TRANSITION PATHWAY INITIATIVE

MANAGEMENT QUALITY OF COAL MINING COMPANIES: A COMMENTARY

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EXECUTIVE SUMMARY

The Transition Pathway Initiative (TPI) is a global, asset owner-led initiative, supported by asset owners and managers with over £4/$5.2 trillion of assets under management. The initiative assesses how companies are preparing for the transition to a low-carbon economy, focusing on two elements:

1. *Management Quality*: the quality of companies' management of their greenhouse gas emissions and of risks and opportunities related to the low-carbon transition.
2. *Carbon Performance*: how companies' carbon performance now and in the future might compare to the international targets and national pledges made as part of the Paris Agreement.

This report contains our assessment of the management quality of the world's 20 largest publicly-listed coal mining companies, a group that includes both diversified miners as well as companies focused on the mining of coal. The list of companies covered in this report is presented in Table 1.

Table 1 Coal mining companies covered by this report

Adaro Energy PT	Coal India	Semirara Mining and Power
African Rainbow Minerals Ltd	Consol Energy	Shougang Fushan Resources Group
Anglo American	DMCI Holdings	Tambang Batubara Bukit Asam
Banpu	Exxaro Resources	Vale Do Rio Doce
BHP Billiton	Glencore	Whitehaven Coal
China Coal Energy	Inner Mongolia Yitai Coal	Yanzhou Coal Mining
China Shenhua Energy	Rio Tinto Ltd	

The results suggest that there is significant variation in how coal mining companies are managing the risks and opportunities presented by climate change. Of the 14 specialist coal mining companies, 3 do not appear to even acknowledge climate change as a business issue, 5 acknowledge it as a business issue, but otherwise have limited capacity to manage climate change, 5 appear to be building their capacity on climate change and just one has integrated climate change into operational decision-making.

A much more encouraging picture emerges when we look at the 6 diversified mining companies. Of these, one company is considered to have integrated climate change into its operational decision-making and 5 are considered to have a strategic approach to climate change, the highest level of management in the TPI framework.

A more detailed analysis of companies' management quality scores reveals that, beyond explicitly recognising climate change as a significant business issue and having a policy in place that commits the company to act, there are significant weaknesses in the sector's approach. For example, only 11 of the 20 companies disclose their operational greenhouse gas emissions and only 2 out of 20 have set long-term, quantitative targets for their operational greenhouse gas emissions. Perhaps most significantly, only 9 out of 20 companies disclose their Scope 3 emissions, despite the importance of downstream emissions from burning coal (classified as Scope 3 emissions) to the lifecycle carbon footprint of coal mining companies.

That is, the central conclusion is that, for almost all companies in the coal mining sector, there is much that they need to do to improve their management of their carbon emissions, and of the business risks and opportunities presented by the low-carbon transition.

1. INTRODUCTION

1.1. About this report

This report discusses the results of the Transition Pathway Initiative (TPI) assessment of the management quality of the world's 20 largest publicly-listed coal mining companies, a group that includes both diversified miners, as well as companies focused on the mining of coal[1].

1.2. The Transition Pathway Initiative

The TPI is a global, asset owner-led initiative, supported by asset owners and managers with around £4/$5.2 trillion of assets under management. The TPI aims to evaluate what the transition to a low-carbon economy looks like for companies in high-impact sectors, such as mining, oil and gas, and electricity, and to assess how well-prepared companies in these sectors are for the transition to a low-carbon economy. Companies are analysed in two ways:

1. *Management Quality*: TPI evaluates and tracks the quality of companies' management of their greenhouse gas emissions and of risks and opportunities related to the low-carbon transition. Companies are assigned to one of five levels, from level 0 ("Unaware of, or not Acknowledging, Climate Change as a Business Issue") to level 4 ("Strategic Assessment"), based on how they perform against 14 criteria. It is the results of this part of the analysis that we cover in this report.
2. *Carbon Performance*: TPI also evaluates how companies' recent and future carbon performance might compare to the international targets and national pledges made as part of the Paris Agreement.

TPI publishes the results of its analysis through an open online tool hosted by the Grantham Research Institute on Climate Change and the Environment at the London School of Economics (LSE): http://www.transitionpathwayinitiative.org. TPI encourages investors 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.

[1] The full results are available on the TPI website, at http://www.transitionpathwayinitiative.org.

2. AN OVERVIEW OF THE MANAGEMENT QUALITY METHODOLOGY[2]

In practice, 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, followed by the development of 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 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 – Integrated 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.

Our previous research[3] suggests that 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 energy research and development (R&D) and investment strategies, and aligned their strategic key performance indicators (KPIs) on climate change and their executive incentives. Companies can move both up and down levels; for example, if the threat of carbon regulation or taxation recedes, companies may assign a lower priority to efforts to reduce emissions or improve energy efficiency.

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[2] A fuller description of the methodology is provided in Sullivan, R., Dietz, S., Garcia-Manas, C., Matthews, A. and Ward, F. (2017), *Methodology and Indicators Report. Version 1.0.* 11 January 2017 (Transition Pathway Initiative, London, UK), http://www.lse.ac.uk/GranthamInstitute/tpi/wp-content/uploads/2017/01/Methodology.pdf

[3] Dietz, S., French, E. and Rauis, B. (2017), *Carbon Performance Assessment of Electricity Utilities: A Commentary.* 7 June 2017 (Transition Pathway Initiative, London, UK), http://www.lse.ac.uk/GranthamInstitute/tpi/wp-content/uploads/2017/06/TPI.Launch.Performance.Utilities.June_.2017.pdf. See also the data on the TPI website: http://www.lse.ac.uk/GranthamInstitute/tpi/the-toolkit/

Fourteen criteria are used to map companies on to the five levels of the TPI management quality framework (see Table 2 and Appendix 1 for more detail). Answers to the 14 questions are based on data provided by FTSE Russell, specifically the data and indicators it uses to develop its ESG Ratings.[4] These data are based on public disclosures by the companies themselves, which encourages companies to provide a better account of how they manage climate change, and ensures that companies are assessed consistently. Improved company disclosures on climate change are a core objective of TPI.

Table 2 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? (Yes/No) If the company does not acknowledge climate change as a significant issue for the business, it is considered to be at Level 0.
Level 1: Acknowledging Climate Change as a Business Issue	
Question 2	Does the company explicitly recognise climate change as a significant issue for the business? (Yes/No)
Question 3	Does the company have a policy (or equivalent) commitment to action on climate change? (Yes/No)
Level 2: Building Capacity	
Question 4	Has the company set energy efficiency or relative or absolute greenhouse gas emission reduction targets? (Yes/No)
Question 5	Has the company published information on its Scope 1 and 2 greenhouse gas emissions? (Yes/No)
Level 3: Integrated 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? (Yes/No)
Question 7	Has the company set quantitative relative or absolute targets for reducing its operational (Scope 1 and 2) greenhouse gas emissions? (Yes/No)
Question 8	Does the company report on Scope 3 emissions? (Yes/No)
Question 9	Has the company had its operational greenhouse gas emissions data verified? (Yes/No)
Question 10	Does the company support domestic and international efforts to mitigate climate change? (Yes/No)
Level 4: Strategic Assessment	
Question 11	Has the company reduced its operational (Scope 1 and 2) greenhouse gas emissions over the past 3 years?
Question 12	Does the company provide information on the business costs – for example, capital investments, costs of carbon permits – associated with climate change? (Yes/No)
Question 13	Has the company set long-term relative or absolute targets for reducing its greenhouse gas emission? (Yes/No)
Question 14	Has the company incorporated environmental, social and governance issues into executive remuneration? (Yes/No)

[4] For further information see http://www.ftse.com/products/downloads/ESG-ratings-overview.pdf?800.

With the exception of Level 0, companies need to be assessed as Yes to all of the questions on a level before they can advance to the next level. For example, in order to be on Level 3, companies need to score Yes on each of Questions 1 to 5. Similarly, in order to be on Level 4, companies need to score Yes on each of Questions 1 to 10.

The underlying data used in the assessment are provided by FTSE Russell, with these data subject to quality assurance both by FTSE Russell and TPI, in line with the process outlined in the TPI Methodology and Indicators Report[5]. Providing companies with the opportunity to review their draft results is an integral part of the TPI assessment process (even though companies are also provided with the opportunity to review the underlying data as part of the FTSE Russell research process).

The 20 companies in the coal mining sector were contacted by TPI on 31st May 2017 with a draft of their assessment, and given until 28th June 2017 to respond. In total, 5 out of 20 companies responded, as a result of which the assessments of 2 companies changed.

[5] Sullivan *et. al.* (2017) (Note 2)

3. FINDINGS

3.1. Overview

This report focuses on the management quality of the world's top 20 companies, by market capitalisation, engaged in mining coal. The resulting group of companies, listed in Table 3, includes 6 general mining companies and 14 companies classified by FTSE Russell's Industry Classification Benchmark as being specialised in mining coal. Companies are listed on 11 different exchanges and differ widely in terms of market capitalisation, from a maximum of nearly USD58bn to under USD1bn in 4 cases.

Table 3 Coal mining companies covered in this report

Company	Country	FTSE Russell Industry Classification Benchmark	Investibility-weighted[6] market capitalisation (USD millions)
Adaro Energy PT	Indonesia	Coal mining	1,777
African Rainbow Minerals Ltd	South Africa	General mining	646
Anglo American	UK	General mining	18,820
Banpu	Thailand	Coal mining	2,380
BHP Billiton	UK	General mining	57,909
China Coal Energy	China	Coal mining	1,036
China Shenhua Energy	China	Coal mining	7,915
Coal India	India	Coal mining	5,644
Consol Energy	US	Coal mining	3,637
DMCI Holdings	Philippines	Coal mining	1,077
Exxaro Resources	South Africa	Coal mining	1,393
Glencore	UK	General mining	46,687
Inner Mongolia Yitai Coal	China	Coal mining	1,094
Rio Tinto Ltd	Australia	General mining	48,068
Semirara Mining and Power	Philippines	Coal mining	901
Shougang Fushan Resources Group	Hong Kong	Coal mining	649
Tambang Batubara Bukit Asam	Indonesia	Coal mining	770
Vale Do Rio Doce	Brazil	General mining	16,827
Whitehaven Coal	Australia	Coal mining	1,451
Yanzhou Coal Mining	China	Coal mining	1,737

Figure 1 shows where these 20 companies sit on the management quality framework. Appendix 2 provides a question-by-question assessment of each company.

[6] Using free-float methodology.

Three companies are assessed as "Unaware of (or not Acknowledging) Climate Change as a Business Issue" (Level 0): DMCI Holdings, Inner Mongolia Yitai Coal and Shougang Fushan Resources Group. This means they do not have any of the following:

- A policy or an equivalent statement committing them to take action on their greenhouse gas emissions;
- A formal statement recognising climate change and its potential impacts as a significant or material issue for their business;
- Time-specific targets, even qualitative, relating to energy efficiency or relative or absolute greenhouse gas emissions; or
- Disclosures on their Scope 1 and 2 greenhouse gas emissions.

Figure 1 Management quality of the world's top 20 coal mining companies

LEVEL 0 UNAWARE / NOT ACKNOW-LEDGING	LEVEL 1 ACKNOWLEDGEMENT	LEVEL 2 BUILDING CAPACITY	LEVEL 3 INTEGRATED INTO OPERATIONAL DECISION-MAKING	LEVEL 4 STRATEGIC ASSESSMENT
DMCI Holdings	Adaro Energy PT	Coal India	African Rainbow Minerals Ltd	Anglo American
Inner Mongolia Yitai Coal	China Coal Energy	Consol Energy	Banpu	BHP Billiton
Shougang Fushan Resources Group	China Shenhua Energy	Exxaro Resources		Glencore
	Whitehaven Coal	Semirara Mining and Power		Rio Tinto Ltd
	Yanzhou Coal Mining	Tambang Batubara Bukit Asam		Vale Do Rio Doce

Five companies are assessed as "Acknowledging Climate Change as a Business Issue" (Level 1): Adaro Energy PT, China Coal Energy, China Shenhua Energy, Whitehaven Coal and Yanzhou Coal Mining. As Appendix 2 shows, all 5 of these companies either have a formal statement recognising climate change and its potential impacts as a significant or material issue, or 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. However, none of the five has both, which would have enabled them to progress to Level 2.

There are 5 companies on Level 2, defined as "Building Capacity". These are: Coal India, Consol Energy, Exxaro Resources, Semirara Mining and Power, and Tambang Batubara Bukit Asam. As the Appendix shows, none of these companies has set targets, although 3 out of the 5 companies do publish information on their Scope 1 and 2 greenhouse gas emissions.

Two companies are on Level 3, where climate change has been “Integrated into Operational Decision-Making”: African Rainbow Minerals Ltd and Banpu. According to the framework and the rules for progression, both of these companies publish information on their Scope 1 and 2 emissions, and both have set time-specific targets for their energy efficiency or emissions. African Rainbow Minerals Ltd satisfies a further 4 out of 5 criteria on Level 3, but it is assessed as failing to demonstrate support for mitigating climate change through membership of business associations that are supportive, and having a clear company position on public policy and regulation. Therefore African Rainbow Minerals Ltd is close to progressing to Level 4. By contrast, Banpu only satisfies one Level 3 criterion, which is having set quantitative targets for its Scope 1 and 2 emissions.

Five companies – Anglo American, BHP Billiton, Glencore, Rio Tinto Ltd and Vale Do Rio Doce – are on Level 4, which means they have reached the stage of “Strategic Assessment” of climate change. They have assigned board responsibility for climate change, set quantitative targets for their Scope 1 and 2 emissions, at least in the short term, report on their Scope 3 emissions, have had their Scope 1 and 2 emissions data verified, and demonstrate support for mitigating climate change through membership of business associations that are supportive, and having a clear company position on public policy and regulation.

However, as the Appendix shows, none of these top-performing companies yet scores Yes on all 4 criteria on Level 4:

- Anglo American is assessed as providing information on the business costs associated with climate change and has incorporated environmental, social and governance (ESG) issues into executive remuneration, but has failed to reduce its Scope 1 and 2 emissions over the last 3 years and has not set long-term, quantitative emissions targets.
- BHP Billiton has reduced its Scope 1 and 2 emissions over the last 3 years and has incorporated ESG issues into executive remuneration, but has not set long-term, quantitative emissions targets, and does not provide information on the business costs associated with climate change.
- Glencore has reduced its Scope 1 and 2 emissions over the last 3 years and is assessed as providing information on the business costs associated with climate change, but has not set long-term, quantitative emissions targets, or incorporated ESG issues into executive remuneration.
- Rio Tinto Ltd scores Yes on 3 of the 4 questions relating to Level 4, but is also assessed as not providing information on the business costs associated with climate change.
- Vale Do Rio Doce also scores Yes on 3 of the 4 questions relating to Level 4, but has failed to reduce its Scope 1 and 2 emissions over the last 3 years

The average level-score of all 20 coal mining companies is 2.1, with 13 out of the 20 companies on Level 2 or below and 8 on Levels 0 or 1. Just 7 are on Levels 3 or 4.

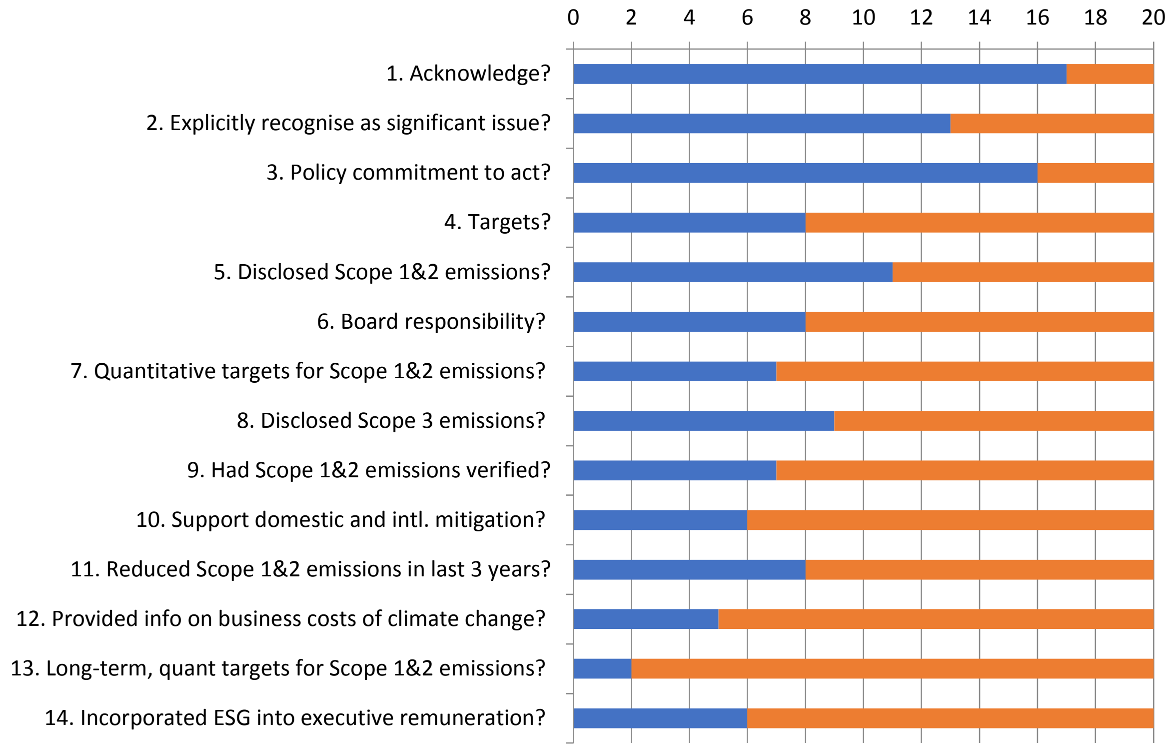
3.2. Scores against individual criteria

Figure 2 looks at how the 20 coal mining companies as a whole perform against the 14 individual criteria/questions (details in Appendix 2). As one would expect, the best overall performance is against the basic questions mapping on to Levels 0 and 1:

17 of the 20 companies are assessed as acknowledging climate change as a significant issue for their business, 16 out of 20 are assessed as having a policy (or equivalent) commitment to action on climate change, while 13 out of 20 are assessed as *explicitly* recognising climate change as a significant issue for their business.

Thereafter performance falls away markedly. On only one further question – whether a company discloses its Scope 1 and 2 emissions – do a majority of companies (11 out of 20) score Yes. Only 8 out of 20 companies have any form of time-specific target to improve energy efficiency or reduce emissions. Moreover only 2 companies, Rio Tinto Ltd and Vale Do Rio Doce, have set long-term, quantitative targets to reduce their Scope 1 and 2 emissions. This is the question on which the companies perform worst, as a group. Only 9 companies report on their Scope 3 emissions. The failure to disclose Scope 3 emissions is noteworthy, given the importance of downstream emissions from the burning of coal to any coal mining company's overall – i.e. combined Scope 1, 2 and 3 – carbon footprint.

Figure 2 Number of companies scoring Yes (blue) against individual questions, and No (red)



3.3. Management quality by company type

The better performing companies (i.e. those on Level 3 or 4) tend to have three common characteristics:

- They are more likely to be diversified mining companies rather than coal mining specialists. All 6 of the general mining companies are on at least Level 3, whereas just one (1) of the 14 coal mining companies is on either of these levels.
- They are more likely to be large-cap companies. Five of the 6 general mining companies are large-cap companies, with the exception being African Rainbow Minerals Ltd. Of the 13 specialist coal mining companies with relatively low carbon management quality (i.e. on Levels 0, 1 or 2), 9 are small or mid cap.
- They are more likely to be listed on exchanges in developed countries. Four of the 6 general mining companies are listed on exchanges in industrialised countries (3 in the UK), with the exceptions being African Rainbow Minerals Ltd (South Africa) and Vale Do Rio Doce (Brazil). Of the 13 specialist coal mining companies with relatively poor carbon management quality, 11 are listed on exchanges in emerging markets.

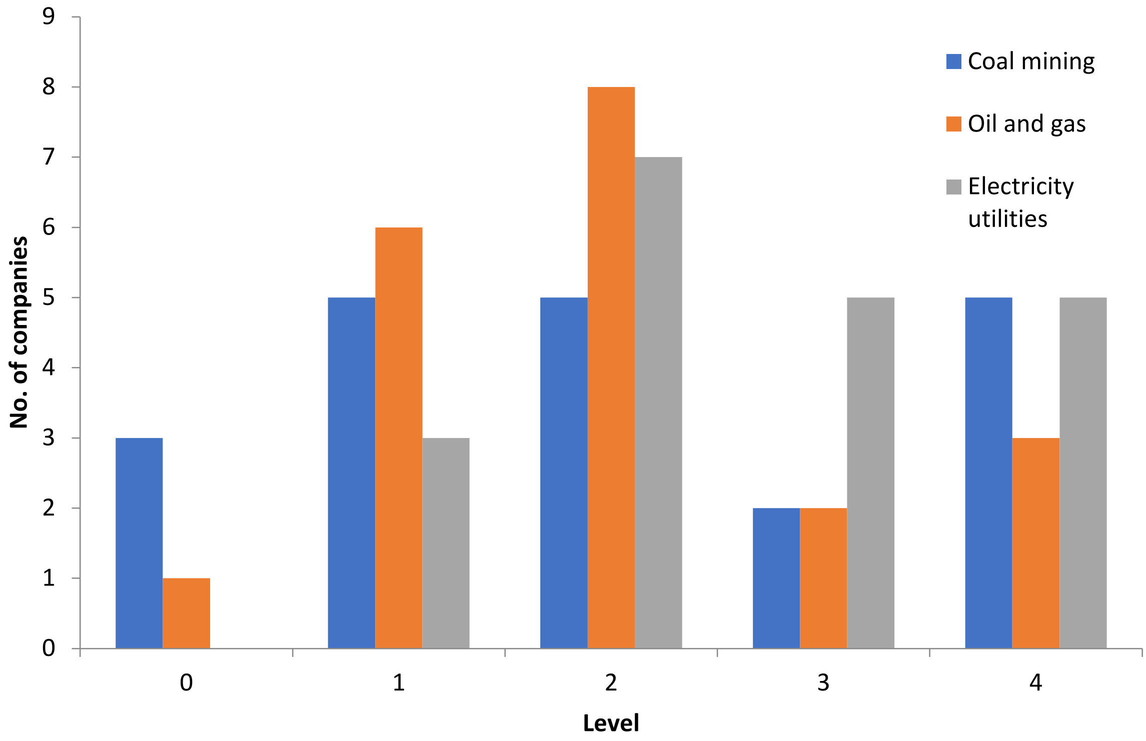
More research is required on which of these factors is the key determinant of company performance (i.e. the type of mining activities carried out, the size of the company or the country of listing).

3.4. Comparison with electricity utilities, and oil and gas

In January 2017, TPI released its management quality assessment of the global top 20 electricity utilities, and oil and gas producers.[7] In the electricity utilities sector, there were no Level 0 companies, there were 10 companies on Levels 3 or 4, and the average score for the sector was 2.6. In the oil and gas sector, there was one Level 0 company, there were 5 companies on Levels 3 or 4, and the average score for the sector was 2.1. That is, as illustrated in Figure 3, the overall performance of the coal mining sector is broadly similar to the oil and gas sector, although, as discussed above, there is a stark difference between the performance of the diversified miners (average score 3.8) and the coal mining specialists (average score of 1.3).

[7] These data can be viewed at http://www.lse.ac.uk/GranthamInstitute/tpi/the-toolkit/

Figure 3 Comparison of management quality in coal mining, electricity, and oil and gas



4. SUMMARY

This report has assessed the management quality of the world's 20 largest publicly-listed coal mining companies, a group that includes both diversified miners, as well as companies focused on the mining of coal.

The results suggest that there is a significant difference between these two types of company. While all 6 of the diversified mining companies are considered to have at least integrated climate change into their operational decision-making (Level 3), only one specialist coal mining company has reached this level.

Beyond explicitly recognising climate change as a significant business issue and having a policy in place that commits the company to act, there are significant weaknesses in most companies' management approach. The proportion of companies with long-term, quantitative targets for their Scope 1 and 2 emissions is particularly low (2 out of 20), as is the proportion of companies providing information on the business costs of climate change (5 out of 20). Furthermore, only 9 out of 20 companies disclose their Scope 3 emissions, despite the importance of emissions from burning coal to these companies' lifecycle carbon footprint, and despite the implications of the low-carbon transition for the size of the market for coal.

This report points to two wider conclusions. The first is that all companies in the sector could significantly improve their management practices and disclosures on climate change. This is necessary to enable investors to properly asses how well these companies are managing their carbon emissions and the risks and opportunities related to the low-carbon transition. The second is that the factors driving companies' practices and processes could usefully be subject to further analysis. We have identified the potential role played by sub-sector, size and country of listing, but, within the confines of this study, the key determinant of companies' management quality cannot be isolated. This is a question we will return to as we conduct future TPI management quality assessments.

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6. Please read the Terms and Conditions which apply to use of the website.

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? (Yes/No)
Explanatory Notes	Acknowledging climate change as a business issue is an important first step towards implementing a comprehensive approach to the low-carbon transition. Companies are assessed as Yes if they: • Have a policy or an equivalent statement committing them to take action on their greenhouse gas emissions (e.g. to reduce emissions, to improve their energy efficiency); or • Have a formal statement recognising climate change and its potential impacts as a significant or material issue for their business; or • Have set energy efficiency or relative or absolute greenhouse gas emission reduction targets; or • Have published information on their Scope 1 and Scope 2 greenhouse gas emissions. Companies are assessed as No if they do not meet any of these conditions.
Level 1: Acknowledging Climate Change as a Business Issue	
Question 2	Does the company explicitly recognise climate change as a significant issue for the business? (Yes/No)
Explanatory Notes	Companies are assessed as Yes if they have a formal statement recognising climate change and its potential impacts as a significant or material issue for their business.
Question 3	Does the company have a policy (or equivalent) commitment to action on climate change? (Yes/No)
Explanatory Notes	It is good practice for companies to formalise their approach to climate change in a policy (or equivalent document, such as a statement of guiding principles, a code of practice, or a sourcing charter). While the existence of a policy does not speak to the level of ambition or implementation, the absence of a policy is a clear sign that climate change is not on the business agenda. 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 energy efficiency or relative or absolute greenhouse gas emission reduction targets? (Yes/No)
Explanatory Notes	Objectives and targets are the point where policy commitments are translated into substantive action, and where resources and responsibilities are allocated for the delivery of these objectives and targets. Companies are assessed as Yes if they have time-specific targets, covering part or all of the business, to reduce energy consumption or

	greenhouse gas emissions. These can be process or performance targets, they can focus on energy or on greenhouse gas emissions, they can be expressed in qualitative or quantitative terms, and they can be expressed in relative or absolute terms. This question is intended to assess whether companies have started the target-setting process. Questions 7 and 13 ask more detailed questions about whether companies have set targets for the reduction of greenhouse gases over the short and long term. Companies that are assessed as Yes on either of these questions (i.e. Questions 7 and 13) are also assessed as Yes on Question 4.
Question 5	Has the company published information on its Scope 1 and 2 greenhouse gas emissions? (Yes/No)
Explanatory 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. Companies that report normalised emissions only are assessed as No.
Level 3: Integrated 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? (Yes/No)
Explanatory 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 relative or absolute targets for reducing its operational (Scope 1 and 2) greenhouse gas emissions? (Yes/No)
Explanatory Notes	Companies are assessed as Yes if they have set quantified targets to reduce operational greenhouse emissions in relative or absolute terms. This question is more demanding than Question 4, as it is looking for companies to have set quantitative targets to reduce operational greenhouse gas emissions, at least in the short term (i.e. with a target year up to 5 years away). In contrast, Question 4 allows companies to set process targets (e.g. to take particular actions) and to focus these on energy or on greenhouse gas emissions. This question differs from Question 13, which asks whether companies have set targets for the reduction of operational greenhouse gases in the long term (i.e. with a target year more than 5 years away). Companies that are assessed as Yes on Question 13 are also assessed as Yes on this question.
Question 8	Does the company report on Scope 3 emissions? (Yes/No)
Explanatory Notes	Companies are assessed as Yes if they report on Scope 3 emissions separately, or if they provide a total for Scope 1, 2 and 3 emissions.
Question 9	Has the company had its operational greenhouse gas emissions data verified? (Yes/No)
Explanatory 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? (Yes/No)
Explanatory 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.
Level 4: Strategic Assessment	
Question 11	Has the company reduced its operational (Scope 1 and 2) greenhouse gas emissions over the past 3 years?
Explanatory Notes	Companies are assessed as Yes if their operational (i.e. total Scope 1 and 2) greenhouse gas emissions have reduced over 3 years. For companies that do not report a breakdown of Scope 1, 2 and 3 emissions, total Scope 1, 2 and 3 emissions are used in this calculation. Companies that do not report Scope 1 and 2 emissions are assessed as No, as are companies that report less than 3 years' data.
Question 12	Does the company provide information on the business costs – for example, capital investments, costs of carbon permits – associated with climate change? (Yes/No)
Explanatory Notes	Companies are assessed as Yes if they quantify the business costs associated with climate change.
Question 13	Has the company set long-term relative or absolute targets for reducing its greenhouse gas emission? (Yes/No)
Explanatory Notes	Companies are assessed as Yes if they have set quantified long-term targets (i.e. with a target year more than 5 years away) to reduce operational (Scope 1 and 2) greenhouse emissions in relative or absolute terms. This question is more demanding than Question 7, as it looks for companies to have set long-term quantitative targets (i.e. that are more than 5 years in duration from start to end) to reduce operational greenhouse gas emissions. By contrast, Question 7 asks whether the company has set short-term targets (i.e. less than 5 years in duration).
Question 14	Has the company incorporated environmental, social and governance issues into executive remuneration? (Yes/No)
Explanatory Notes	Companies are assessed as Yes if executive remuneration includes incorporates environmental, social and governance performance.

APPENDIX 2 DETAILED ASSESSMENT OF COMPANIES' MANAGEMENT QUALITY

Company	Level	Level 0	Level 1		Level 2		Level 3					Level 4			
		1. Does the company acknowledge climate change as a significant issue for the business?	2. Does the company explicitly recognise climate change as a significant issue for the business?	3. Does the company have a policy (or equivalent) commitment to action on climate change?	4. Has the company set energy efficiency or GHG emission reduction targets?	5. Has the company published information on its Scope 1 and 2 GHG emissions?	6. Has the company assigned explicit board responsibility for oversight of the climate change policy?	7. Has the company set quantitative targets for reducing its operational (Scope 1 and 2) GHG emissions?	8. Does the company report on Scope 3 emissions?	9. Has the company had its operational (Scope 1 and 2) GHG emissions data verified?	10. Does the company support domestic and international efforts to mitigate climate change?	11. Has the company reduced its operational (Scope 1 and 2) GHG emissions over the past 3 years?	12. Does the company provide information on the business costs associated with climate change?	13. Has the company set long-term targets for reducing its operational (Scope 1 and 2) GHG emissions?	14. Has the company incorporated ESG issues into executive remuneration?
Adaro Energy PT	1	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
African Rainbow Minerals Ltd	3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No
Anglo American	4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
Banpu	3	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	Yes	No	No	No
BHP Billiton	4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes
China Coal Energy	1	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No
China Shenhua Energy	1	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No
Coal India	2	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No
Consol Energy	2	Yes	Yes	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No	No
DMCI Holdings	0	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Exxaro Resources	2	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes
Glencore	4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No

Inner Mongolia Yitai Coal	0	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Rio Tinto Ltd	4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Semirara Mining and Power	2	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No
Shougang Fushan Resources Group	0	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Tambang Batubara Bukit Asam	2	Yes	Yes	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No
Vale Do Rio Doce	4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Whitehaven Coal	1	Yes	No	Yes	No	Yes	No	No	Yes	No	No	No	No	No	Yes
Yanzhou Coal Mining	1	Yes	No	Yes	No	No	Yes	No	No	No	No	No	No	No	No