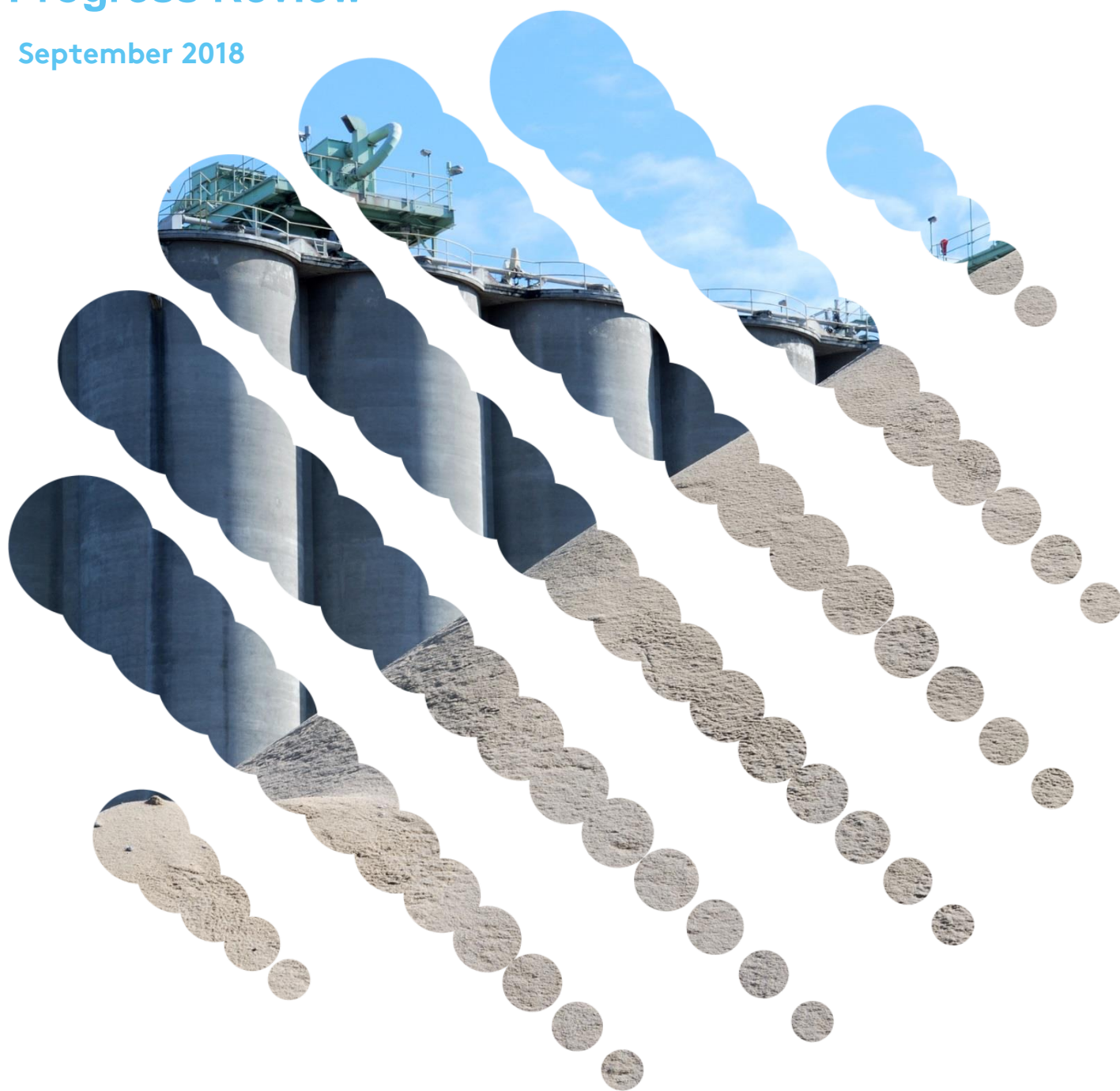
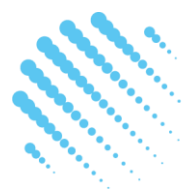


Management Quality and Carbon Performance of Cement Producers: Progress Review

September 2018



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1. Introduction

About the Transition Pathway Initiative

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

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

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

This report

This latest TPI report assesses 21 of the world's largest publicly listed cement producers,² updating and extending our previous analysis of the sector from September 2017. [1]

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

Brief overview of methodology

TPI's assessment is divided into two parts:

1. *Management Quality* covers companies' management/governance of greenhouse gas emissions and the risks and opportunities arising from the low-carbon transition.
2. *Carbon Performance* assessment involves quantitative benchmarking of companies' emissions pathways against the international targets and national pledges made as part of the 2015 UN Paris Agreement.

We assess Management Quality and Carbon Performance separately, because research shows the relationship between them is by no means clear cut. Management Quality assessment focuses on processes, while Carbon Performance focuses on outcomes. Together they are intended to provide a holistic view of companies' progress on the low-carbon transition. The framework is aligned with recommendations of the FSB Taskforce on Climate-

related Financial Disclosures (TCFD), tracking companies in relation to TCFD's four recommendation areas: governance, strategy, risk management, and metrics and targets.

Management Quality

TPI's Management Quality framework comprises five levels:

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

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

Carbon Performance

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

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

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

¹ As of 5 June 2018.

² This is a version of December 2018 correcting some inaccuracies in the initial September 2018 release.

2. Management Quality

Overview

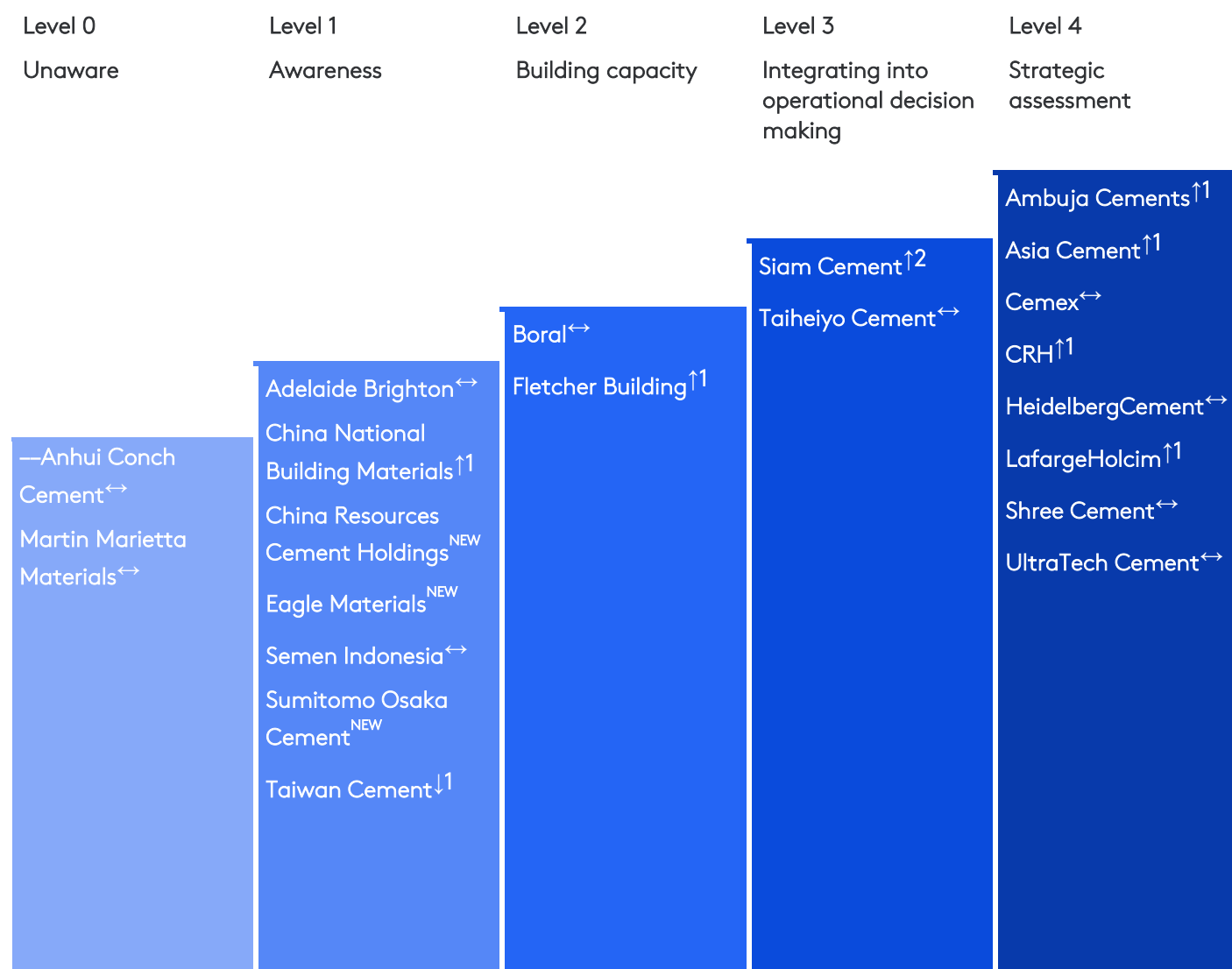
Figure 1 shows the number of cement producers on each Management Quality level.

As in some other industries, there is a cluster of leaders on Level 4 and laggards on Level 1. Seven companies are on Level 1 – Acknowledging Climate Change as a Business Issue. Six of the seven companies on this level have a climate change policy in place, but do not explicitly recognise climate change as a relevant risk and/or opportunity for the business. The exception is Eagle Materials, which does the opposite.

Eight companies have made it to Level 4 – Strategic Assessment. These companies satisfy all TPI's indicators on Levels 0-3 and are undertaking some, but not all, of the following: setting quantitative, long-term emissions targets; incorporating ESG issues into executive remuneration; incorporating climate change risks and opportunities in company strategy; undertaking climate scenario planning; disclosing their internal carbon price.

The average level score of the 21 cement producers assessed here is 2.3, which corresponds with Level 2 – Building Capacity.

Figure 1. Management quality of the world's top cement producers



Trends in Management Quality

In terms of the sector average, there is only a slight change in the performance of cement producers since they were first assessed by TPI in September 2017. At that time, the average level score was 2.1. This contrasts with other sectors recently assessed by TPI, which did show more improvement on last year (i.e. coal mining, electricity, and oil and gas). [3]

Additionally, we see individual companies moving up and down levels compared with 2017 (**Figure 2**). Of the 18 companies assessed both last year and this, seven companies move up at least one level, while one company moves down at least one level. Siam Cement progresses from Level 1 to Level 3 by explicitly recognising climate change as a relevant risk and/or opportunity for the business.

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



Indicator by indicator

When companies' Management Quality is viewed indicator by indicator (**Figure 3**), we see, as usual, a greater proportion of companies carrying out the basic carbon management practices associated with Levels 0 to 2, and fewer companies implementing the more advanced practices associated with Levels 3 and 4.

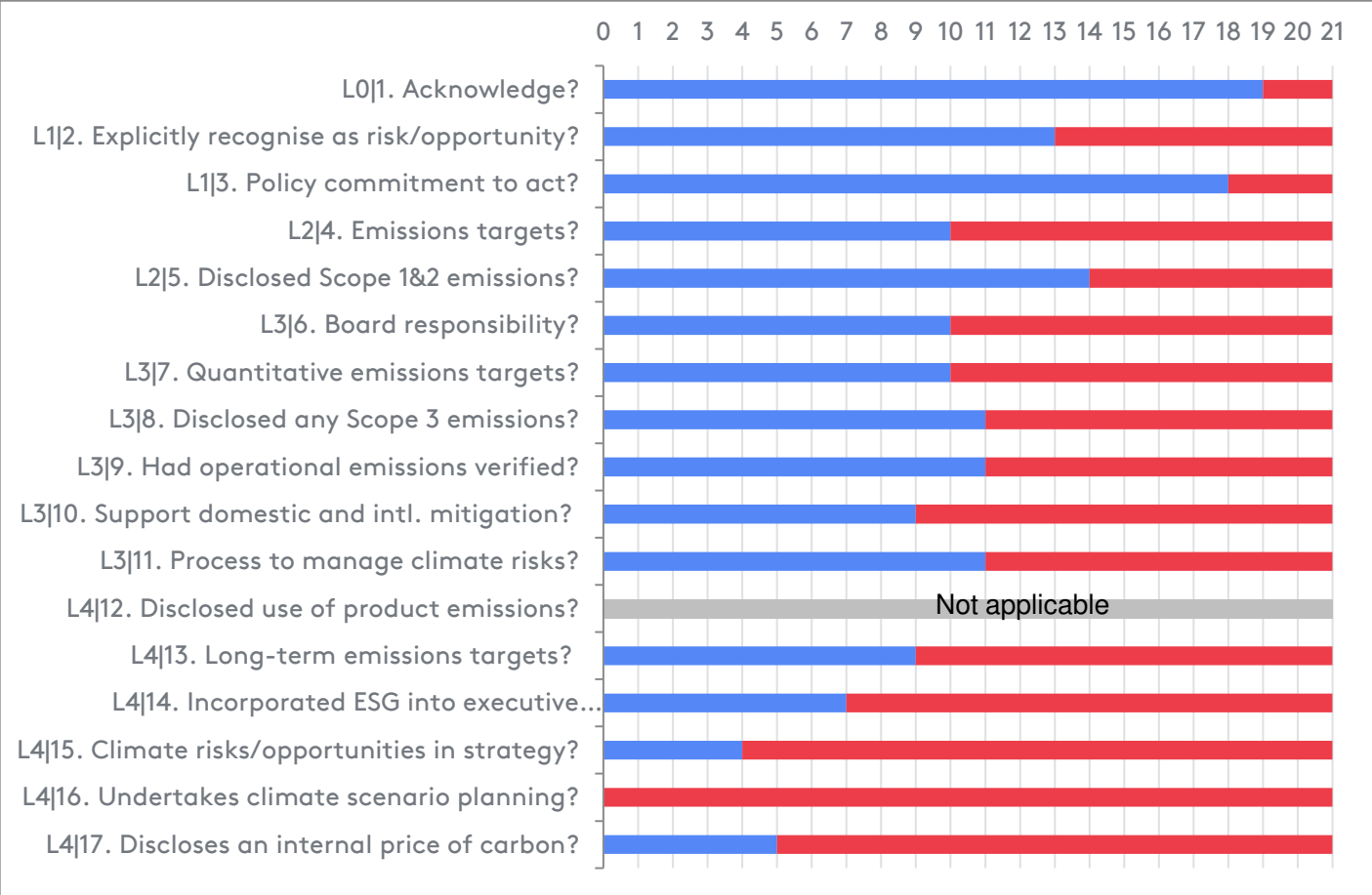
Seven criteria are satisfied by a majority of the 21 cement producers: (Q1) acknowledgement of climate change as a significant business issue; (Q2) explicit recognition of climate change as a business risk/opportunity; (Q3) having a policy commitment to act; (Q5) disclosure of operational (i.e. Scope 1

and 2) emissions; (Q8) disclosure of some Scope 3 emissions; (Q9) having operational emissions verified; and (Q11) having a process to manage climate-related risks.

In 2017, nine criteria (out of only 14 in total) were satisfied by a majority of companies. One reason for the worse performance this year is that the three companies newly assessed – China Resources Cement Holdings, Eagle Materials and Sumitomo Osaka Cement – all perform poorly on Management Quality.

Relatively few companies satisfy any of the Level 4 criteria and none at all are assessed as undertaking climate scenario planning.

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



3. Carbon Performance

Table 1 summarises Carbon Performance data for the 21 cement producers covered by this report. The traffic light scheme indicates that a company with an emissions intensity of cement production that is below the benchmarks can be

said to be aligned with those benchmarks and therefore with the international commitments underpinning them. A company whose emissions intensity is above the benchmarks is not aligned.

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

| Company | Emissions intensity of cement production (tCO ₂ / t cementitious product) | | | | | | |
|-----------------------------------|--------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|
| | 2014 | 2015 | 2016 | 2017 | 2020 | 2025 | 2030 |
| Adelaide Brighton | 0.831 | 0.737 | 0.781 | 0.762 | | | |
| Ambuja Cements | 0.554 | 0.545 | 0.543 | 0.550 | 0.517 | 0.490 | 0.463 |
| Anhui Conch Cement | | | | | | | |
| Asia Cement | | | | | | | |
| Boral | | | | | | | |
| Cemex | 0.613 | 0.630 | 0.642 | 0.636 | 0.603 | | |
| China National Building Materials | | | | | | | |
| China Resources Cement Holdings | | | | | | | |
| CRH | 0.624 | 0.573 | 0.578 | 0.572 | 0.571 | | |
| Eagle Materials | | | | | | | |
| Fletcher Building | | | | | | | |
| HeidelbergCement | 0.603 | 0.595 | 0.598 | 0.609 | 0.593 | 0.567 | 0.540 |
| LafargeHolcim | 0.579 | 0.582 | 0.585 | 0.581 | 0.516 | 0.485 | 0.462 |
| Martin Marietta Materials | | | | | | | |
| Semen Indonesia | | 0.696 | 0.695 | 0.708 | | | |
| Shree Cement | | | | 0.555 | | | |
| Siam Cement | 0.629 | 0.643 | 0.641 | 0.651 | 0.619 | | |
| Sumitomo Osaka Cement | | | | | | | |
| Taiheiyo Cement | 0.692 | 0.692 | 0.683 | 0.681 | 0.674 | 0.662 | |
| Taiwan Cement | | | | | | | |
| UltraTech Cement | 0.644 | 0.633 | 0.632 | 0.615 | 0.563 | | |
| Below 2 Degrees | 0.534 | 0.528 | 0.522 | 0.516 | 0.498 | 0.471 | 0.408 |
| 2 Degrees | 0.534 | 0.535 | 0.535 | 0.535 | 0.537 | 0.539 | 0.497 |
| Paris Pledges | 0.534 | 0.537 | 0.539 | 0.542 | 0.549 | 0.560 | 0.540 |

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

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

Historical Carbon Performance data are available for 11 out of 21 companies (52%), the same proportion as last year. Eight companies have also

set company-wide, quantitative targets for their future emissions, which we can use to estimate Carbon Performance in 2020. Three companies have useable targets extending to at least 2030, one more than last year (Ambuja Cements is the new company with a 2030 target).

An important feature of this year's assessment, compared with last year's, is that the benchmark emissions intensities have fallen. This is due to revisions to the cement sector modelling done by the IEA, which underpins the benchmarks.[4] On the 2 Degrees benchmark, for example, the emissions intensity of cement production is now 0.537 tonnes of CO₂ per tonne of cementitious product in 2020, compared with 0.589 tCO₂ / t cementitious product in last year's TPI assessment (i.e. the 2 Degrees benchmark in 2020 has been revised down by 9%).

This downward shift in the benchmarks means that all companies with data are now out of alignment in the historical period.

In 2020, seven out of the 10 companies with performance data will not be aligned with any of the Paris Agreement benchmarks. Only Ambuja Cements and Lafarge Holcim will be in alignment. They will be aligned with the 2 Degrees benchmark, but not the Below 2 Degrees benchmark.

Of the three companies with 2030 targets, Ambuja Cements and Lafarge Holcim stay aligned with the 2 Degrees benchmark, while HeidelbergCement becomes aligned with the Paris Pledges benchmark.

Appendix 1. List of cement producers covered in this report

| Company | Country listing | Market cap. (million USD) after investibility weight |
|-----------------------------------|-----------------|------------------------------------------------------|
| Adelaide Brighton | Australia | 2,309 |
| Ambuja Cements | India | 2,334 |
| Anhui Conch Cement | China | 7,475 |
| Asia Cement | Taiwan | 2,585 |
| Boral | Australia | 5,510 |
| Cemex | Mexico | 9,021 |
| China National Building Materials | China | 4,676 |
| China Resources Cement Holdings | China | 1,943 |
| CRH | United Kingdom | 31,202 |
| Eagle Materials | | 5,243 |
| Fletcher Building | New Zealand | 4,015 |
| HeidelbergCement | Germany | 13,271 |
| LafargeHolcim | Switzerland | 24,705 |
| Martin Marietta Materials | United States | 14,344 |
| Semen Gresik | Indonesia | 1,726 |
| Shree Cement | India | 1,994 |
| Siam Cement | Thailand | 11,248 |
| Sumitomo Osaka Cement | Japan | 1,782 |
| Taiheiyo Cement | Japan | 4,423 |
| Taiwan Cement | Taiwan | 5,352 |
| UltraTech Cement | India | 4,471 |

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