TPI's Methodology and Indicators Report: Management Quality and Carbon Performance

Version 4.0 - November 2021



Simon Dietz, Beata Bienkowska, Valentin Jahn, Nikolaus Hastreiter, Vitaliy Komar, Antonina Scheer, and Rory Sullivan

Transition Pathway Initiative

CONTENTS

1. Introduction 3

2. Design principles 5

3. Management Quality versus Carbon Performance 6

4.1 Background 8

4.2 Management Quality staircase with five levels 8

4.3 Indicators 10

4.4 Mapping to TCFD recommendations 13

4.5 Summary of changes made in 2021 13

5. Carbon Performance assessment 14

6.The company assessment process and quality assurance 18

Bibliography 20

Disclaimer 21

APPENDIX 1. Mapping of TPI's management quality framework to TCFD recommendations 22

1. Introduction

This is the fourth edition of TPI's Methodology and Indicators Report. It provides the technical background to TPI's assessments of Management Quality and Carbon Performance, with a particular focus on Management Quality. We also publish sectoral Methodology Notes on Carbon Performance, since the details of how to assess Carbon Performance vary between sectors. This report supersedes Version 3.0 of the Methodology and Indicators Report, published in June 2019.

The report describes:



The design principles underpinning TPI and the TPI company assessment process (Section 2)



A comparison and justification for developing Management Quality and Carbon Performance (Section 3)



The Management Quality framework, including the indicators used and how companies are placed on the levels (Section 4)



A broad outline of how TPI assesses Carbon Performance (Section 5)



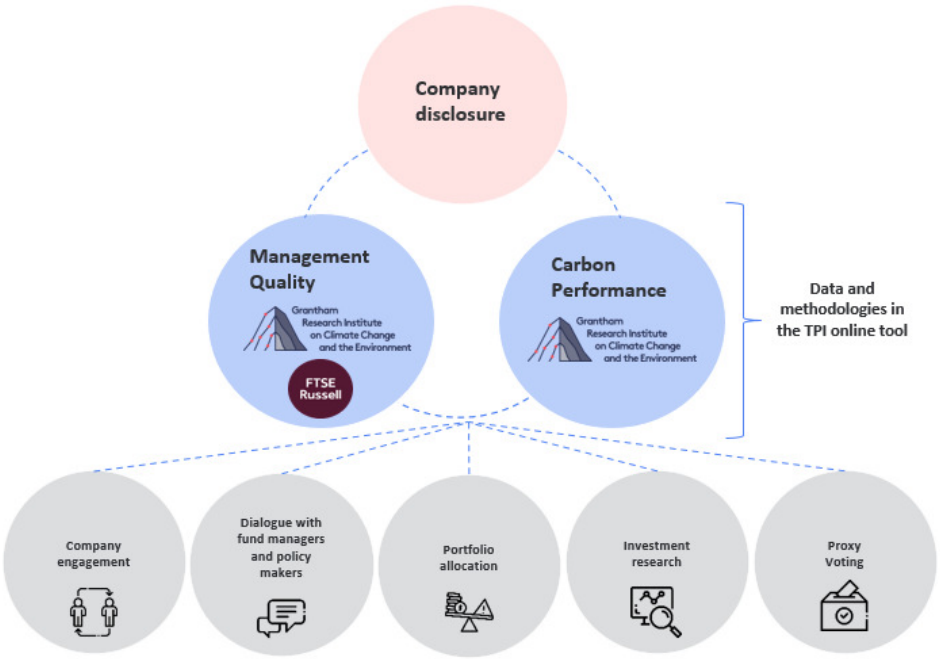
Quality assurance provisions and how company feedback is handled (Section 6)

The Transition Pathway Initiative (TPI) was established in January 2017. It is a global initiative led by asset owners and supported by asset managers. As of November 2021, 115 investors globally have already pledged support for TPI; jointly they represent nearly $40 trillion combined Assets Under Management and Advice.

TPI aims to evaluate what the transition to a low-carbon economy looks like for companies with a high impact on climate change, such as electricity utilities and oil and gas producers. It also aims to assess the progress these companies are making on the low-carbon transition. Companies are analysed in two ways:

1. **Management Quality**: TPI evaluates and tracks the quality of companies' governance/management of their greenhouse gas emissions and of risks and opportunities related to the low-carbon transition.
2. **Carbon Performance**: TPI also evaluates companies' carbon emissions against different climate scenarios consistent with the UN Paris Agreement. It does this by comparing companies in high-emitting sectors against each other and against sector-specific benchmarks, which establish the performance of an average company that is aligned with goals of the Paris Agreement.

Figure 1. The TPI process



TPI publishes the results of its analysis through an open access online tool hosted by the Grantham Research Institute on Climate Change and the Environment at the London School of Economics (LSE). Investors are encouraged to use the data, indicators and online tool to inform their investment research, decision making, engagement with companies, proxy voting and dialogue with fund managers and policy makers, bearing in mind the Disclaimer that can be found at the end of the document.

Further details of how investors can use TPI assessments can be found on our website.

2. Design principles

The following high-level principles have guided our approach to designing the TPI methodology:

1. **Company assessments should be based solely on publicly available information.** There are two reasons for this. The first is that encouraging companies to provide a better account of how they manage climate change is a core objective of TPI. The second is to ensure that companies are assessed consistently, thereby avoiding any suggestion that individual companies are in any way favoured by the assessment methodology.
2. **Indicators should be objectively assessable.** That is, the users of TPI data and other stakeholders (including the companies themselves) should be able to understand why a company has met, or not met, a particular Management Quality indicator, and how a company's emissions performance has been quantified.
3. **Indicators of Management Quality should be relevant to all companies in all sectors covered by TPI.** The reason is that investors want to be able to compare sectors and, when communicating with stakeholders, to be able to demonstrate the overall outcomes of their engagement.
4. **Carbon Performance benchmarks should be sector-specific.** The reason is that different sectors of the economy (e.g. oil and gas production, electricity generation and automobile manufacturing) 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.
5. **TPI's outputs should be useful to asset owners as they engage with companies and with asset managers.** Of particular importance is ensuring that TPI is relevant and useful to asset owners with relatively little capacity or expertise on climate change.
6. **Indicators should link to, or build on, existing initiatives and disclosure frameworks (e.g. the FSB Taskforce on Climate-related Financial Disclosures or TCFD) as far as possible.** That is, unless there is a compelling reason to do otherwise, the data used by TPI should be those already reported by companies or that are commonly requested by investors.
7. **Indicators should be pitched at a high level of aggregation and apply to the corporation as a whole.** It is acknowledged that investors may wish to dig deeper into specific aspects of practice or performance (e.g. to understand risk and opportunity on a country-by-country basis). For these investors, TPI's data can be used in conjunction with other measures, such as those relating to financial performance (e.g. sales, turnover) and those that provide a more granular assessment of corporate climate action.

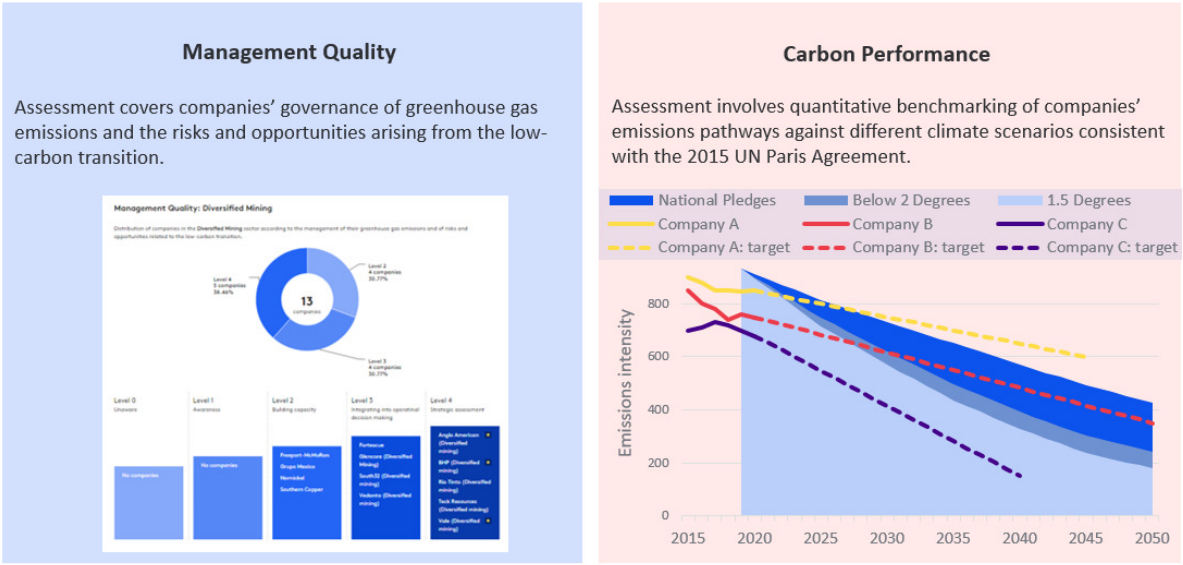
3. Management Quality versus Carbon Performance

Our assessment of companies' progress on the low-carbon transition is divided into two parts: (1) Management Quality and (2) Carbon Performance.

Management Quality describes companies' carbon management practices and governance, in other words their governance of greenhouse gas emissions and the risks and opportunities arising from the low-carbon transition. For example, Management Quality indicators include whether a company has a climate-change policy in place, to what extent it discloses its emissions, and whether the company has allocated board responsibility for climate change.

Carbon Performance compares company's emissions pathway against different climate scenarios consistent with the UN Paris Agreement, for example the aim to limit global warming to 1.5°C above the pre-industrial level.

Figure 2. TPI methodologies



One of the reasons why we assess Management Quality and Carbon Performance separately is that research shows the relationship between them is by no means clear cut [1]- [5]. The ideal scenario is that companies with robust, well-developed carbon management systems and processes adopt business strategies that are aligned with the low-carbon transition. Conversely companies with weaknesses in their carbon management systems and processes might be less likely to set challenging emissions targets.

However, at any particular moment one can find examples of companies with good carbon management systems, who nonetheless have high emissions, and *vice versa*. This might be because the highest-emitting companies are forced to place the highest priority on reducing those emissions.

There is some evidence to suggest that, while good carbon management appears unrelated to current emissions, it leads to lower *future* emissions, because companies with good carbon management are more likely to set and deliver on stretching emissions targets.[6] Nonetheless some companies with good carbon

management have not set ambitious emissions targets.[6] There are several possible explanations for this. Some are external, such as weaknesses in the signals being sent to business by national/local policy makers. Some are internal, such as management scepticism about the business case for climate action, or limited capacity to make the changes necessary to transition to a low-carbon economy. There are also cases where the converse applies, i.e., companies have set ambitious targets, but lack the knowledge, management systems or capacity to implement them.

Ultimately Management Quality assessment focuses on processes, while Carbon Performance focuses on decarbonisation ambition/commitment. Together they are intended to provide a holistic view of companies' progress on the low-carbon transition.

4. Management Quality assessment

4.1 Background

TPI's Management Quality methodology has been developed through an iterative process of research, testing and review. The main elements of this work have been:

- Literature Review. It has been desirable to align our work with other existing initiatives and disclosure frameworks, including the indicators requested by CDP, the Climate Disclosure Standards Board and the Global Reporting Initiative, and the recommendations of TCFD. We have also drawn inspiration from the way investors articulate their expectations of companies on other sustainability-related issues, such as the Access to Medicines Index, the Access to Nutrition Index and the Business Benchmark on Farm Animal Welfare.
- Testing the Indicators. TPI's original Management Quality framework, the 2018 revision and the 2019 revision have been extensively piloted on samples of FTSE Russell data[1]. For the 2019 revision, we tested various permutations of the framework on a sample of 49 companies, all of which had been assessed by TPI, under version 2.0 of the Management Quality framework, in 2017. When conducting these tests, we sought to answer a number of different questions, such as: are the necessary data available to generate the indicators and, if not, are there alternative data that could provide the same insights? Do the indicators and the framework generate meaningful results, for example do they effectively differentiate between companies? How do the results compare with other measures of corporate climate-change performance (e.g. from CDP) ? Can the indicators be assessed objectively and consistently? Are the results sensitive to the inclusion/exclusion of specific questions?
- Peer Review. Drafts of the framework have been shared with TPI's Technical Advisory Group and with its Steering Group for comment. The first draft reviewed 2017 experience and provided a menu of options for revising the framework. The second and third draft focused on a single proposed framework and posed a series of specific questions to members of the Groups about, for example, how stringent certain indicators should be and where they should sit in the framework.

4.2 Management Quality staircase with five levels

Companies tend to implement their carbon management systems and processes in a relatively staged and structured manner. They often start by publicly acknowledging the relevance of climate change to their business and developing a high-level policy or statement. They then tend to set some relatively short-term, process-oriented targets, before progressively extending the duration and stringency of their targets, and defining these in a more precise, quantitative way. A similar phenomenon is often seen in reporting: companies tend to start by reporting on the operational (or Scope 1 and 2) carbon emissions from part of their business, and

[1] This 2021 revision has not been piloted because no new Management Quality indicators were added.

then progressively extend this reporting to apply to more of the business and, in time, to cover some of the emissions from their supply chains and from the use of their products (Scope 3 emissions).

Accordingly, TPI's Management Quality framework tracks the progress of companies through the following five levels:

- 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 often the point where companies adopt a climate change policy.
- Level 2 – Building Capacity: the company develops its basic capacity, its management systems and 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 and capital expenditure decisions.

Figure 3. The Management Quality staircase



Some companies are still at an early stage of establishing carbon management and reporting processes, whereas others have assessed the resilience of their businesses and business models to a range of future low-carbon scenarios, published details of their low-carbon research and development (R&D) and investment strategies, and aligned their strategic key performance indicators (KPIs) on climate change with their executive incentives.

Up to 19 specific Management Quality indicators/questions are used to map companies on to these five levels. These are set out in detail below. The data underpinning the indicators are provided by FTSE Russell.

With the exception of Level 0, companies need to be assessed as Yes on all of the questions pertaining to a level, before they can advance to the next level. We also recognise companies that meet all the TPI indicators – i.e. that return a perfect Management Quality score – as *'Four star'* companies.

Companies can move in both directions on the Management Quality staircase and movement can come about either because companies' management practices change, or because the set of indicators used to sort companies on to different levels evolves.

4.3 Indicators

Table 1 lists 2021 TPI Management Quality indicators and provides explanatory notes.

Table 1. TPI Management Quality framework, including 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 14, 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 14, 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 14, 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 14 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 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 12 (applicable to some sectors only)	Does the company disclose materially important Scope 3 emissions?
Notes	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. For example, in automobile manufacturing, coal mining, and oil and gas production, we ask: does the company disclose Scope 3 emissions from use of sold products?
LEVEL 4: STRATEGIC ASSESSMENT	
Question 13	Does the company disclose its membership and involvement in organisations or coalitions dedicated specifically to climate issues?
	The company discloses: (a) Its memberships in specific organisations dedicated to climate-related issues (b) Its involvement in these organisations
Question 14	Has the company set long-term quantitative targets for reducing its greenhouse gas emissions?
Notes	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). This question is more demanding than Question 7, as the targets must not only be quantitative, they must also be long-term.
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 positions is significantly weaker than or contradicts that of the company.

4.4 Mapping to TCFD recommendations

TCFD has made recommendations on company disclosures on climate change in four areas:

1. Governance: companies' governance around climate-related risks and opportunities.
2. Strategy: the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.
3. Risk management: the processes used by the organization to identify, assess, and manage climate-related risks.
4. Metrics and targets: the metrics and targets used to assess and manage relevant climate-related risks and opportunities.

Appendix 1 shows how TPI's indicators map on to the TCFD framework.

4.5 Summary of changes made in 2021

Recognising the need to step up ambitions to limit warming to 1.5C, we have revised the Management Quality indicator that considers companies' membership of lobby groups active on climate issues.

The old indicator (MQ11) was: *Does the company disclose its membership and involvement in trade associations engaged in climate issues?*

The new indicator (MQ13) assesses a company's membership of organisations specifically dedicated to climate issues: *Does the company disclose its membership and involvement in organisations or coalitions dedicated specifically to climate issues?*

As this updated indicator asks about companies' involvement in organisations dedicated specifically to climate issues, it is more demanding than its predecessor, so we have moved it on to Level 4.

5. Carbon Performance assessment

TPI's Carbon Performance assessment is based on the Sectoral Decarbonization Approach (SDA)[2].[7] The SDA translates greenhouse gas emissions targets made at the international level (e.g., under the Paris Agreement to the UN Framework Convention on Climate Change) into appropriate benchmarks, against which the performance of individual companies can be compared.

The SDA is built on the principle of recognising that different sectors of the economy (e.g., oil and gas production, electricity generation and automobile manufacturing) 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. Other approaches to translating international emissions targets into company benchmarks have applied the same decarbonisation pathway to all sectors, regardless of these differences.[8]

Therefore, the SDA takes a sector-by-sector approach, comparing companies within each sector against each other and against sector-specific benchmarks, which establish the performance of an average company that is aligned with international emissions targets.

Applying the SDA can be broken down into the following steps:

- A global carbon budget is established, which is consistent with international emissions targets, for example keeping global warming below 2°C. To do this rigorously, some input from a climate model is required.
- The global carbon budget is allocated across time and to different regions and industrial sectors. This typically requires an integrated economy-energy model, and these models usually allocate emissions reductions by region and by sector according to where it is cheapest to reduce emissions and when (i.e., the allocation is cost-effective). Cost-effectiveness is, however, subject to some constraints, such as political and public preferences, and the availability of capital. This step is therefore driven primarily by economic and engineering considerations, but with some awareness of political and social factors.
- In order to compare companies of different sizes, sectoral emissions are normalised by a relevant measure of sectoral activity (e.g., physical production, economic activity). This results in a benchmark path for emissions intensity in each sector:

$$\text{Emissions intensity} = \frac{\text{Emissions}}{\text{Activity}}$$

  Assumptions about sectoral activity need to be consistent with the emissions modelled and therefore should be taken from the same economy-energy modelling, where possible.
- Companies' recent and current emissions intensity is calculated, and their future emissions intensity can be estimated based on emissions targets they

[2] The Sectoral Decarbonization approach (SDA) was created by CDP, WWF, WRI in 2015.

have set (i.e., this assumes companies exactly meet their targets).[3] Together these establish emissions intensity paths for companies.

- Companies' emissions intensity paths are compared with each other and with the relevant sectoral benchmark pathway.

TPI's benchmarks. In the majority of sectors, TPI uses the following sectoral benchmark pathways/scenarios[4]:

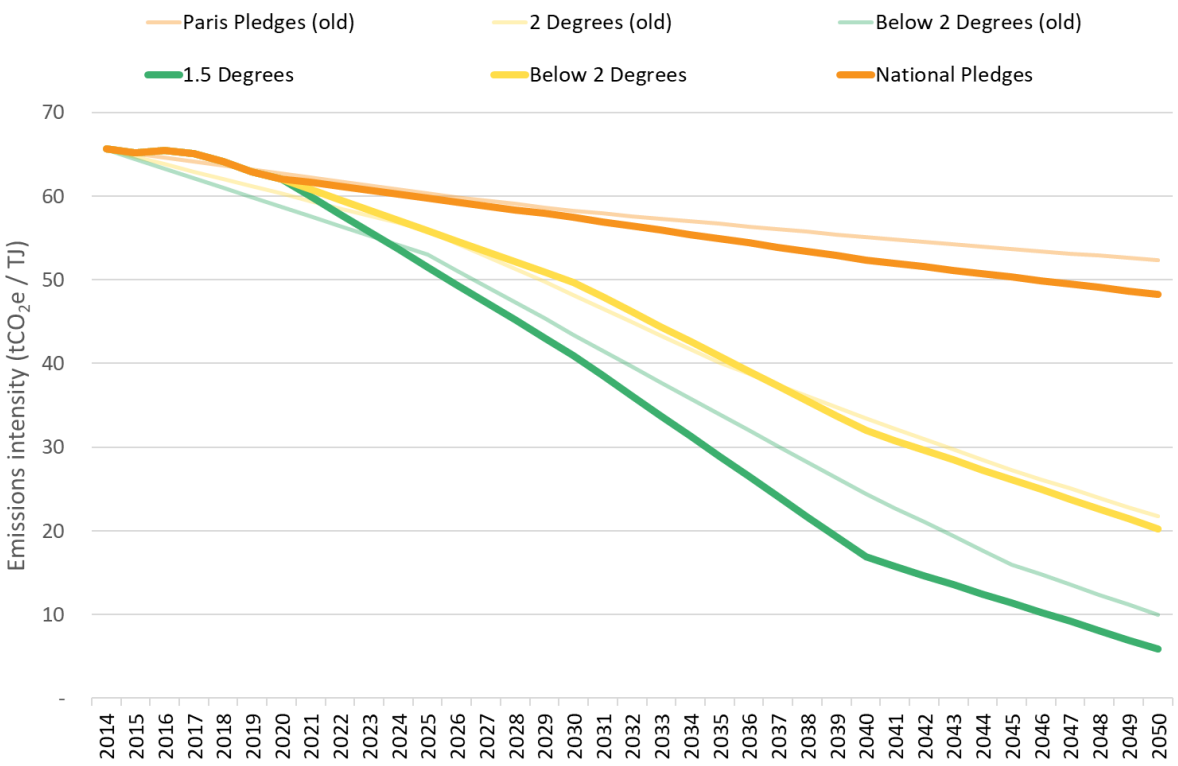
A 1.5 Degrees scenario, which is consistent with the overall aim of the Paris Agreement to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels".[9] This scenario is consistent with a carbon budget that limits the global mean temperature rise to 1.5°C with a 50% probability.[10]

A Below 2 Degrees scenario, which is also consistent with the overall aim of the Paris Agreement to limit warming, albeit at the middle of the range of ambition. This scenario is consistent with a carbon budget that limits the global mean temperature rise to 1.65°C with a 50% probability.[11]

A National Pledges scenario built on the IEA's 2020 Stated Policies Scenario, which takes into account policies which were in place or under development up to at least mid-2020, depending on the sector. According to the IEA, this aggregate is currently insufficient to put the world on a path to limit warming to 2°C, even if it will constitute a departure from a business-as-usual trend. This scenario is consistent with a carbon budget that limits the global mean temperature rise to 2.6°C by 2100 with a 50% probability.[11]

Figure 4. TPI benchmarks in oil and gas sector

[3] Alternatively, future emissions intensity could be calculated based on other data provided by companies on their business strategy and capital expenditure plans.
[4] The current benchmarks replace the ones from the Methodology note v3.0: *Paris Pledges, 2 Degrees and Below 2 Degrees*.



Source of data for scenarios. The main source of data for these scenarios is the modelling of the International Energy Agency (IEA), via its biennial *Energy Technology Perspectives* reports [11-12], *World Economic Outlook* reports [13-14], and *Net Zero Emissions by 2050* report.[10]

Sectors assessed on different benchmarks. There are few sectors assessed by TPI with different benchmark concepts and/or data:

- In autos, different benchmarks are used to reflect additional sources of uncertainty, notably the extent to which shifting demand for different transport modes will affect what is required of companies. These are: *2 Degrees (High Efficiency)*, *2 Degrees (Shift-Improve)* and *Paris Pledges*. They are based on data provided by the International Council on Clean Transportation (ICCT) and the carbon budgets associated with these benchmarks, albeit similar, may differ from the benchmarks based on the IEA scenarios. Please see TPI's methodology note for the auto sector for further information.
- In airlines and shipping, we use an *International Pledges* benchmark instead of *National Pledges*, because the pledges in these sectors are primarily set out by international bodies, the International Civil Aviation Organisation (ICAO) and the International Maritime Organisation (IMO), respectively, rather than by national commitments.
- In aluminium and paper, we use *Below 2 Degrees*, *2 Degrees* and *Paris Pledges* benchmarks, which are based on the IEA's 2017 scenarios due to the limited sectoral coverage of IEA's recent scenarios.[12]

Source of company data. In line with TPI's philosophy, companies' emissions intensity paths are derived from public disclosures (including responses to the annual CDP questionnaire, as well as companies' own reports, e.g., sustainability reports)

as far as possible. In particular, only company disclosures are used to estimate recent and current emissions intensity, and company disclosures are also the source of information on targets for future emissions.

Further details of how the Carbon Performance methodology is applied in specific sectors can be found in TPI's sectoral Methodology Notes at the TPI website.

6. The company assessment process and quality assurance

TPI's Management Quality assessments are based on data provided by FTSE Russell, specifically the data and indicators it uses to develop its ESG Ratings.[5] These data go through a four-stage quality assurance process before being provided to TPI:

1. Initial assessment and analyst quality control. A FTSE Russell analyst conducts the initial company assessment, including a review of the previous year's assessment to assess if a change in data from the previous year is justified. This is followed by a second analyst carrying out a check on the company analysis and by a separate, more experienced, analyst reviewing company assessments to ensure accuracy and consistency. Once FTSE completes its data quality control, TPI analysts carry out an additional quality check in coordination with FTSE.
2. Company review. FTSE Russell contacts the company, providing it with the opportunity to review the data collected. FTSE Russell's research process only allows publicly available information to be used.
3. Trend quality control. Senior FTSE Russell analysts conduct trend analysis to look for inconsistent data and data outliers. They also conduct focused quality control on particular indicators, based on their understanding of indicators that are more vulnerable to errors.
4. Quality management. FTSE Russell staff carry out a series of quality-monitoring checks, focusing on both quantitative data consistency (e.g. units, gaps, outliers) and qualitative data (e.g. checking interpretation and criteria guidance). The results of these checks are shared with analysts in order for them to implement changes and enhance their quality control processes. The process held by FTSE Russell is complemented by the quality checks performed by the TPI analysts.

TPI team carries out its own Carbon Performance assessment from beginning to end, as follows:

1. Initial data collection and review. An analyst collects Carbon Performance data from company disclosures and conducts a detailed review to confirm that the data are complete and consistent with those collected by FTSE Russell, where the data overlap. Any inconsistencies are discussed with FTSE Russell.
2. Initial findings review. Following the application of TPI's Management Quality and Carbon Performance methodologies to the data, a different analyst reviews each company's assessment in detail, and we look at overall trends across companies with a view to identifying outliers and unusual patterns.
3. Company review. Once we have completed the company assessments, we write to each of the companies with its draft TPI assessment (as well as the FTSE Russell data that underpin the Management Quality assessment),

[5] For further information see http://www.ftse.com/products/downloads/ESG-ratings-overview.pdf?8oo.

requesting that the companies review their assessments and confirm the accuracy of the underlying data.

4. Final assessment. We review company responses and amend their assessments if their feedback is judged to have merit. Further details of our procedures for incorporating company feedback are contained in Box 1.

Box 1. Responding to companies

Allowing companies the opportunity to review and, if necessary, correct their assessments is an integral part of TPI's quality assurance process. We send each company its draft Carbon Performance assessment and the data that underpin that assessment, while FTSE Russell send the Management Quality assessment, offering companies the opportunity to review and comment.

If a company seeks to challenge its result/representation, our process is as follows:

- TPI reviews the information provided by the company. At this point, additional information may be requested.
- If it is concluded that the company's challenge has merit, the assessment is updated.
- If it is concluded that there are insufficient grounds to change the assessment, TPI publishes its original assessment.
- If the company requests an explanation regarding its feedback after the publication of its assessment, TPI explains the decisions taken.
- If a company requests an update of its assessment based on data publicly disclosed after the research cut-off date communicated to the company, TPI can note the new disclosure on the company's profile on the TPI website.
- If a company chooses to further contest the assessment and reverts to legal means to do so, the company's assessment is withheld from the

BIBLIOGRAPHY

[1] S. B. Hughes, A. Anderson and S. Golden, "Corporate environmental disclosures: are they useful in determining environmental performance?," Journal of Accounting and Public Policy, vol. 20, no. 3, pp. 217-240, 2001.

[2] C. H. Cho and D. M. Patten, "The role of environmental disclosures as tools of legitimacy: A research note," Accounting, Organizations and Society, vol. 32, no. 7, pp. 639-647, 2007.

[3] M. Freedman and B. Jaggi, "Global warming and corporate disclosures: A comparative analysis of companies from the European Union, Japan and Canada," Advances in Environmental Accounting & Management, vol. 4, pp. 129-160, 2009.

[4] L. Luo and Q. Tang, "Does voluntary carbon disclosure reflect underlying carbon performance?," Journal of Contemporary Accounting & Economics, vol. 10, no. 3, pp. 191-205, 2014.

[5] B. Doda, C. Gennaioli, A. Gouldson, D. Grover and R. Sullivan, "Are Corporate Carbon Management Practices Reducing Corporate Carbon Emissions?," Corporate Social Responsibility and Environmental Management, vol. 23, no. 5, pp. 257-270, 2016.

[6] W. Qian and S. Schaltegger, "Revisiting carbon disclosure and performance: Legitimacy and management views," The British Accounting Review, vol. 49, no. 4, pp. 365-379, 2017.

[7] O. Krabbe, G. Linthorst, K. Blok, W. Crijns-Graus, D. P. van Vuuren, N. Hoehne, P. Faria, N. Aden and A. Carrillo Pineda, "Aligning corporate greenhouse-gas emissions targets with climate goals," Nature Climate Change, vol. 5, pp. 1057-1060, 2015.

[8] J. Randers, "Greenhouse gas emissions per unit of value added ("GEVA") — A corporate guide to voluntary climate action," Energy Policy, vol. 48, pp. 46-55, 2012.

[9] UNFCCC, "Paris Agreement," 2015.

[10] International Energy Agency, "Net Zero by 2050". International Energy Agency, 2021.

[11] International Energy Agency, "Energy Technology Perspectives 2020". International Energy Agency, 2020.

[12] International Energy Agency, "Energy Technology Perspectives 2017". International Energy Agency, 2017.

[13] International Energy Agency, "World Energy Outlook 2021". International Energy Agency, 2021

[14] International Energy Agency, "World Energy Outlook 2020". International Energy Agency, 20201.

DISCLAIMER

1. Data and information published in this paper and on the TPI website is intended principally for investor use but, before any such use, you should read the TPI website terms and conditions to ensure you are complying with some basic requirements which are designed to safeguard the TPI whilst allowing sensible and open use of TPI data. References in these terms and conditions to "data" or "information" on the website shall include the carbon performance data, the management quality indicators or scores, and all related information.
2. By accessing the data and information published in the report and on this website, you acknowledge that you understand and agree to these website terms and conditions. In particular, please read paragraphs 4 and 5 below which details certain data use restrictions
3. The data and information provided by the TPI can be used by you in a variety of ways – such as to inform your investment research, your corporate engagement and proxy-voting, to analyse your portfolios and publish the outcomes to demonstrate to your stakeholders your delivery of climate policy objectives and to support the TPI in its initiative. However, you must make your own decisions on how to use TPI data as the TPI cannot guarantee the accuracy of any data made available, the data and information on the website is not intended to constitute or form the basis of any advice (investment, professional or otherwise), and the TPI does not accept any liability for any claim or loss arising from any use of, or reliance on, the data or information. Furthermore, the TPI does not impose any obligations on supporting organisations to use TPI data in any particular way. It is for individual organisations to determine the most appropriate ways in which TPI can be helpful to their internal processes.
4. Subject to paragraph 3 above, none of the data or information on the website is permitted to be used in connection with the creation, development, exploitation, calculation, dissemination, distribution or publication of financial indices or analytics products or datasets (including any scoring, indicator, metric or model relating to environmental, climate, carbon, sustainability or other similar considerations) or financial products (being exchange traded funds, mutual funds, undertakings collective investment in transferable securities (UCITS), collective investment schemes, separate managed accounts, listed futures and listed options); and you are prohibited from using any data or information on the website in any of such ways and from permitting or purporting to permit any such use.
5. Notwithstanding any other provision of these website terms and conditions, none of the data or information on the website may be reproduced or made available by you to any other person except that you may reproduce an insubstantial amount of the data or information on the website for the uses permitted above.
   The data and information on the website may not be used in any way other than as permitted above. If you would like to use any such data or information in a manner that is not permitted above, you will need TPI's written permission. In this regard, please email all inquiries to tpi@unpri.org.

APPENDIX 1. Mapping of TPI's management quality framework to TCFD recommendations

Governance	Strategy	Risk management	Metrics and targets
Disclose the organization's governance around climate-related risks and opportunities.	Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.	Disclose how the organization identifies, assesses, and manages climate-related risks.	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.
Recommended disclosures			
a) Describe the board's oversight of climate-related risks and opportunities.	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	a) Describe the organization's processes for identifying and assessing climate-related risks.	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.
b) Describe management's role in assessing and managing climate-related risks and opportunities.	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	b) Describe the organization's processes for managing climate-related risks.	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.
TPI indicators			
Q1, Q2, Q3, Q6, Q13, Q15, Q19	Q10, Q11, Q16, Q17, Q18	Q11, Q16	Q4, Q5, Q7, Q8, Q9, Q12, Q14

The Transition Pathway Initiative ltd. (TPI)

E tpi@unpri.org

transitionpathwayinitiative.org
@tp_initiative

Transition Pathway Initiative