carbon transition. Carbon Performance measures companies' emissions intensity and benchmarks the extent to which the companies are, or will be, aligned with the global temperature goals set out in the 2015 UN Paris Agreement on climate change. Together, these assessments provide a holistic, backward- and forward-looking view of companies' progress, in terms of both inputs and outputs, in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

On Management Quality, nearly 40 per cent of companies are demonstrably unprepared for the transition

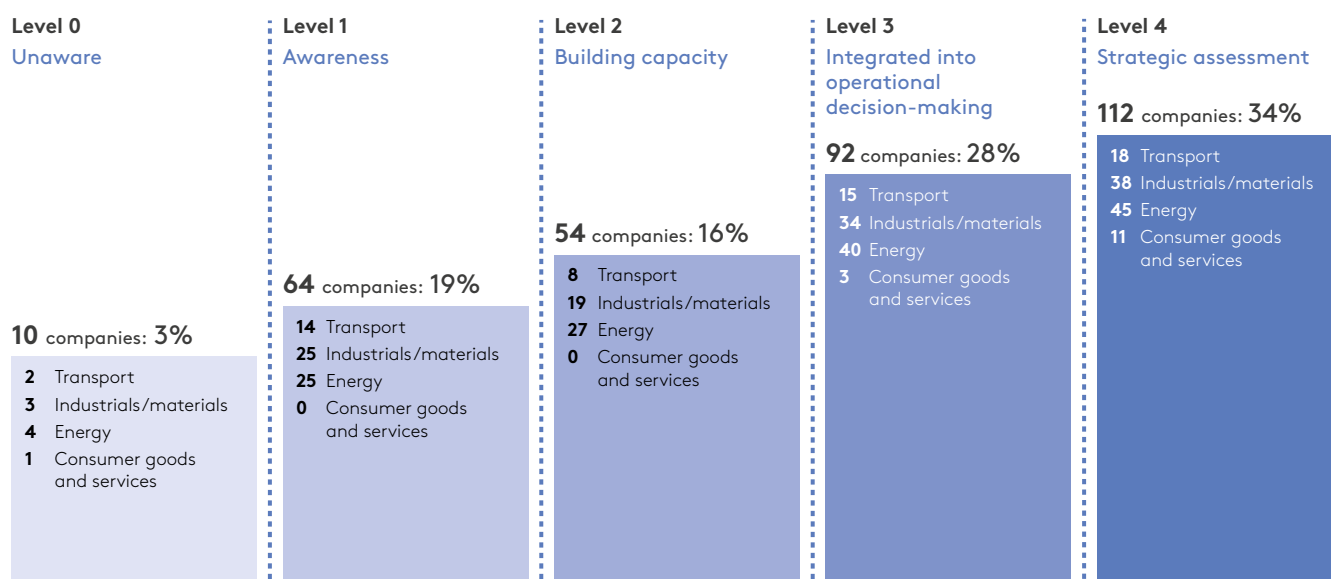
Management Quality continues to improve, but only slowly. Nearly 40 per cent of

companies are on Levels 0–2, meaning they are demonstrably unprepared for the transition (Figure S1).

The average Management Quality level of all companies in the TPI database is now 2.7, more than halfway between 'building capacity on climate change' (Level 2) and 'integrating climate change into operational decision-making' (Level 3). In summer 2019 the average company score was 2.5, so we can see modest progress.

Ten out of the 332 companies assessed (3 per cent) are on Level 0: still unaware of or not acknowledging climate change as a business issue. This is the same share as in summer 2019. 128 companies (38 per cent) are on Levels 0–2. These companies are yet to implement at least one of the following four basic carbon management practices: explicitly recognising climate change as a relevant business risk/opportunity; having a policy commitment to act on climate change; disclosing operational emissions (Scope 1 and 2); setting a target to reduce emissions (even a qualitative target). Ninety-two companies are now on Level 3 and 112 are on Level 4, a total of 62 per cent across these two levels, up from 54 per cent a year ago. The share of Level 4 companies has increased from 28 to 34 per cent.

Figure S1. Management Quality level of all TPI companies



More advanced carbon management practices are needed

The vast majority of companies have basic climate governance, emissions metrics and targets in place. Ninety-seven per cent of companies acknowledge climate change as a significant issue for the business and 95 per cent have a policy commitment to act on climate change. Seventy-six per cent of companies disclose their Scope 1 and 2 emissions and 70 per cent have set an emissions reduction target.

However, fewer companies are implementing more strategic and long-term carbon management practices. For example, only 41 per cent of companies have incorporated climate change performance in executive remuneration; only 40 per cent have incorporated climate change risks and opportunities in their strategy. Investors should engage companies to take a more strategic approach to climate change.

Lack of consistency between company and trade association positions

A slight majority of companies disclose their involvement in trade associations' lobbying on climate change but barely any have measures to ensure consistency between company and trade association positions.

Corporate climate lobbying is increasingly a focus of investor attention, partly because of a fear that companies may be directly or indirectly engaged in activities that run counter to their publicly stated positions on climate action. Therefore, in this assessment cycle we introduced two new Management Quality indicators. First, we asked if companies disclose their membership and involvement in trade associations engaged in climate issues; 54 per cent of companies do so. Second, we asked if companies ensure consistency between their own climate change policies and the positions taken by trade associations of which they are members; only 6 per cent of companies do so.

On Carbon Performance, more than 80 per cent of companies remain off track for a 2°C world

Carbon Performance assessment involves quantitative benchmarking of companies' emissions pathways against the international targets and national pledges made as part of the Paris Agreement on climate change. We now assess 238 companies on Carbon

Performance in nine sectors: airlines; aluminium; autos; cement; electricity; oil and gas; paper; shipping; and steel. That is 78 more than in the summer 2019 assessment.

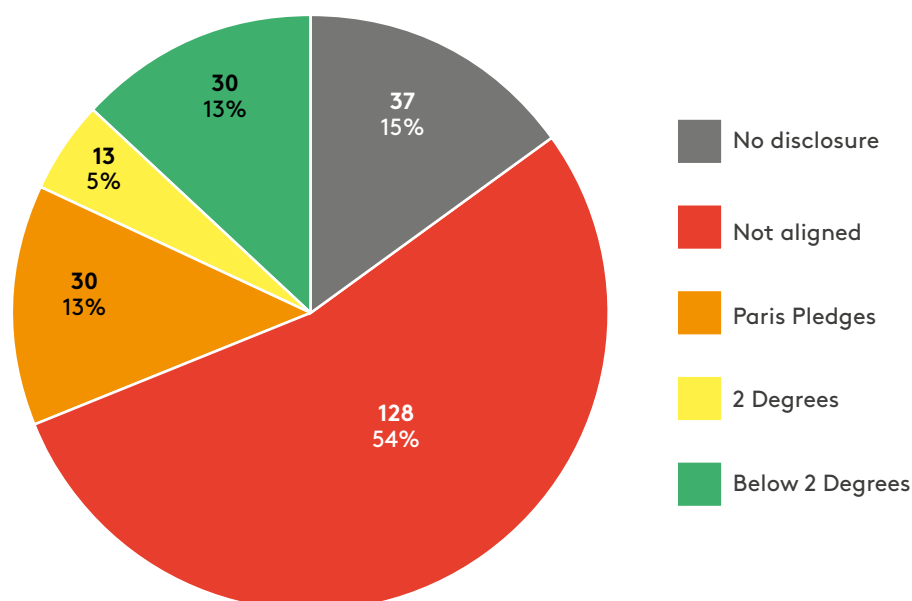
Figure S2 shows the results of our assessment. Only 31 per cent of the 238 companies are, or will be, aligned with the Paris/International Pledges benchmark in 2030/50 – the benchmark that reflects the emissions reductions pledged in the Nationally Determined Contributions (NDCs) offered by countries as part of the Paris Agreement (and also country commitments made through other international forums, such as the International Maritime Organization). The NDC commitments will be insufficient to limit global warming to 2°C or below and will have to be upgraded in 2020 as part of the Paris Agreement process. Just 18 per cent of companies will be aligned with the 2°C benchmark in 2030/50 and just 13 per cent will be aligned with our most ambitious benchmark, 'Below 2 Degrees'. These shares are very similar to a year ago.

New net zero announcements imply the use of offsetting, which presents risks

Over the past year, the race to reach net zero emissions has been heating up, with many countries setting net zero targets and worried investors engaging with companies to do the same. As a result, companies are beginning to act. Twenty-one of the 132 TPI-assessed energy companies have now set a net zero target, although the scope of emissions covered varies and is usually much less than 100 per cent of lifecycle emissions (Scope 1 to 3). Outside the energy sector, companies including EasyJet, HeidelbergCement and ThyssenKrupp have also announced net zero targets.

With net zero targets often comes a reliance, to a greater or lesser extent, on offsetting: that is, purchasing emissions reductions from beyond companies' boundaries. Investors should ask what the costs and risks of offsets are compared with companies' own emissions reductions, and whether or not they will help in achieving the goals of the Paris Agreement. Offset prices vary hugely, but the average price is currently very low, well under what has been recommended in order to deliver the Paris goals. Part of the discrepancy reflects the fact that the market is still small; as demand grows, we would expect prices to do the same. However, the price difference may also partly reflect concerns about the reliability of very cheap offsets in the voluntary market at present.

Figure S2. Carbon Performance alignment with the Paris Agreement benchmarks
(number and percentage of companies)



“Investors should ask what the costs and risks of offsets are compared with companies’ own emissions reductions, and whether or not they will help in achieving the goals of the Paris Agreement”

1 Introduction

This is the 2020 State of Transition Report, the latest in a series of annual stocktakes of the progress being made by the world's largest, most emissions-intensive public companies in the transition to a low-carbon economy.

The analysis draws on the entire database maintained by the Transition Pathway Initiative (TPI), a global initiative, led by asset owners and supported by asset managers, which assesses the progress large corporations are

making on climate change. Established in January 2017, TPI is now supported by 67 investors globally with nearly US\$19 trillion in Assets under Management and Advice (as of February 2020).

The TPI database now covers 332 corporations worldwide (up from 268 in 2019) in 16 business sectors assessed on Management Quality, 238 of them also assessed on Carbon Performance (up from 160 in 2019) (Table 1.1).

Table 1.1. TPI sectoral coverage and Carbon Performance measures

Sector	No. of companies currently assessed on Management Quality	No. of companies currently assessed on Carbon Performance	Carbon Performance measure
Oil and gas	50	50	Carbon intensity of primary energy supply
Electricity utilities	62	59	Carbon intensity of electricity generation
Coal mining*	23	–	–
Automobiles	22	22	New vehicle carbon emissions per kilometre
Airlines	22	22	Carbon emissions per revenue tonne kilometre
Shipping	13	13	Carbon emissions per tonne kilometre
Cement	22	22	Carbon intensity of cementitious product
Steel	24	24	Carbon intensity of crude steel production
Aluminium	15	8	Carbon intensity of aluminium production
Paper	18	18	Carbon intensity of pulp, paper and paperboard production
Chemicals	21	–	–
Oil and gas distribution	6	–	–
Services	6	–	–
Consumer goods	9	–	–
Other basic materials	5	–	–
Other industrials	18	–	–
Total**	332	238	

Notes: *TPI will shortly be publishing a discussion paper on the Carbon Performance of diversified mining companies.¹

**Companies assessed in more than one sector are counted once.

In each sector, TPI selects the largest public companies globally, based on market capitalisation. These companies usually constitute the largest holdings in investor portfolios, as well as usually being the highest emitters of greenhouse gases. We also cover a number of additional companies that are being engaged by the Climate Action 100+ investor initiative. These additional companies are large within their sector, often regional if not global, and have high lifecycle greenhouse gas emissions or are highly dependent on high emitting companies.

The data presented in this report were originally published in the TPI database on its website ('the TPI tool') between mid-2019 and early 2020. The next annual update of the entire TPI database will be carried out in stages over the remainder of 2020.

Overview of methodology^a

Using public disclosures, TPI assesses companies on their Management Quality and Carbon Performance, two quite different elements of how companies are approaching the low-carbon transition. The former focuses on inputs and processes, the latter on outcomes. Together, these assessments are intended to

provide a holistic view of companies' progress, both backward- and forward-looking.

Management Quality

TPI's Management Quality framework is currently based on 19 indicators (up from 17 in the previous iteration), each of which tests if a company has implemented a particular carbon management practice (Yes/No), such as formalising a policy commitment to action on climate change, disclosing its emissions, or setting emissions targets. These 19 indicators (described in detail in Appendix 1) are then used to map companies on to five levels, shown in Box 1.1. Companies need to be assessed as 'Yes' on all of the questions pertaining to a level before they can advance to the next, with the exception of Level 0. Companies that have been assessed as 'Yes' on all Level 4 questions (and thus all questions in the framework) are described as 4* companies. The data underpinning the indicators are provided by FTSE Russell on the basis of companies' public disclosures.

Carbon Performance

TPI's Carbon Performance assessment translates emissions targets made at the international level under the 2015 UN Paris

Box 1.1. TPI levels of Management Quality

- **Level 0 – Unaware of (or not acknowledging) climate change as a business issue.**
- **Level 1 – Acknowledging climate change as a business issue:** The company acknowledges that climate change presents business risks and/or opportunities, and that the company has a responsibility to manage its greenhouse gas emissions. This is the point at which companies adopt a climate change policy.
- **Level 2 – Building capacity:** The company develops its basic capacity, its management systems and its processes, and starts to report on practice and performance.
- **Level 3 – Integrating into operational decision-making:** The company improves its operational practices, assigns senior management or board responsibility for climate change and provides comprehensive disclosures on its carbon practices and performance.
- **Level 4 – Strategic assessment:** The company develops a more strategic and holistic understanding of risks and opportunities related to the low-carbon transition and integrates this into its business strategy decisions.

^a. Further details of our methodology can be found on the TPI website at <https://www.transitionpathwayinitiative.org/tpi/methodology> and in Carbon Performance methodology notes for each sector, available from the Publications menu on the website. The Sectoral Decarbonization Approach (SDA) was created by CDP, WWF and WRI in 2015 (see <https://sciencebasedtargets.org/sda/>).

Agreement on climate change (and through other international forums) into benchmarks against which the performance of individual companies can be compared. We take a sector-by-sector approach, recognising that different sectors of the economy face different challenges arising from the low-carbon transition, including where emissions are concentrated in the value chain and how costly it is to reduce emissions. Table 1.1 lists the Carbon Performance measures used in each sector we cover. These measures are intended to cover the majority of lifecycle emissions, while taking into account issues of data availability.

We benchmark emissions in most sectors against three scenarios, 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 the first set of Nationally Determined Contributions (NDCs).^b These are insufficient to limit global warming to 2°C or below.
- **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.

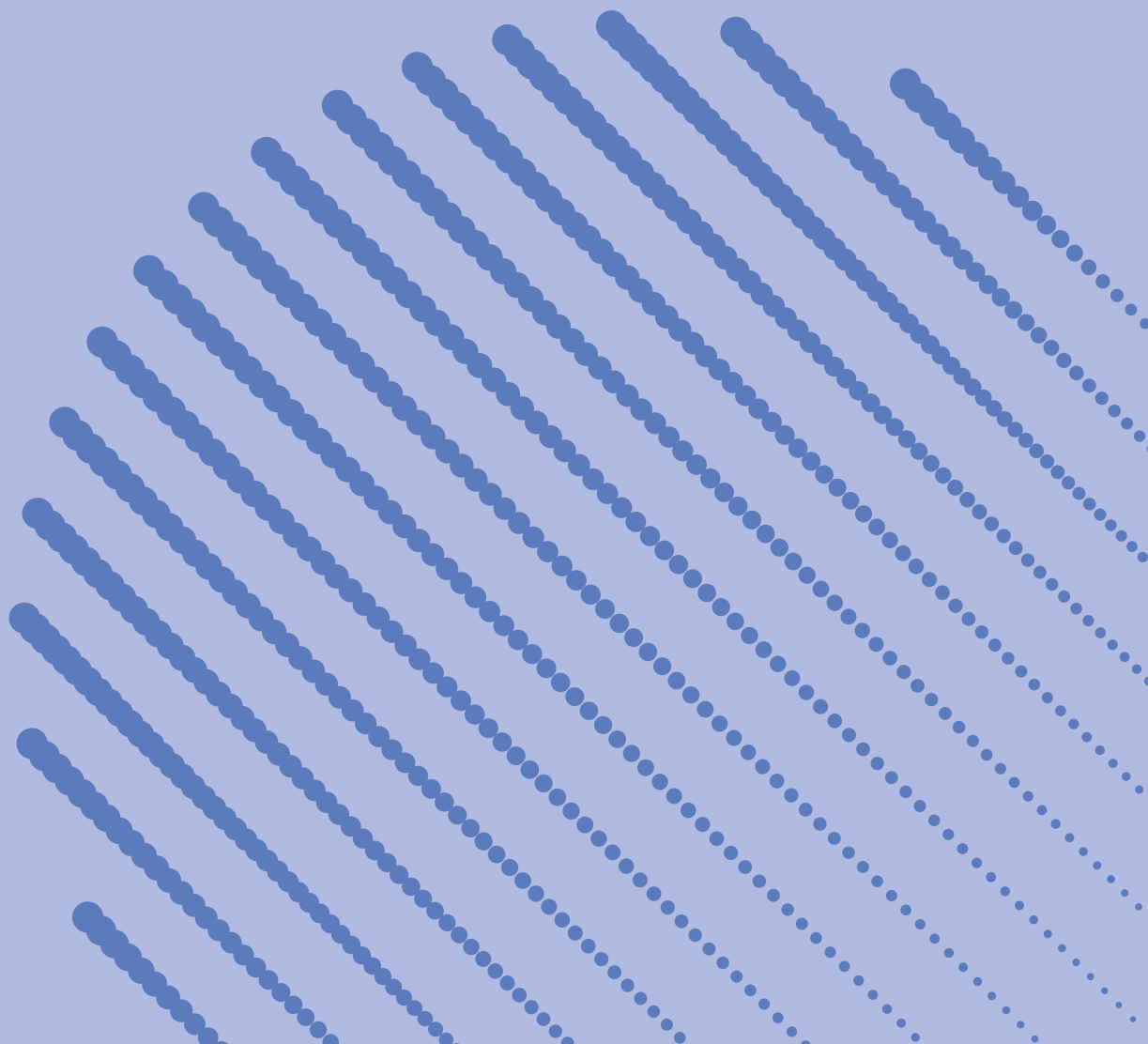


^b. Note that in 2020, all signatories to the Paris Agreement will have to submit new NDCs.

2 State of Transition 2020

In this section we summarise TPI's latest findings on Management Quality and Carbon Performance, and compare them with our findings from previous years.

As well as our familiar methods of analysing companies, we focus this year on regional differences, and on companies' emissions reduction targets, i.e. looking at how prevalent quantitative targets are, how forward-looking they are, and if companies are on track to meet their targets.



Management Quality level

Figure 2.1 shows the number of companies on each of the five TPI Management Quality levels, both overall and broken down into four clusters of sectors: energy (comprising coal mining, electricity, and oil and gas production and distribution), transport (airlines, automobile manufacturing and shipping), industrials/materials (including aluminium, cement, chemicals, paper and steel), and consumer goods/services.

The average Management Quality level of all companies in the TPI database is now 2.7, more than halfway between 'building capacity on climate change' (Level 2) and 'integrating climate change into operational decision-making' (Level 3). A year ago, the average company scored 2.5, so we can see modest progress.

Ten out of the 332 companies assessed (3 per cent) are on Level 0, still unaware of or not acknowledging climate change as a business issue. This is the same share as a year ago. While some companies moved off Level 0 over the past year, new companies have been added to the database that start on Level 0.

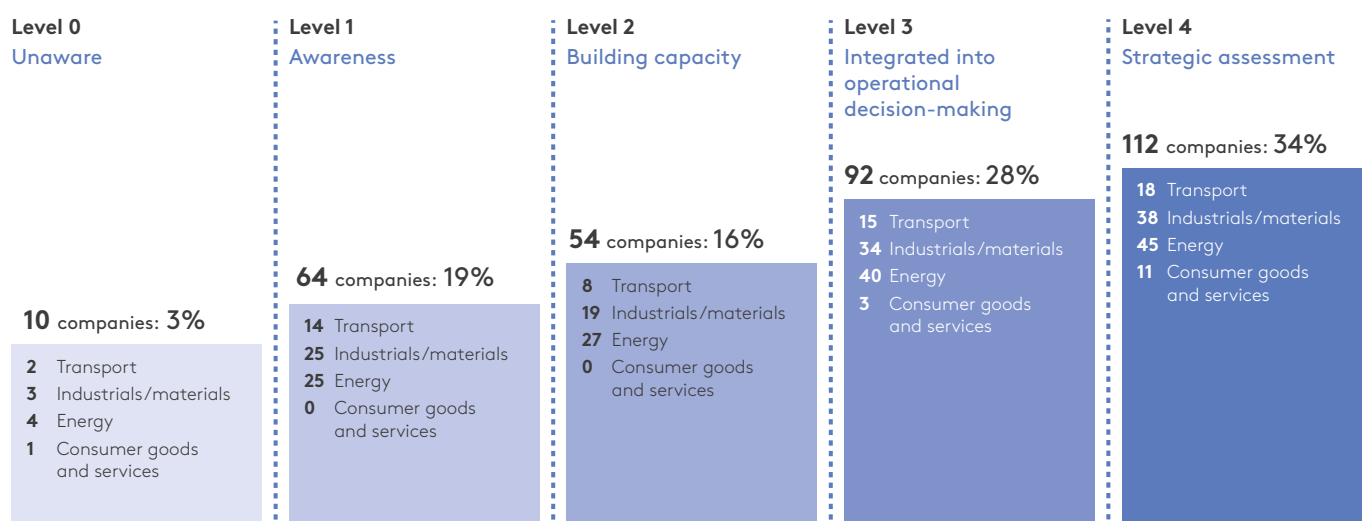
No fewer than 128 companies (38 per cent) are on Levels 0–2. These companies are yet to implement at least one of the following four basic carbon management practices: explicitly recognising climate change as a

relevant business risk or opportunity; having a policy commitment to act on climate change; disclosing operational greenhouse gas emissions (Scope 1 and 2^c); setting a target to reduce emissions (even a qualitative target).

Ninety-two companies are now on Level 3 and 112 are on Level 4, a total of 62 per cent across these two levels, up from 54 per cent a year ago. Reaching Level 3 requires both disclosure of Scope 1 and 2 emissions and setting emissions reduction targets, which can be quantitative or qualitative. The share of Level 4 companies has increased from 28 to 34 per cent. Reaching Level 4 requires the implementation of a wider variety of carbon management practices, including, among others, assigning board responsibility for climate change, disclosing Scope 3 emissions, supporting domestic and international climate policy, and setting *quantified* emissions reduction targets.

Of the core, high-emitting TPI sectors, automobile manufacturers, electricity utilities and chemical companies lead the way on Management Quality, all averaging a score of 3.0 (Figure 2.2). Shipping and coal mining are currently the worst performing sectors. The average score in these two sectors is fractionally below 2, making them the only sectors to fall below this mark.

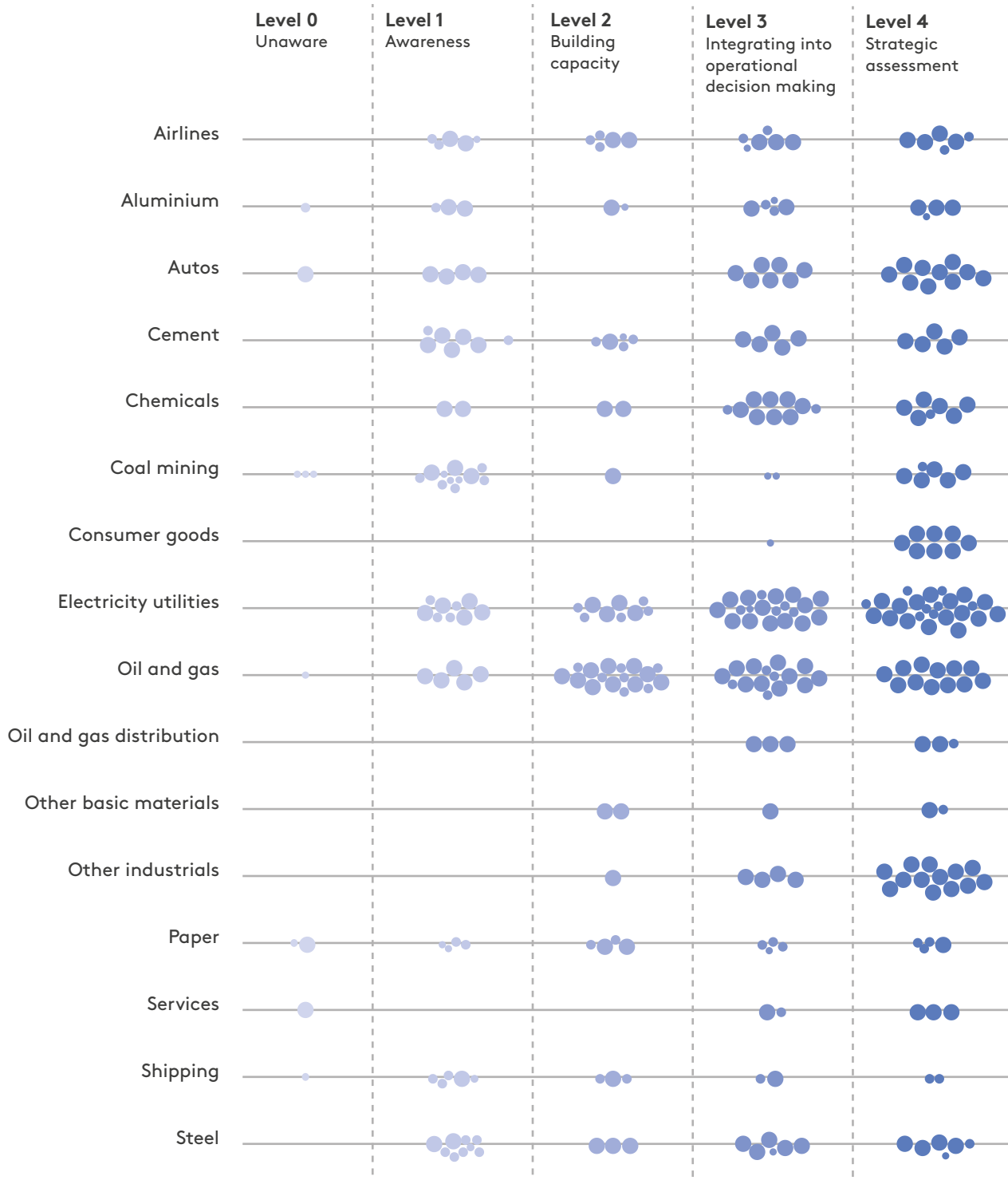
Figure 2.1. Management Quality level of all TPI companies



c. Under the Greenhouse Gas Protocol, "Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions." See https://ghgprotocol.org/sites/default/files/standards_supporting/FAQ.pdf.

Figure 2.2. Management Quality by company and sector

Key: Market capitalisation • Small • Medium • Large



Note: Companies appear in each sector they are assessed in, even if the same company is assessed in multiple sectors

Management Quality: indicator by indicator

Most companies implement basic carbon management practices

Showing little change from a year ago, 97 per cent of companies acknowledge climate change as a significant issue for the business (Question 1^d), 79 per cent recognise climate change as a business risk/opportunity (Q2) and 95 per cent have a policy (or equivalent) commitment to action on climate change (Q3). As such, the vast majority of companies have basic climate governance measures in place (Figure 2.3).

Basic emissions metrics and targets are disclosed more, and more widely, than a year ago. Seventy-six per cent of companies disclose Scope 1 and 2 emissions (Q5). Seventy per cent of companies have set some form of emissions reduction target (qualitative or quantitative; Q4), an improvement of almost 10 percentage points compared with a year ago. Sixty-eight per cent of companies have set a quantitative emissions target, compared with less than 60 per cent of companies a year ago (Q7). Fifty-seven per cent of companies have now set a long-term quantified target to reduce emissions (i.e. of more than five years in duration; Q14), up from 45 per cent a year ago.

Fewer companies disclose the more advanced carbon management practices

Fewer companies are implementing more strategic and long-term carbon management practices. Although 62 per cent of companies have nominated a board member/committee with explicit responsibility for oversight of their climate change policy (Q6), only 41 per cent have incorporated climate change performance in executive remuneration (Q15).

Fifty-six per cent of companies now demonstrate support for domestic and international efforts to mitigate climate change, such as the Paris Agreement (Q10). Despite that, only 40 per cent of companies have incorporated climate change risks and opportunities in their strategy (Q16), only 31

per cent of companies disclose an internal price of carbon (Q18) and only 26 per cent undertake and disclose climate scenario planning (Q17). However, these shares are significantly up on our last assessment.

New indicators on corporate climate lobbying

Corporate climate lobbying is increasingly a focus of investor attention, partly because of a fear that companies may be directly or indirectly engaged in activities that run counter to their publicly stated positions on climate action. Therefore, for this assessment cycle we introduced two new Management Quality indicators:

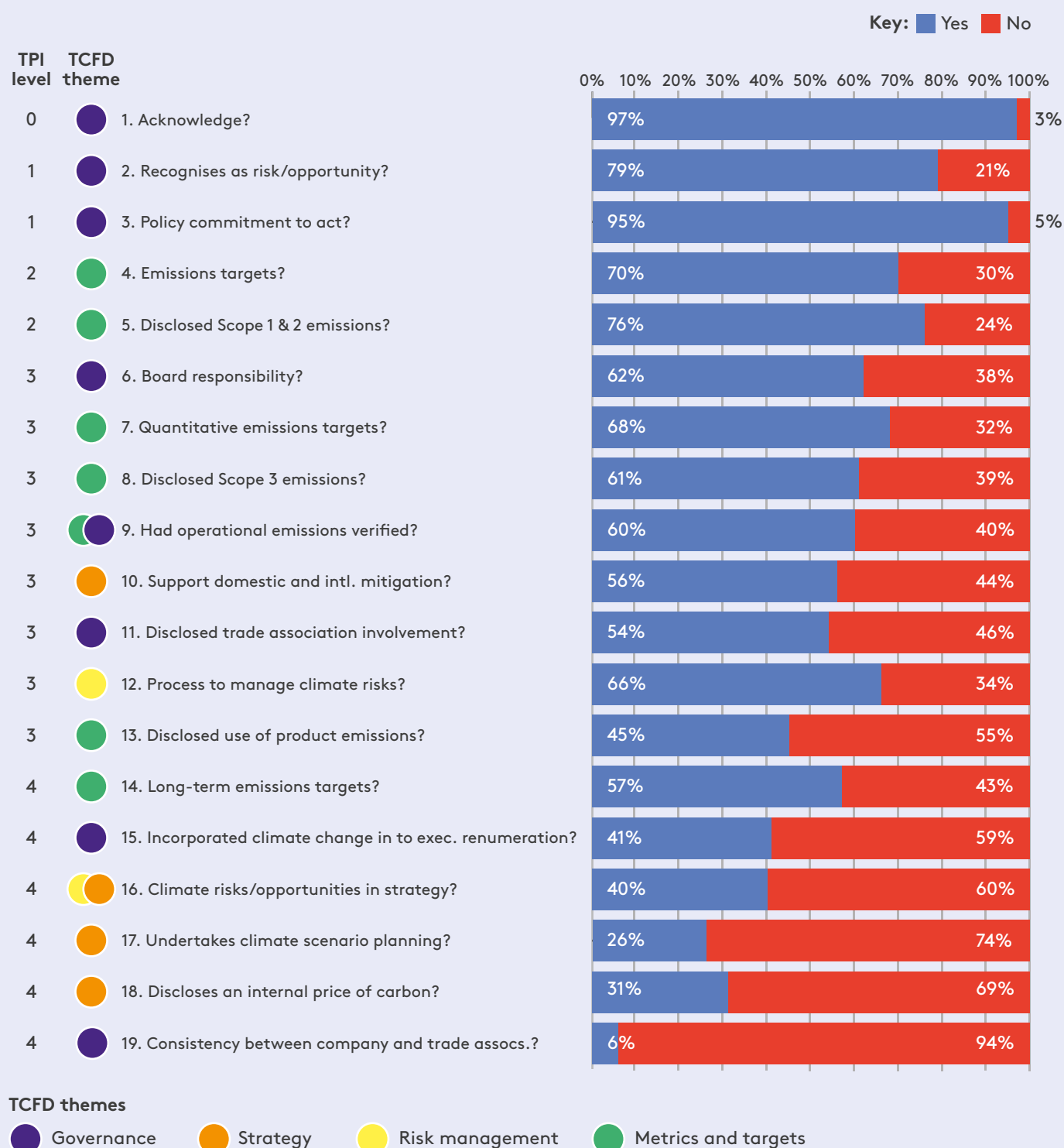
- Q11. Does the company disclose its membership and involvement in trade associations engaged in climate issues? Fifty-four per cent of companies do so.
- Q19. Does the company ensure consistency between its climate change policy and the positions taken by trade associations of which it is a member? Only 6 per cent of companies do so.

Aggregates hide some large differences between sectors

While on aggregate TPI-assessed companies perform well on the basic indicators, some sectors that are key to the transition do not (see Appendix 2). In particular, within the coal mining sector only 39 per cent of companies have explicitly recognised climate change as a relevant business risk/opportunity, and only 35 per cent have set some form of emissions reduction target, lagging far behind other sectors. In shipping, only 15 per cent of companies have nominated a board member/committee with explicit responsibility for oversight of their climate change policy, in contrast to electricity utilities where 76 per cent of companies have done so. More analysis of how individual sectors vary from the TPI average on an indicator-by-indicator basis can be found in our sector reports.

^d. These numbers correspond to the questions used to assess companies on the TPI Management Quality indicators – see Appendix 1.

Figure 2.3. Management Quality, indicator by indicator, mapped against TCFD themes
(% of companies assessed)



Trends in Management Quality

By the end of the last assessment cycle in early 2019, we had researched 272 companies in 14 different sectors. Since then, we have reassessed 268 of these companies and have assessed 64 new companies, including 35 in two new sectors (international shipping, and chemicals), delivering a total of 332 companies in the database as of February 2020. Four companies assessed in the last cycle cannot be reassessed, due to corporate restructuring.

Out of the 268 companies for which we have trend data, 165 (62 per cent) have stayed on the same level as their last assessment, 79 (29 per cent) have moved up at least one level, and 24 (9 per cent) have moved down at least one level (Figure 2.4). Therefore, we can see that progress is being made by some companies but the majority are standing still, and progress is being partly offset by other companies moving backwards.

Only two of the 68 companies that stood on Level 4 in their previous assessment have since attained a 4* rating (E.On and Unilever). Of the eight companies that achieved a 4* rating a year ago, six have lost it, due mainly to our newly introduced assessment of consistency between company climate change policies and the positions taken by trade associations of which companies are a member (Q19). The two companies to hold on to their 4* rating are BHP Billiton and Equinor.

Movement at the top of the Management Quality staircase

Thirty companies (11 per cent) have moved up from Level 3 in their last assessment to Level 4. For 12 of these companies, the move

up is because they have nominated a board member/committee with explicit responsibility for oversight of the company's climate change policy for the first time, moving climate change into the C-suite. Four of the 30 have moved up because they have had their Scope 1 and 2 emissions verified for the first time.

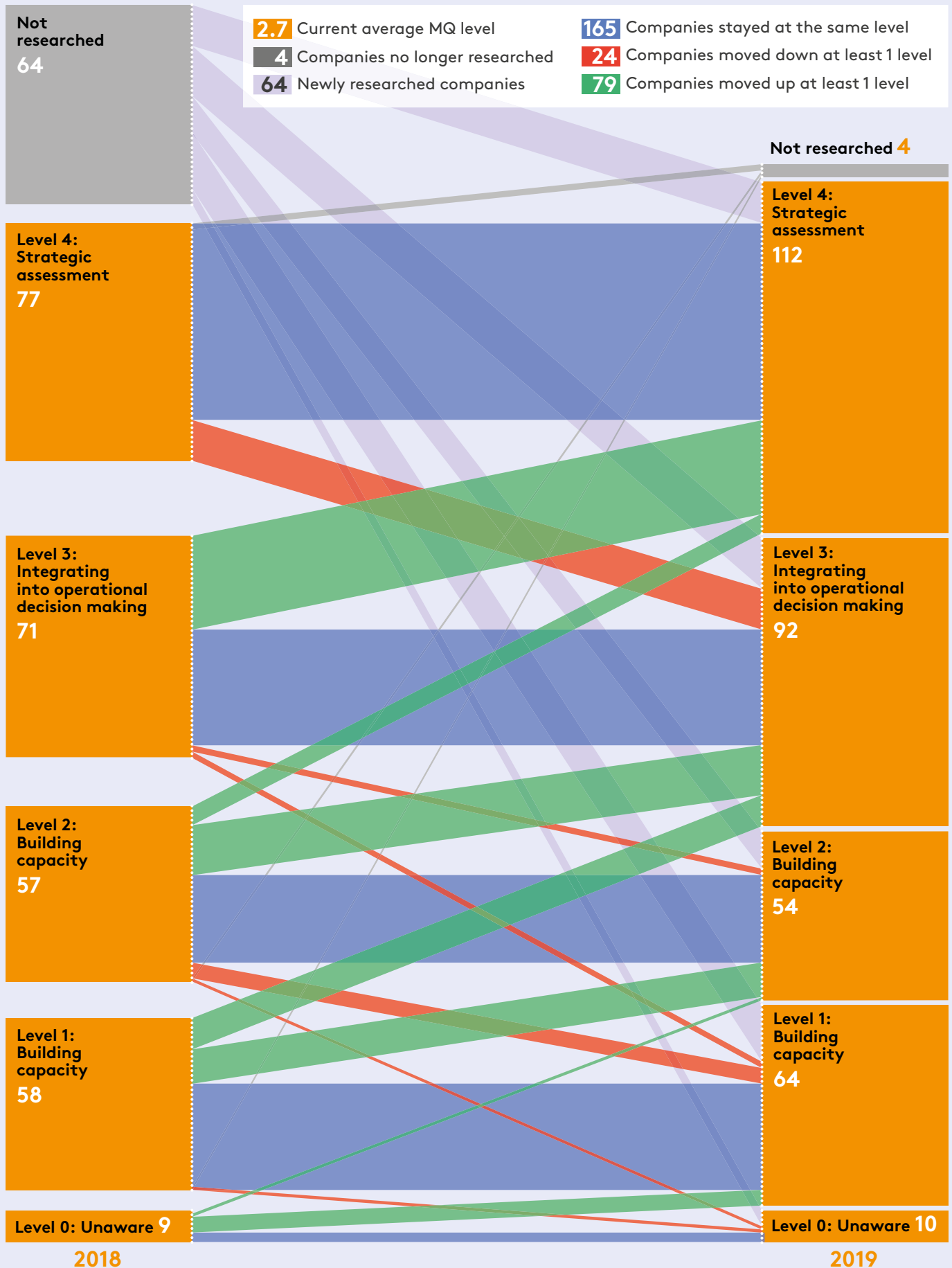
On the other hand, 13 companies (5 per cent) have moved down from Level 4 to 3. This is partly due to these companies disclosing less. Three of these 13 have stopped disclosing support for domestic and international efforts to mitigate climate change. Two have stopped disclosing Scope 3 emissions from use of sold products (applicable to selected companies with large downstream emissions only). For some companies, similarly to the loss of 4* status described above, the move from Level 4 to 3 is due to our introduction of Q13 on the disclosure of membership and involvement in trade associations engaged in climate issues: four companies have moved down on account of failing to satisfy this new indicator.

Movement at the bottom of the staircase

Forty-nine companies (18 per cent) have moved up from Levels 0, 1 or 2 since our last assessment. Thirteen of the 22 companies to have moved beyond Level 2 are in the energy sector, and eight of these are in the oil and gas sector. To move to Level 3 or beyond, a company must set emissions reduction targets, which 21 companies did for the first time in the last assessment cycle, as well as publish information on their Scope 1 and 2 emissions.

“Progress is being made by some companies but the majority are standing still, and progress is being partly offset by other companies moving backwards.”

Figure 2.4. Trends in Management Quality between the previous and current assessments



Carbon Performance: alignment with the Paris Agreement benchmarks

TPI's assessment of companies on their Carbon Performance consists of a quantitative benchmarking of companies' emissions pathways against the international targets and national pledges made as part of the Paris Agreement on climate change. The key question the Carbon Performance assessment seeks to answer is: are companies aligned with the Paris Agreement goals, and, if not, will they be in the future?

Figures 2.5 and 2.6 summarise the TPI Carbon Performance data across all sectors, classifying whether a company is aligned with the Paris Pledges/NDCs benchmark, with a pathway to limit global warming to 2°C, or with a more ambitious pathway to limit global warming to below 2°C.

To summarise these data, we compare a company's emissions intensity in the last year for which we have data with the benchmarks in 2030 (2050 in the oil and gas sector only). The group of companies considered to be aligned by 2030/50 comprises:

- Those with explicit 2030/50 emissions reduction targets that are below the relevant benchmark in 2030/50
- Those with explicit targets expiring before 2030/50, but which would bring them below the 2030/50 benchmark
- Those whose current performance is already below the 2030/50 benchmark

In cases (b) and (c), we therefore assume companies' emissions intensity does not increase after the last year for which we have data.

Across the database we find that companies' emissions intensity is almost always on a declining trend.

Since our last State of Transition Report (published July 2019), we have added 40

Carbon Performance assessments in the oil and gas sector and have performed our first ever Carbon Performance assessment of the shipping sector. We now assess 238 companies on Carbon Performance in nine sectors: airlines; aluminium; autos; cement; electricity; oil and gas; paper; shipping; and steel. This is up from 160 companies in eight sectors in July 2019. We will also be publishing a discussion paper¹ on how to assess Carbon Performance in the diversified mining sector later in 2020.

Our latest assessment shows that in 2030/50:

- 73 companies (31 per cent) are aligned with the least ambitious Paris/International Pledges benchmark. This means they have either already achieved their 2030/50 Paris/International Pledges benchmark emissions intensity, or they will do so by 2030/50 based on targets they have set. (Recall that the Paris Pledges/NDCs benchmark are insufficient to limit global warming to 2°C or below.)
- 43 companies (18 per cent) are aligned with the 2°C benchmark.^e
- 30 companies (13 per cent) are aligned with the most ambitious Below 2°C benchmark.^f
- 128 companies (54 per cent) are not aligned with any of the benchmarks.
- 37 companies (15 per cent) do not provide sufficient disclosure for TPI to calculate their Carbon Performance.

The share of companies aligned with each of the benchmarks is very similar to a year ago, when 12 per cent were assessed as being aligned with the most ambitious Below 2 Degrees benchmark, 16 per cent were assessed as being aligned with the 2 Degrees benchmark, and 30 per cent were assessed

^e. In the airline and auto sectors, this benchmark corresponds with '2 Degrees (Shift-Improve)'. This assumes that transportation will be decarbonised through a combination of shifting passengers to lower-carbon modes of transport alongside increased fuel efficient and low-carbon technology.

^f. In the airline and auto sectors, this benchmark corresponds with '2 Degrees (High Efficiency)'. This assumes there is no shift in passengers to lower-carbon modes of transport; instead all emissions reductions are delivered through increased fuel efficiency and low-carbon technology.

Figure 2.5. Carbon Performance alignment with the Paris Agreement benchmarks (number and percentage of companies)

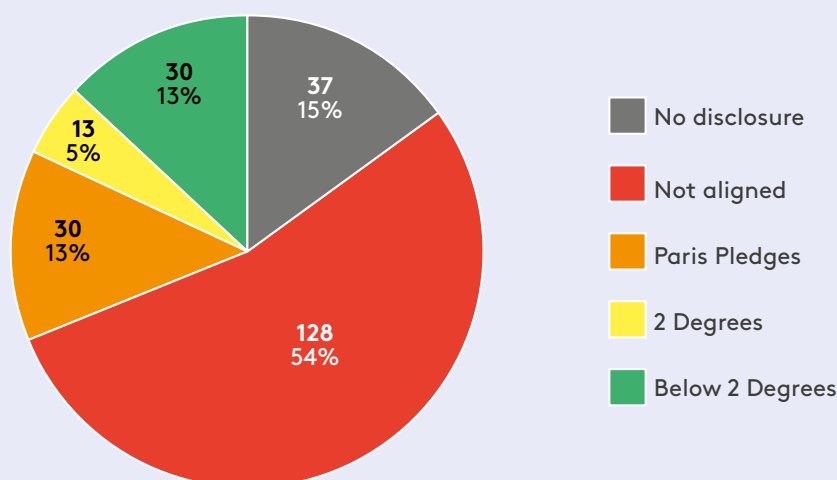
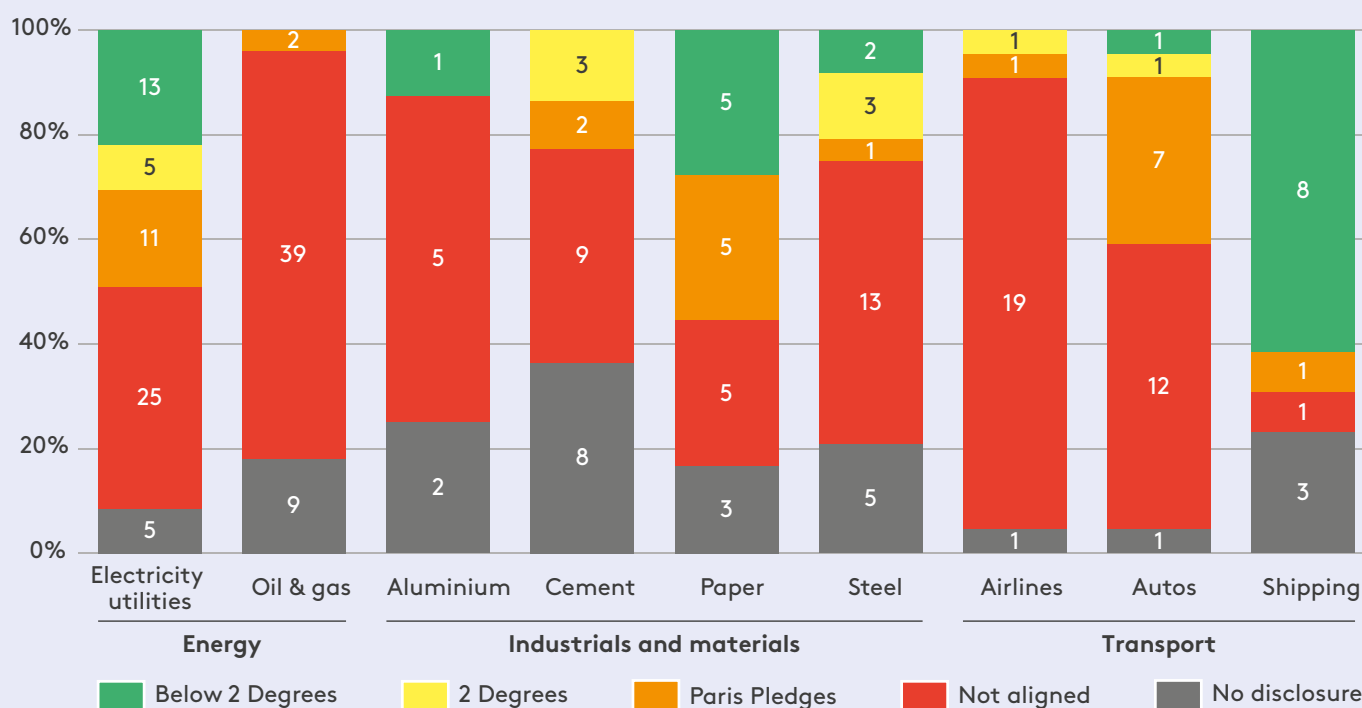


Figure 2.6. Carbon Performance alignment with the Paris Agreement benchmarks by sector and cluster (number and percentage of companies)



as being aligned with the least ambitious Paris/International Pledges benchmark.

When disaggregating our results by sector, we see alignment with the Paris goals most frequently in the shipping sector, followed in order by paper, electricity utilities and autos (Figure 2.6).

The shipping sector stands out from its peers. Its high rate of alignment can be attributed to the fact that the largest publicly owned shipping companies operate relatively young fleets of large, fuel-efficient vessels (see Section

3, our sector focus on shipping for more details). Such companies are unlikely to be representative of the wider sector, however.

In electricity, 49 per cent of utilities assessed are aligned with the Paris Pledges benchmark, just under half of which are aligned with the Below 2 Degrees benchmark. This partly reflects benchmarking of European electricity utilities, which typically have a low emissions intensity and ambitious targets under the EU's regulatory regime, with global goals. Outside the EU, the picture in the electricity sector is less positive.

Management Quality and Carbon Performance by geography

European companies lead the way on Management Quality while Chinese companies lag behind

The bar charts in Figure 2.7 give a breakdown of Management Quality score by region using individual country data (that is, from the country in which the company is listed).

The average Management Quality score of European companies across all assessed sectors is 3.4 and 63 per cent of European companies are on Level 4. There are no Level 0 companies listed in Europe. The average Australian company posts a Management Quality score of 3.0, while North American companies lag slightly behind, averaging 2.9. While the share of companies on Level 1 is similar in Europe and North America, Europe has a significantly larger share of Level 3 and 4 companies.

The average Chinese company across all assessed sectors has a Management Quality score of just 1.1. A particularly large share of Chinese companies sits on Level 1, just at the point of acknowledging climate change as a business issue for the first time.

European companies also lead the way on Carbon Performance, driven in part by a tough regulatory regime

The share of companies aligned with the Paris Agreement benchmarks is higher in Europe than it is in other geographies (see the pie charts in Figure 2.7). Fifty-eight per cent of European companies are aligned with the Paris Pledges/NDCs and 36 per cent are aligned with 2 Degrees or Below 2 Degrees. This relatively large share of companies in alignment with the benchmarks is partly due to the relatively tough regulatory regime for carbon emissions in Europe compared with other regions; this has driven emissions intensity improvements in electricity and autos, for instance. Forty per cent of Japanese companies are aligned with the Paris Pledges/NDCs benchmark, although only 10 per cent are aligned with 2 Degrees or Below 2 Degrees. Twenty-six per cent of companies in North America are aligned with the Paris Pledges/NDCs benchmark and 16 per cent are aligned with 2 Degrees or Below 2 Degrees. Disclosure of emissions is particularly lacking in China and 'Other Asia', which includes India.

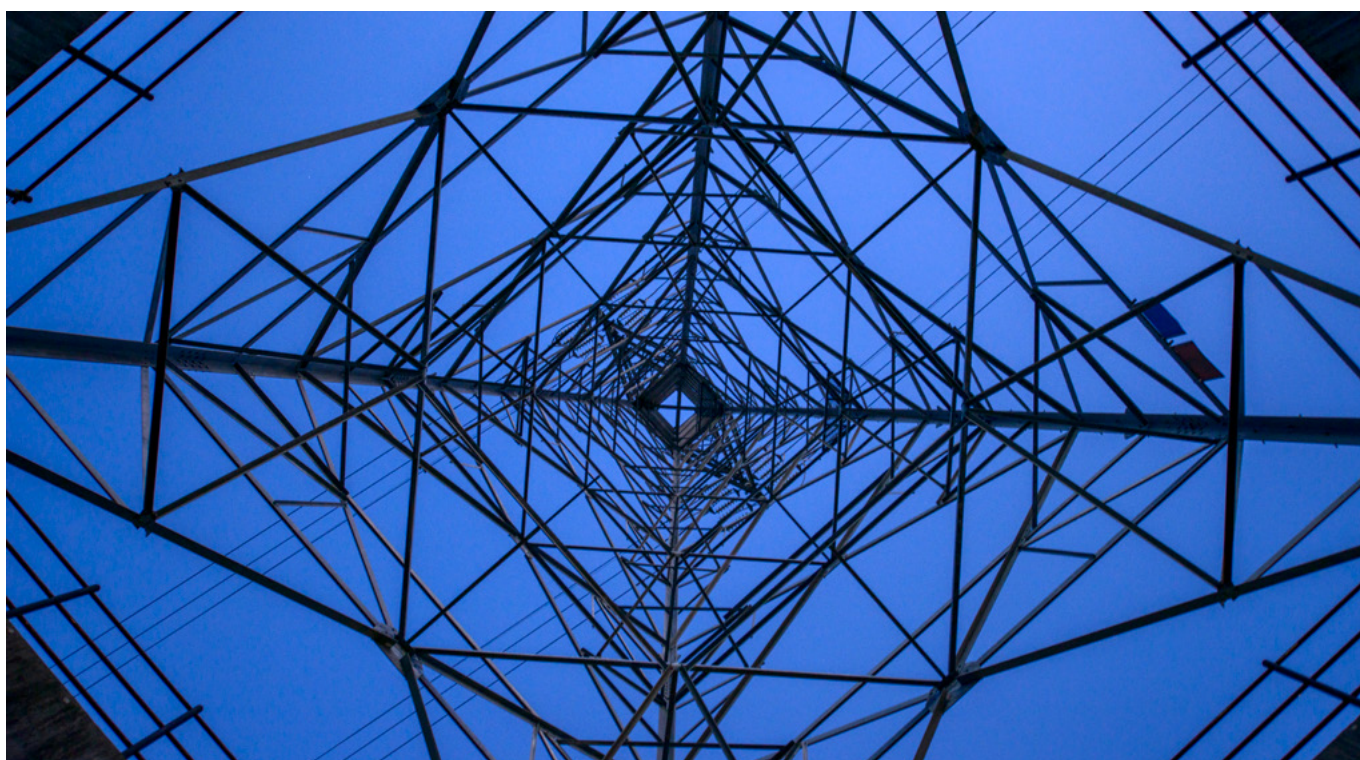
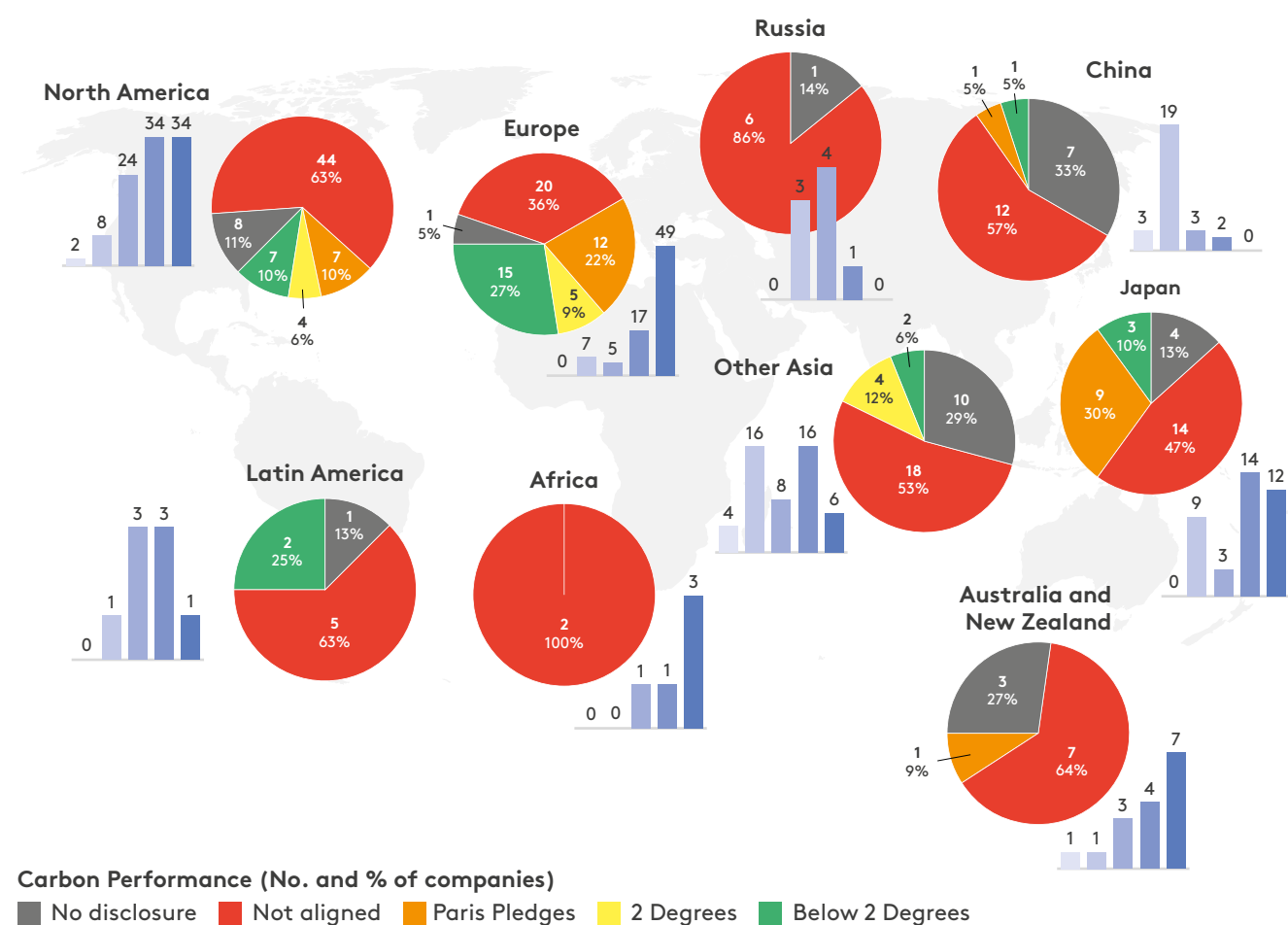


Figure 2.7. Carbon Performance alignment with the Paris Agreement benchmarks and Management Quality by geography



Note: We have clustered the companies according to the following breakdown: North America (102 companies); Europe (78); Russia (8); Japan (38); China (27); Other Asia (50); Latin America (8); Australia and New Zealand (16); Africa (5).

Corporate emissions reduction targets

A key ingredient in TPI's Carbon Performance assessment is companies' quantified emissions reduction targets. This section focuses on these targets in more detail.

How many companies have set quantitative targets?

Using our Management Quality data, we find that 67 per cent of the 238 companies we assess on Carbon Performance have set a quantitative emissions reduction target, while 55 per cent have set a long-term quantitative target (of more than five years in duration).

How far forward-looking are company targets?

To help answer this question, we calculate the average target year for all TPI-assessed companies for which we could calculate Carbon Performance (Figure 2.8). In 2019, the average target year across all companies was 2027. At the sector level, electricity utilities are the most forward-looking, with an average target year of 2033, while airlines are the least forward-looking, with an average target year of 2020.^g Among the cluster of industrial/materials sectors, the average target year ranges from 2024 (in the aluminium sector) to 2026 (steel). Among the cluster of transport sectors there is more variance, with the average target year ranging from 2020 in airlines to 2030 in shipping. Despite the significance of emissions from the oil and gas industry to climate change and the need to set out a long-term pathway to decarbonisation, the average target year in oil and gas is 2023.

Figure 2.8 also shows trends over the last three TPI assessment cycles in the average target year. We would expect the average target year to advance from one assessment cycle to the next as a matter of course. In that sense the 'run rate' is a one-year increase in the average target year, each year we reassess a sector. At the sector level^h the average target year

has advanced for all sectors except airlines. We see a particularly large jump in steel, where the average target year has recently moved out from 2018 to 2026, reflecting a number of leading steel makers setting long-term targets for the first time.

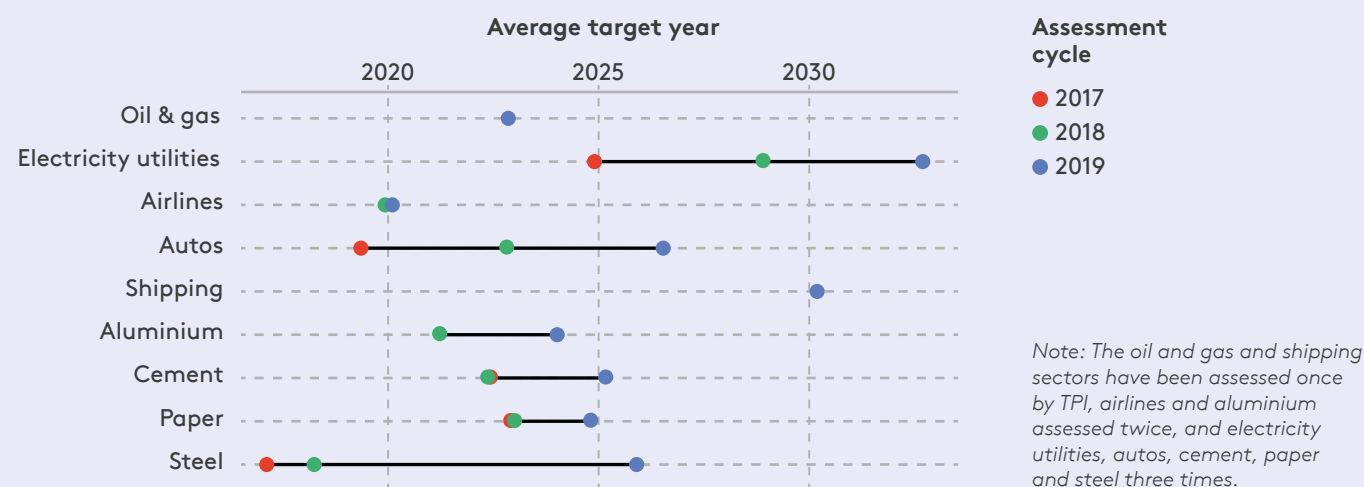
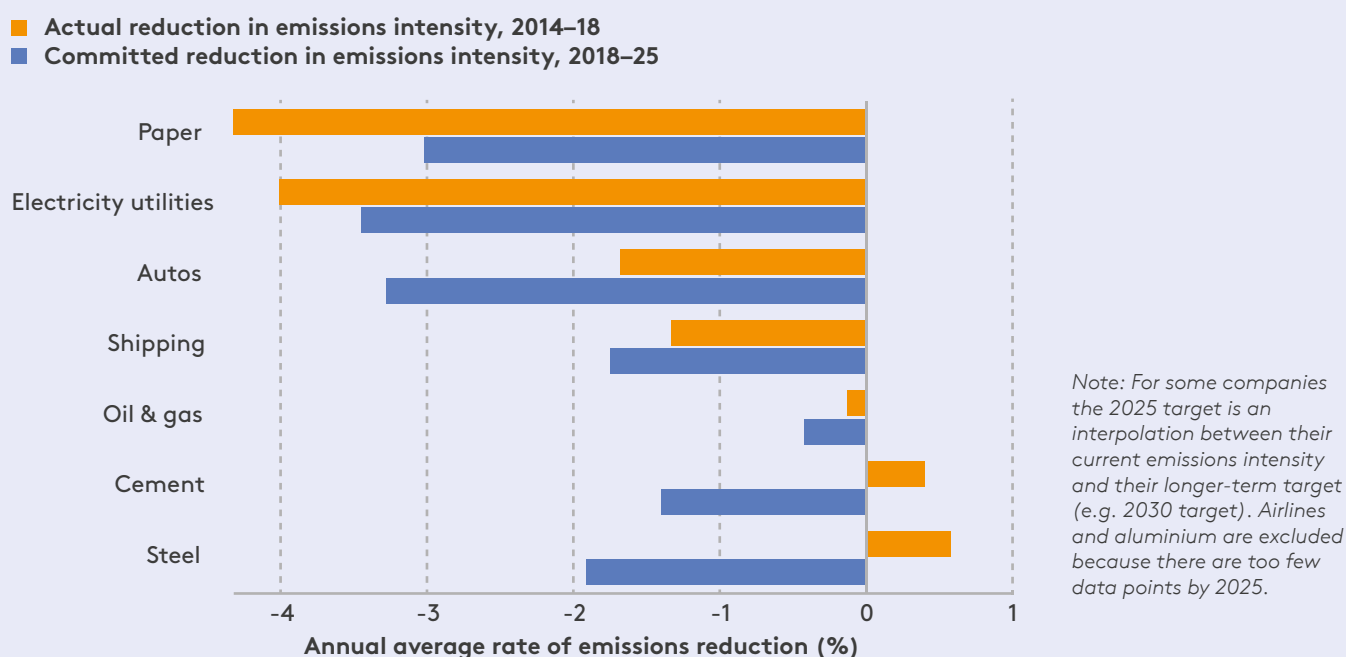
Are companies on track to hit their targets?

To help answer this question, we compare company targets with recent trends in their historical emissions. We do this in Figure 2.9 for all companies assessed on Carbon Performance that have also set a long-term target extending to at least 2025. To make the comparison, we first measure by how much these companies reduced their emissions intensity between 2014 and 2018. We then calculate how much further they must reduce their emissions intensity to hit their targets.

The average annual reduction rate for all companies with a 2025 target was 2.23 per cent between 2014 and 2018, while the reduction rate for all companies with historical data was 1.91 per cent, meaning that companies with targets have reduced emissions relatively more than companies without targets. Compared with other sectors, paper producers and electricity utilities reduced their emissions intensity the most between 2014 and 2018. In both of these sectors, continuing on the same pathway would more than deliver companies' 2025 targets. In autos and shipping, on average companies reduced their emissions intensity between 2014 and 2018, but delivering on long-term targets will require an increase in the annual rate of reduction. Steel, cement and oil and gas producers did not reduce their emissions intensity between 2014 and 2018. Steel and cement producers' intensity marginally increased, in fact. Hitting long-term targets will require these sectors to significantly step up their efforts.

^g. We deem a number of company targets in the airline sector ineligible for Carbon Performance assessment because they target net emissions reductions and are insufficiently clear on how much the airlines in question will reduce their own, gross, emissions. See Dietz et al. (2019).²

^h. Comparing how the average target year changes across all sectors is not meaningful here as we assess more sectors in 2019 than in 2017 and 2018.

Figure 2.8. Average year of company targets by sector over the last three TPI assessment cycles**Figure 2.9.** Historical rates of reduction of emissions intensity ('actual reduction') compared with required rates of reduction to meet companies' own emission reduction commitments extending to 2025 ('committed reduction')

Are company targets aligned with the Paris Agreement goals?

Comparing companies' own targeted reduction rates with the rates they accomplished historically tells us something about companies' ambitions but it does not tell us whether or not the targets will bring companies into alignment with the

Paris Agreement goals. This is the purpose of our Carbon Performance assessment. Of the 89 assessed companies with a target extending to 2025 or beyond, 51 (57 per cent) are projected to be aligned with the Paris Pledges. Only 33 companies (37 per cent) will be aligned with 2 Degrees and only 28 (31 per cent) will be aligned with Below 2 Degrees.

3 Sector focus: Shipping

In terms of carbon emissions intensity, the largest publicly owned international shipping companies have surprisingly clean operations. Sixty-one per cent are already aligned with the Below 2 Degrees benchmark. However, these companies are unlikely to be representative of the sector as a whole.

TPI published its first assessment of international shipping in December 2019, showing that the sector makes a significant and growing contribution to climate change – currently accounting for over 2 per cent of global CO₂ emissions.³ Like aviation, shipping is considered to be one of the sectors in which emissions abatement is harder to achieve than in others, mainly due to the high cost of and lack of availability of low-carbon technologies, but also due to the fragmented structure of the industry.⁴

We assessed the Management Quality and Carbon Performance of the international freight shipping sector's 13 largest publicly owned companies, selected on the basis of market capitalisation.

Management Quality

Overall, the international shipping sector performs poorly on Management Quality (Figure 3.1). The average Management Quality score of the companies assessed is 1.9, putting the average company just below Level 2, building capacity. This is lower than TPI's other transport sectors: autos and airlines have average scores of 3 and 2.6 respectively. In fact, international shipping, along with coal mining, is the joint-worst performing sector on Management Quality in the TPI database at present.

Nearly half of the shipping companies we assessed fail to explicitly recognise the business risks and opportunities presented by climate change, and almost 40 per cent fail to disclose their Scope 1 and 2 emissions. Only 15 per cent of companies have allocated board responsibility for climate change.

Carbon Performance

In contrast to Management Quality, the Carbon Performance of the largest publicly owned companies in international shipping is relatively good, with the majority already aligned with our most ambitious Below 2 Degrees benchmark for 2030 (Figure 3.2). In fact, five of the 13 companies have set long-term targets stretching to 2050, most of which are aligned with – or are more ambitious than – the International Maritime Organization (IMO) industry target for that date. In addition, one company, A.P. Moller-Maersk, has set a net zero CO₂ emissions target for 2050.¹

The level of alignment with the TPI benchmarks is significantly higher in shipping than in any other TPI sector. It is important to note, however, that this strong Carbon Performance is unlikely to be representative of the shipping sector as a whole, for two reasons:

1. *Company size* – Our research focuses on the largest publicly owned companies engaged in international freight shipping. Large companies tend to operate newer, larger vessels, which have lower emissions intensities than smaller vessels. This is particularly true of container shipping: the emissions intensity of the largest containerships is less than half that of the smallest containerships.⁵
2. *Fleet composition* – The emissions intensity of a shipping company is determined not only by its emission mitigation efforts, but also by the composition of its fleet. For example, this is because emissions intensity varies widely by vessel type.

A final point to note is that there are well recognised data quality issues in the shipping sector, at both an industry and a company level. We would expect the quality and consistency of emissions data to improve in the future, particularly with the introduction of the IMO's new mandatory Data Collection System and the expected publication of the Fourth IMO Greenhouse Gas Study later in 2020.

¹ The company states that its aim is to achieve net zero emissions from its own operations, through the use of alternative fuels, rather than by purchasing carbon offsets from other sectors. This contrasts with the net zero targets set by several airlines, which are expected to be met in part through carbon offsetting.



Figure 3.1. Management Quality level of international shipping companies

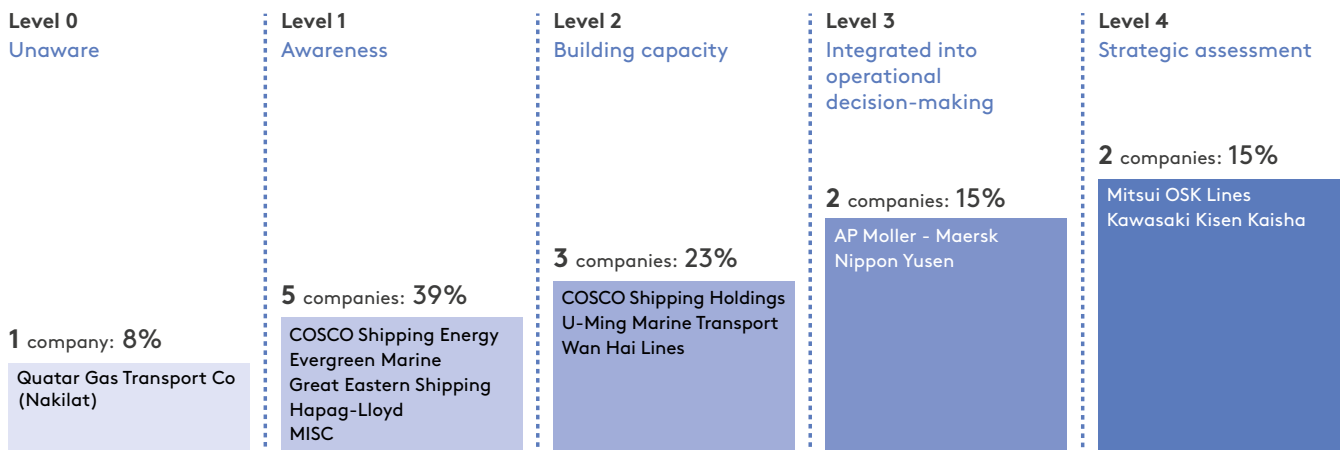
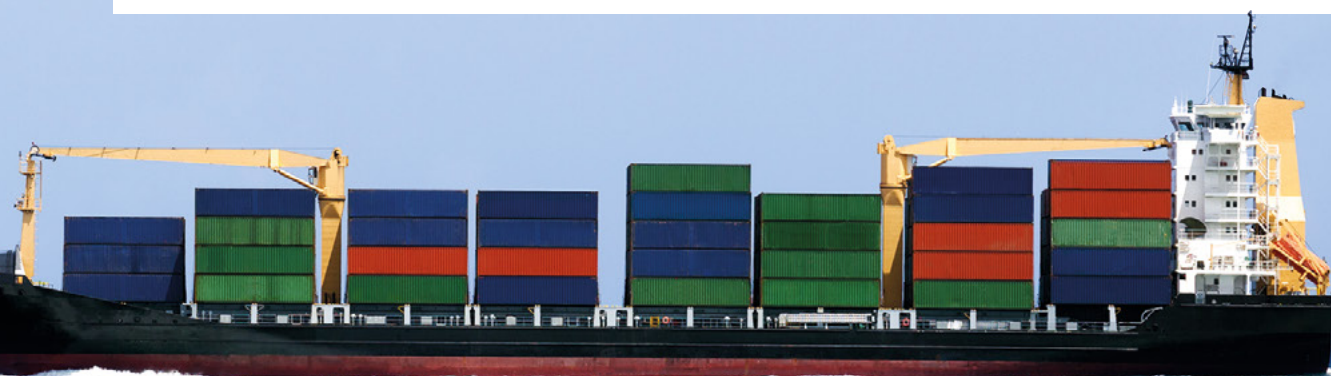
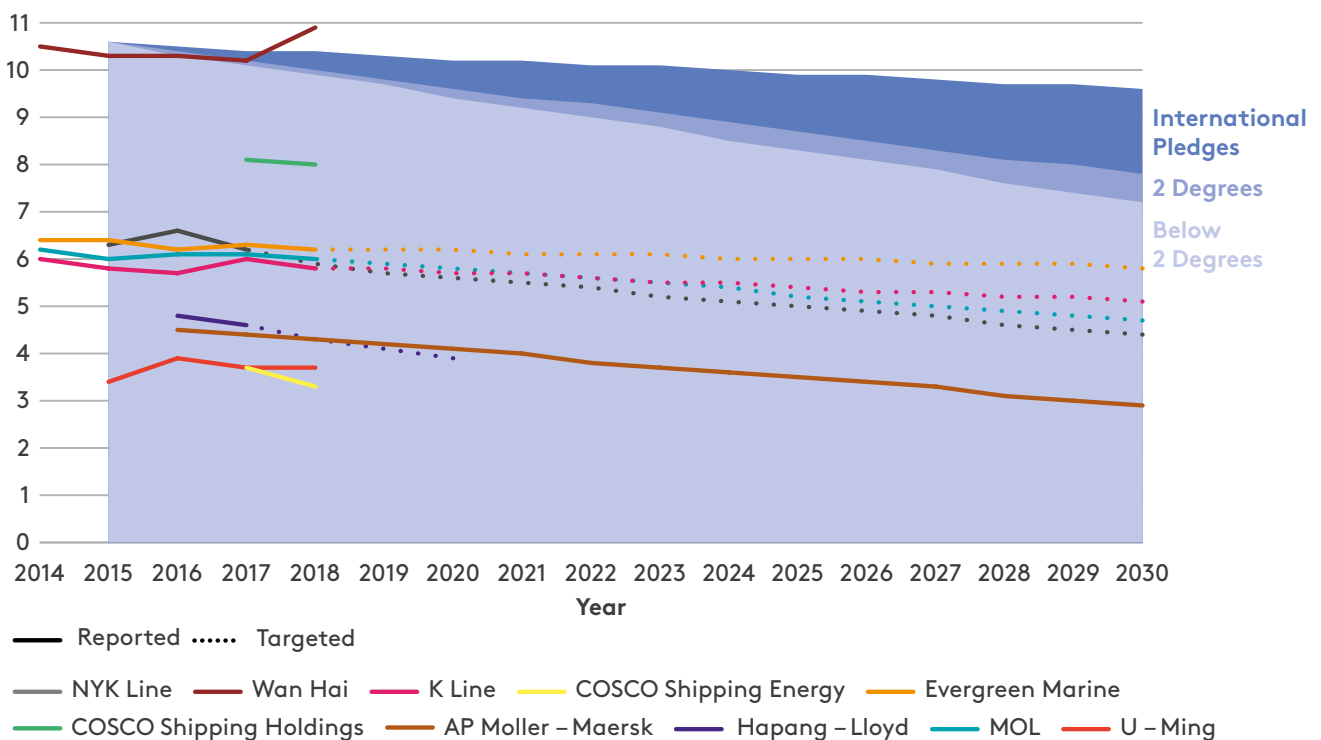


Figure 3.2. Alignment of shipping companies' Carbon Performance with Paris benchmarks, 2014–30



4 Emerging issues: corporate net zero targets and offsetting

Climate science tells us that net CO₂ emissions must fall to zero if global temperatures are to stop increasing. According to the Intergovernmental Panel on Climate Change (IPCC), limiting global warming to 1.5°C requires CO₂ emissions to reach net zero as early as 2050, if not before.

Corporate net zero targets

Over the last year, the race to net zero has been heating up, with many countries setting net zero targets and worried investors engaging with companies to do the same. As a result, companies are beginning to act. In August 2019, TPI collaborated with the Oxford Martin School to research the net zero positions of the 132 companies in the TPI-assessed energy sector⁶. We found 13 companies with net zero targets, although the scope of company emissions covered by these targets varied and was usually much less than 100 per cent of lifecycle emissions (Scope 1 to 3).

We have updated that assessment for this State of Transition Report and now find 21 energy companies with net zero targets, an increase of over 60 per cent in just six months (see Figure 4.1)^j. Three of these companies are in coal mining, four are oil and gas producers, and the remaining 14 are in the electricity sector. Examples of companies outside the energy sector with net zero targets include the airlines EasyJet, IAG and Qantas, shipping company A.P. Moller-Maersk, auto manufacturer Volkswagen, aluminium company Norsk Hydro, cement company HeidelbergCement, and steel makers ThyssenKrupp and SSAB.

The role of offsetting in delivering net zero targets

With net zero targets often comes a reliance, to a greater or lesser extent, on offsetting: that is, purchasing emissions reductions from beyond companies' boundaries (see Figure 4.2). Several of the energy companies we surveyed explicitly

Figure 4.1. Energy companies with net-zero targets (February 2020*)



j. One company, Exxaro Resources, has withdrawn its net zero target from its public disclosures.

mention offsetting as part of their strategy to meet their net zero targets. Airlines are planning to make substantial use of offsetting to meet their targets too, whether they be net zero targets, or targets for positive emissions.

Investors might usefully ask what the costs and risks of offsets are compared to companies' own emissions reductions, and whether or not they will help in achieving the goals of the Paris Agreement.

The voluntary carbon market

Currently companies can purchase offsets from the voluntary carbon market, as well as in compliance markets such as the EU Emissions Trading System. The voluntary carbon market is surging as a consequence of these new sources of demand. In 2018 it was worth almost US\$300 million, nearly double the market's 2017 value.⁸

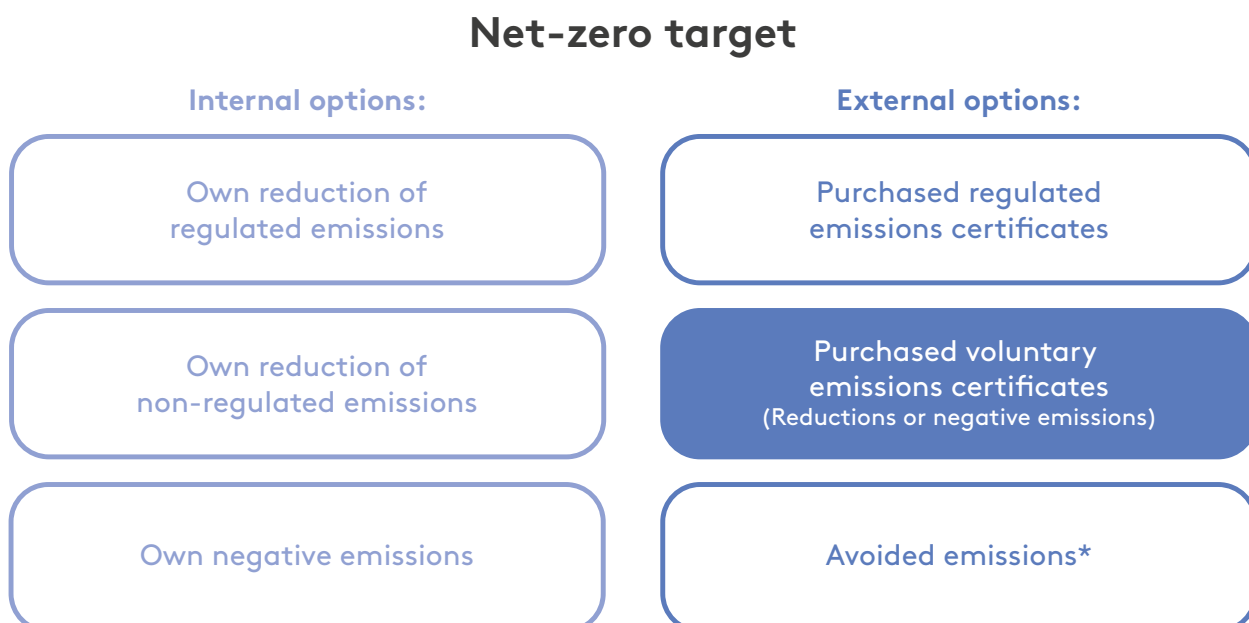
Voluntariness comes with challenges. While compliance markets follow enforceable rules, offsets provided in voluntary markets come in many shapes and sizes, some of which have proven unreliable, not providing demonstrable emissions reductions.⁹ Offset prices can range from under \$0.10 to just over \$70 per tonne of CO₂ equivalent (tCO₂e).¹⁰ A lot of the price difference is driven by project type (e.g. forestry versus renewables), location, associated co-benefits, and order size (large orders typically demand big discounts). The

average price in 2018 was around \$3.50/tCO₂e. As a point of comparison, the price of an allowance in the EU ETS has recently been around \$27/tCO₂e, while the High-Level Commission on Carbon Prices says current prices should be \$40–80/tCO₂e worldwide in order to deliver the Paris Agreement goals.¹¹ Part of the discrepancy reflects the fact that the size of the market remains small. As demand grows, we would expect prices to do the same. But the difference may also partly reflect concerns about the reliability of very cheap offsets in the voluntary market at present.

Offset risks

In principle, offsetting is a cost-effective strategy to meet the Paris Agreement goals. Without it, the overall cost will be much higher. However, net zero strategies relying heavily on offsets might come with unanticipated risks. There is offset price risk, especially if many firms simultaneously believe they will be able to purchase large quantities of cheap offsets in the market. Something has to give. Furthermore, substantial growth in the market may lead to more regulation, reducing supply and increasing transaction costs, which could push prices up further. Lastly, companies knowingly or unknowingly buying low-quality offsets expose themselves to reputational risk. Investors should monitor companies' offset strategies closely and demand greater disclosure.

Figure 4.2. Companies' options to reach net zero*



*Note: Avoided emissions are defined as "emission reductions that occur outside of a product's life cycle or value chain, but as a result of the use of that product".⁷

5 Key sectoral opportunities for improvement

We have identified what we think should be the leading engagement priorities for investors in each of our assessed sectors, based on our analysis of Management Quality and Carbon Performance. These are shown in Figure 5.1.

Figure 5.1. Key sectoral engagement recommendations



6 Implications for investors

In reflecting on the data and the analysis presented in our 2019 State of Transition Report, we argued that investors should:

- Require companies to (a) publish a policy commitment to act on climate change, (b) publish their Scope 1, 2 and 3 greenhouse gas emissions, in line with the relevant TPI performance metrics, on an annual basis, and (c) set short- and long-term emissions reduction targets, again using the relevant TPI performance metrics.
- Encourage companies to take a strategic approach to climate change, for instance by disclosing the internal carbon price that informs their investment and capital expenditure decisions, and publishing the results of the climate scenario analysis that they have conducted.
- Encourage companies that are not expected to be aligned with a 2°C benchmark by 2030 to set targets that would align, and to publish action plans explaining how they intend to deliver on these targets.

This 2020 State of Transition report tells us that there has been progress. For those companies that have been covered by the TPI for more than one research cycle we see that:

- The number of companies that report on their operational greenhouse gas emissions in the last three years has increased from 74 to 76 per cent.
- The number of companies that report on their short- and long-term emissions reduction targets using the relevant TPI sector Carbon Performance metric has increased from 51 to 55 per cent.
- The number of companies disclosing the internal carbon price that informs their investment and capital expenditure decisions has almost doubled from 16 to 31 per cent.
- The number of companies that have conducted and published the results

of climate scenario analysis has increased from 14 to 26 per cent.

- The number of companies that have set quantified emissions reductions targets has increased from 59 to 68 per cent.

While we acknowledge the progress that has been made and the contribution that has been made by investors through initiatives such as Climate Action 100+, it is clear that there is a long way to go. Thirty-eight per cent of the companies covered are on levels 0–2 and have yet to do more than the bare minimum – adopt a climate change policy, report on Scope 1 and 2 emissions, set any sort of target to reduce their emissions – that would be expected of a company in a high impact sector. Of equal concern, just 31 per cent of the companies covered by our research are or will be aligned with the Paris Agreement goals by 2030/50, and just 18 per cent will be aligned with a 2°C benchmark by this time.

Why investors will be key actors in catalysing the low-carbon transition

The scale of the challenge is clear but so too is the fact that 2019 marked a step change in investor effort on climate change. There are three reasons to think that investors can and will be increasingly important in catalysing the transition to a low-carbon economy.

First, through initiatives such as Climate Action 100+ (CA100+), investors have developed a model of collective action that drives ambitious change in company practice and performance. In addition to the general trends presented in this report, we have seen companies such as Repsol and Maersk committed to net zero carbon targets by 2050 and Shell agreeing a joint position with investors to establish an engagement framework that supports the transition of its business to substantially reduce its emissions intensity.

Second, we have evidence that it is economically feasible for companies to be aligned with the goals of keeping global temperature rise below 2 or even 1.5°C above pre-industrial levels. As noted above, our research shows that 18 per cent of large publicly traded companies are now expected to be at least aligned with, if not go beyond, a 2°C pathway by 2030/50. Movement is especially pronounced in the autos sector. While in July 2019 29 per cent of companies had a target in line with the Paris/International pledges benchmarks, in February 2020 it was 41 per cent.

Third, investors are making strong commitments to action. At the UN Climate Summit in December 2019 (COP 25), the Principles for Responsible Investment and the UN Environment Programme Finance Initiative launched the UN-convened Net-Zero Asset Owner Alliance. The Alliance, which currently represents nearly US\$4 trillion in Assets Under Management, is capturing commitments by asset owners to align portfolios with a 1.5°C scenario. In parallel, the Institutional Investors Group on Climate Change (IIGCC) Paris Aligned Investment Initiative – jointly chaired by APG of the Netherlands and the Church of England Pensions Board and supported by more than 60 major institutional investors with over

€13 trillion in Assets Under Management – is developing a practical and useable framework for investors to be able to understand what it would mean for a pension fund to align with the goals of the Paris Agreement. The likely consequence of these two initiatives is that more asset owners will make commitments to net zero or to aligning with the 1.5°C scenario, thereby reinforcing the engagement requests being made by CA100+ and driving demand for tools, metrics and indices that enable investors to assess and report on their performance.

A new form of partnership

Returning to a core theme of this report, our concluding reflection is that responding to climate change requires a new form of partnership. It requires investors, companies, regulators, civil society and other actors to work together to develop and then deliver the systemic, economy-wide changes needed for us to successfully transition to a low-carbon economy and to adapt effectively to the physical impacts of climate change. This report shows that the world is making progress and that investors are already playing an important role. However, that progress needs to be accelerated and investors will be challenged to do much, much more.

Our mission is to enable asset owners to make informed judgements about how companies with the biggest impact on climate change are adapting their business models to prepare for the transition to a low-carbon economy.

The background of the slide is a photograph of an industrial facility, likely a refinery or chemical plant. Two tall, dark metal smokestacks are visible. The stack on the left is taller and has a large, bright yellow and orange flame rising from its top. The stack on the right is shorter and also has a flame rising from its top. The sky is a solid, bright orange color, suggesting a sunset or sunrise. The overall image conveys a sense of industrial activity and environmental impact.

“Responding to climate change requires a new form of partnership”



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Appendix 1: TPI Management Quality indicators

Level 0: Unaware of (or not Acknowledging) Climate Change as a Business Issue

Question 1 Does the company acknowledge climate change as a significant issue for the business?

[If the company does not acknowledge climate change as a significant issue for the business, it is placed on Level 0]

Notes

Companies are assessed as Yes if they:

- Recognise climate change as a relevant risk and/or opportunity for the business (Q2); or
- Have a policy or an equivalent statement committing them to take action on climate change (Q3); or
- Have set greenhouse gas emission reduction targets (Q4); or
- Have published information on their operational greenhouse gas emissions (Q5).

Level 1: Acknowledging Climate Change as a Business Issue

Question 2 Does the company recognise climate change as a relevant risk and/or opportunity for the business?

Notes

Companies are assessed as Yes if they demonstrate recognition of climate change as a relevant risk and/or opportunity to the business, or if they have incorporated at least two of the following, more advanced management practices, namely they:

- Have a process to manage climate-related risks (Q12);
- Have set long-term quantitative targets for reducing their greenhouse gas emissions (Q14);
- Incorporate climate change performance into remuneration for senior executives (Q15);
- Incorporate climate change risks and opportunities in their strategy (Q16);
- Undertake climate scenario planning (Q17);
- Disclose an internal price of carbon (Q18);
- Ensure consistency between their climate change policies and the positions taken by trade associations of which they are members (Q19).

Question 3 Does the company have a policy (or equivalent) commitment to action on climate change?

Notes

Companies are assessed as Yes if they have a published policy or commitment statement on climate change that commits them to addressing the issue, or to reducing or avoiding their impact on climate change (e.g. to reduce emissions or improve their energy efficiency).

Level 2: Building Capacity

Question 4 **Has the company set greenhouse gas emission reduction targets?**

Notes

Companies are assessed as Yes if they have greenhouse gas emissions reduction targets. These targets may cover Scopes 1, 2 and/or 3, and they may be quantified or unquantified.

This question is less demanding than Questions 7 and 13, which require companies to have set quantified targets and for those quantified targets to be long-term, respectively. Companies that are assessed as Yes on Question 7, or Yes on Questions 7 and 13, are automatically assessed as Yes on Question 4.

Question 5 **Has the company published information on its operational (Scope 1 and 2) greenhouse gas emissions?**

Notes

Companies are assessed as Yes if they report on their Scope 1 and 2, or their Scope 1, 2 and 3 emissions. Companies that only report Scope 1 emissions are assessed as No.

Level 3: Integrating into Operational Decision-Making

Question 6 **Has the company nominated a board member or board committee with explicit responsibility for oversight of the climate change policy?**

Notes

Companies are assessed as Yes if they provide evidence of clear board or board committee oversight of climate change, or if they have a named individual/position responsible for climate change at board level.

Question 7 **Has the company set quantitative targets for reducing its greenhouse gas emissions?**

Notes

Companies are assessed as Yes if they have set quantified targets to reduce greenhouse emissions in relative or absolute terms (Scopes 1, 2 and/or 3).

This question is more demanding than Question 4, as companies must have set quantitative targets to reduce emissions. This question differs from Question 13, which asks whether companies have set quantified targets for reducing greenhouse gases over the long term (i.e. targets that are more than 5 years in duration). Companies that are assessed as Yes on Question 13 are automatically assessed as Yes on this question.

Question 8 **Does the company report on Scope 3 emissions?**

Notes

Companies are assessed as Yes if they report on Scope 3 emissions separately, either in total or in one or more categories, or if they provide a total for Scope 1, 2 and 3 emissions.

Question 9 **Has the company had its operational (Scope 1 and/or 2) greenhouse gas emissions data verified?**

Notes

Companies are assessed as Yes if their operational greenhouse gas emissions have been independently verified by a third party, or if they state the international assurance standard they have used and the level of assurance.

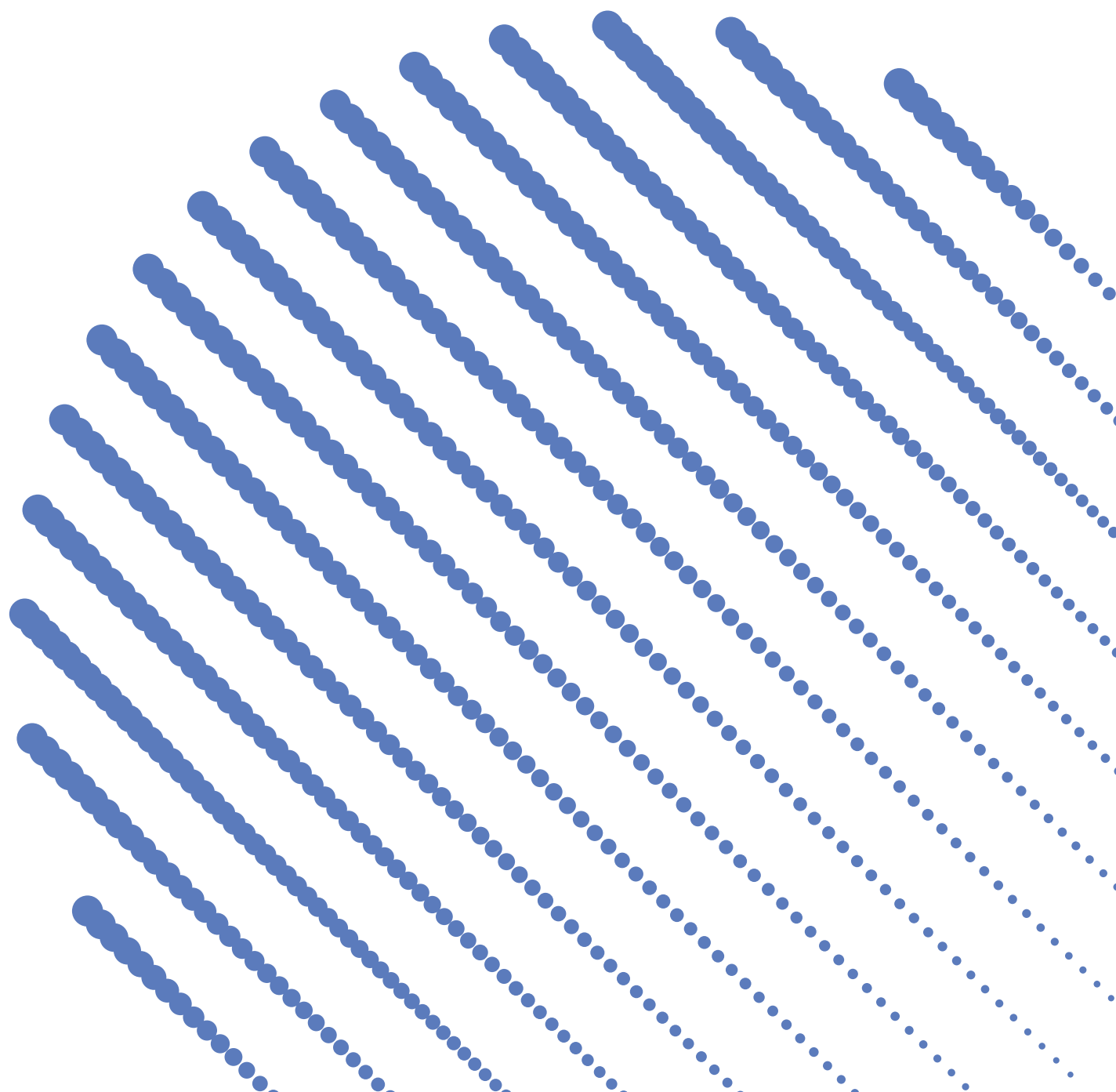
Question 10	Does the company support domestic and international efforts to mitigate climate change?
Notes	Companies are assessed as Yes if they demonstrate support for mitigating climate change through membership of business associations that are supportive, and if they have a clear company position on public policy and regulation.
Question 11	Does the company disclose its membership and involvement in trade associations engaged in climate issues?
Notes	Companies are assessed as Yes if they have disclosed their memberships of trade associations that engage on climate-related issues, and if they have disclosed their involvement in these trade associations.
Question 12	Does the company have a process to manage climate-related risks?
Notes	Companies are assessed as Yes if they have integrated climate change into multi-disciplinary company-wide risk management, or if they have a specific climate-related risk management process.
Question 13*	Does the company disclose materially important Scope 3 emissions? <i>*applicable to some sectors only</i>
Notes	<p>Scope 3 emissions are diverse and many companies only disclose in a sub-set of categories. In some sectors, particular categories of Scope 3 emissions are materially important, in the sense of being a large share of lifecycle emissions. In these sectors, we require companies to specifically disclose emissions in the relevant category or categories.</p> <p>For example, in automobile manufacturing, coal mining, and oil and gas production, we ask: does the company disclose Scope 3 emissions from the use of sold products?</p>

Level 4: Strategic Assessment

Question 14	Has the company set long-term quantitative targets for reducing its greenhouse gas emissions?
Notes	<p>Companies are assessed as Yes if they have set quantified, long-term targets (i.e. more than 5 Years in duration) to reduce greenhouse emissions in relative or absolute terms (Scopes 1, 2 and/or 3).</p> <p>This question is more demanding than Question 7, as the targets must not only be quantitative, they must also be long-term.</p>
Question 15	Does the company's remuneration for senior executives incorporate climate change performance?
Notes	Companies are assessed as Yes if executive remuneration incorporates climate change performance.
Question 16	Does the company incorporate climate change risks and opportunities in their strategy?
Notes	Companies are assessed as Yes if they detail how they incorporate climate change risks and opportunities in their strategy (mitigation, new products, R&D, etc.), and if they disclose the impact of climate change risks and opportunities on financial planning (OPEX, CAPEX, M&A, debt).
Question 17	Does the company undertake climate scenario planning?
Notes	Companies are assessed as Yes if they mention the 2 degrees scenario in relation to business planning or confirm they have conducted climate related scenario analysis, and if they describe the business impact of one or more climate scenario analysis.
Question 18	Does the company disclose an internal price of carbon?
Notes	Companies are assessed as Yes if they have and disclose their internal carbon price.
Question 19	Does the company ensure consistency between its climate change policy and the positions taken by trade associations of which it is a member?
Notes	Companies are assessed as Yes if they have a stated policy or commitment to ensure consistency between their climate change policy and the position taken by the trade associations of which they are members, and for responding appropriately in those instances where the trade association's position is significantly weaker than or contradicts that of the company.

Appendix 2: Heat map of Management Quality indicator by indicator at the sector level

Key: <div><div></div><div>Yes</div><div></div><div>No</div></div>		Transport			Energy				Industrials and materials								
		Autos	Airlines	Shipping	Coal mining	Electricity utilities	Oil & gas	Oil & gas distribution	Aluminium	Chemicals	Cement	Paper	Steel	Other basic materials	Other industrials	Services	Consumer goods
	L0 1. Acknowledge?	95%	100%	92%	87%	100%	98%	100%	93%	100%	100%	89%	100%	100%	100%	83%	100%
	L1 2. Recognises as risk/opportunity?	77%	82%	54%	39%	87%	88%	100%	73%	95%	68%	67%	67%	100%	100%	83%	100%
	L1 3. Policy commitment to act?	86%	95%	92%	87%	98%	98%	100%	93%	95%	100%	83%	96%	100%	100%	83%	100%
	L2 4. Emissions targets?	82%	73%	62%	35%	84%	60%	100%	60%	86%	59%	61%	54%	50%	100%	83%	100%
	L2 5. Disclosed Scope 1 & 2 emissions?	91%	68%	62%	52%	84%	70%	100%	73%	95%	73%	67%	63%	50%	94%	83%	100%
	L3 6. Board responsibility?	68%	41%	15%	35%	76%	72%	100%	67%	62%	55%	50%	50%	50%	83%	83%	100%
	L3 7. Quantitative emissions targets?	82%	64%	62%	30%	84%	56%	100%	60%	86%	59%	61%	50%	50%	94%	83%	100%
	L3 8. Disclosed any Scope 3 emissions?	77%	50%	46%	35%	82%	44%	83%	53%	81%	59%	44%	50%	50%	78%	67%	100%
	L3 9. Had operational emissions verified?	73%	55%	69%	39%	56%	56%	83%	60%	86%	55%	39%	50%	50%	89%	67%	89%
	L3 10. Support domestic and international mitigation?	55%	50%	31%	30%	71%	52%	83%	47%	67%	41%	56%	46%	50%	78%	67%	100%
	L3 11. Disclosed trade association involvement?	59%	50%	31%	30%	66%	58%	100%	47%	57%	27%	56%	25%	50%	78%	83%	100%
	L3 12. Process to manage climate risks?	77%	59%	31%	30%	74%	72%	100%	73%	86%	45%	56%	50%	50%	89%	83%	100%
	L3 13. Disclosed use of product emissions?	77%	n/a	n/a	30%	n/a	38%	50%	n/a	n/a	n/a	n/a	n/a	n/a	40%	n/a	n/a
	L4 14. Long-term emissions targets?	64%	55%	38%	22%	74%	48%	83%	47%	76%	45%	39%	42%	50%	89%	50%	100%
	L4 15. Incorporated climate change into executive remuneration?	59%	27%	15%	26%	50%	42%	50%	33%	57%	36%	28%	29%	50%	50%	33%	78%
	L4 16. Climate risks/opportunities in strategy?	55%	32%	23%	30%	68%	24%	50%	47%	19%	23%	28%	21%	50%	72%	50%	67%
	L4 17. Undertakes climate scenario planning?	36%	14%	8%	26%	34%	30%	67%	27%	19%	9%	22%	13%	50%	33%	50%	33%
	L4 18. Discloses an internal price of carbon?	36%	23%	8%	17%	42%	30%	67%	13%	43%	23%	28%	33%	25%	44%	17%	44%
	L4 19. Consistency between company and trade associations?	18%	9%	0%	4%	6%	6%	0%	7%	5%	0%	11%	0%	25%	6%	17%	11%



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