

Chasing 1.5°C

The ASX200 – on the right trajectory?

November 2022



About ACSI

Established in 2001, ACSI exists to provide a strong, collective voice on environmental, social and governance (ESG) issues on behalf of our members.

Our members include 26 Australian and international asset owners and institutional investors. Collectively, they manage over \$1 trillion in assets.

Our members believe that ESG risks and opportunities have a material impact on investment outcomes. As fiduciary investors, they have a responsibility to act to enhance the long-term value of the savings entrusted to them.

Through ACSI, our members collaborate to achieve genuine, measurable and permanent improvements in the ESG practices and performance of the companies they invest in.

ACSI staff undertake a year-round program of research, engagement, advocacy and voting advice. These activities provide a solid basis for our members to exercise their ownership rights.



26 Australian & international investors



Leading voice on ESG issues and advocacy



ACSI members manage \$1 trillion in assets

Acknowledgement of Country

We acknowledge and respect the traditional lands and cultures of First Nations people in Australia and globally. We pay our respects to Elders past and present and recognise First Nations peoples' longstanding and ongoing spiritual connections to land, sea, community and Country. Appreciation and respect for the rights and cultural heritage of First Nations peoples is essential to the advancement of our societies and our common humanity.

Foreword

Climate change risks - financial and physical - exist right across the economy. They are expected to influence the value of ACSI members' investments along with the retirement outcomes for their beneficiaries. ACSI has engaged with ASX200 companies on climate-related issues for many years, and as understanding of the climate crisis has grown, so too have investor expectations on climate risk management.

The Paris Agreement is aimed at "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change"¹. ACSI supports the Paris Agreement's objective.

Earlier ACSI research shows many companies consider targets aimed at "well below 2°C" as sufficiently Paris Agreement-aligned. However, given the urgency of the climate transition, "below 2°C" is now seen only as an entry point, with more ambitious 1.5°C-aligned targets called for.

Each fraction of a degree the temperature rises makes a significant difference to the outcomes facing our societies, companies, economies and, consequently, investments.

In 2022, the IPCC assessed global warming as having reached 1.1°C above pre-industrial levels, fast approaching the Paris Agreement's lower limit. Unmitigated climate change is expected to have catastrophic impacts across the globe, including on human health, biodiversity, water availability, and disruption of ecosystems, even if climate tipping points are not triggered.

ACSI welcomes the recent enshrining in legislation of a floor for Australia's emissions reduction of 43% by 2030 and net zero emissions by 2050, and the setting of related targets by some listed companies.

To understand the climate trajectory of these companies, this analysis examines whether ASX200 companies have set climate targets and if those targets are in line with a 1.5°C world.

The analysis, supported by Climateworks Centre, measures ASX200 companies' net zero and absolute emissions reduction targets against a 1.5°C trajectory. Importantly, this analysis does not assess the credibility of the science and technology that companies intend to use to meet their targets. Instead, this analysis has looked at reported targets and determined if they are aligned to each company's own unique 1.5°C trajectory.

Investors are increasingly trying to understand how targets that have been set will be met. However, the emissions reduction targets set by the ASX200 do not, at this stage, align Australia with a 1.5°C trajectory. This leaves investors, companies and communities facing increased risk.

The pathway to 1.5°C is narrow and shrinking rapidly. The scale of the global challenge to meet it requires urgently renewed focus and activity, and Australia must play its part.



Louise Davidson
Chief Executive Officer, ACSI

¹ https://unfccc.int/sites/default/files/english_paris_agreement.pdf

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- Mei Chew, Senior Project Manager
- Coral Bravo, Senior Analyst

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Co-founded by the Myer Foundation and Monash University in 2009, Climateworks works within the Monash Sustainable Development Institute (MSDI) at Monash University, a non-profit organisation. For the past decade, they have played a unique role in Australia's transition towards a net zero future.

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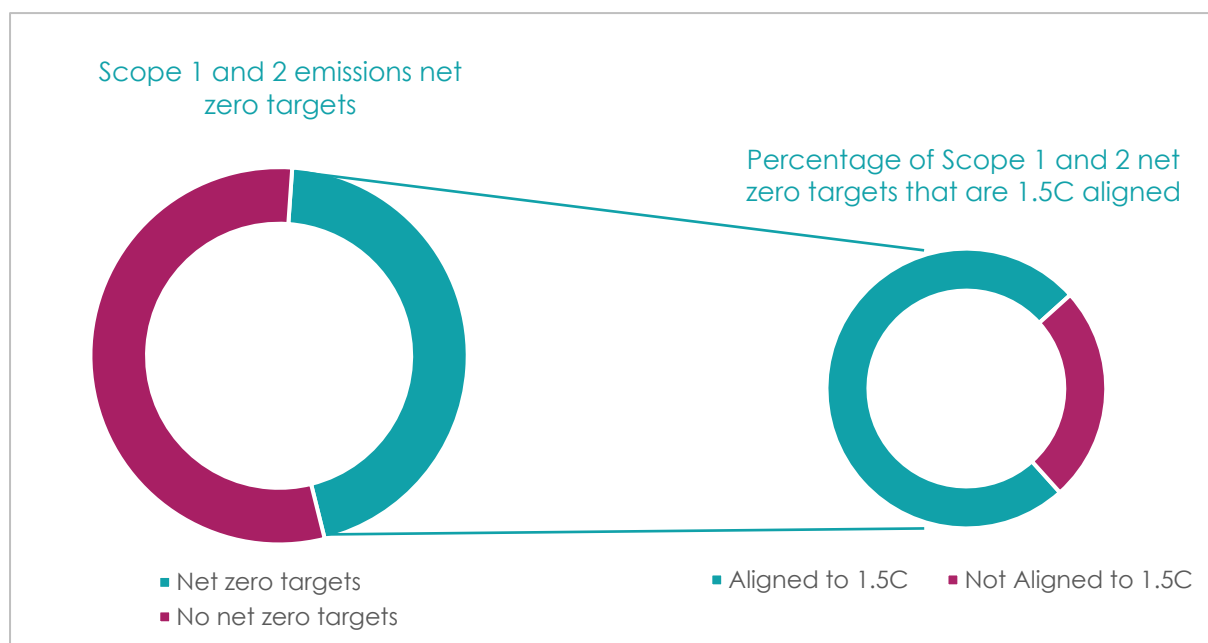
Summary of key findings

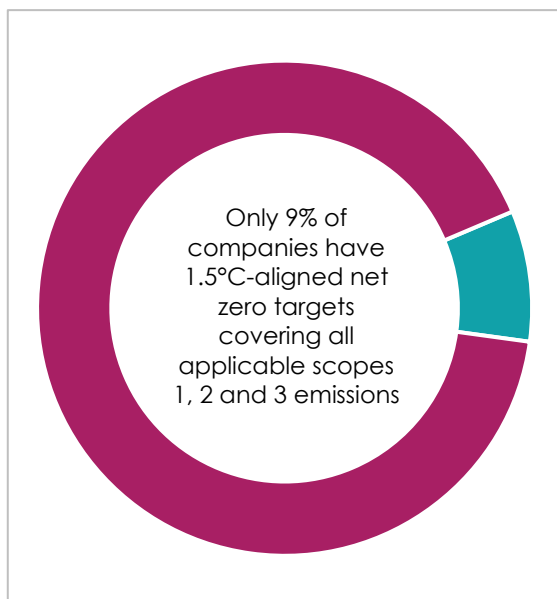
This analysis assesses ASX200 companies' net zero and emissions reductions targets. It considers whether companies have set short, medium and long-term targets, and whether follow a 1.5°C-aligned trajectory. As detailed in the methodology, 187 companies form the basis of this analysis, so where a percentage is provided it is a proportion of 187 unless otherwise specified.

Many companies are ambitious, with 45% of companies having set net zero targets for their scope 1 and 2 emissions.

Encouragingly, 73% of these companies are aligning their net zero targets to the 1.5°C trajectory.

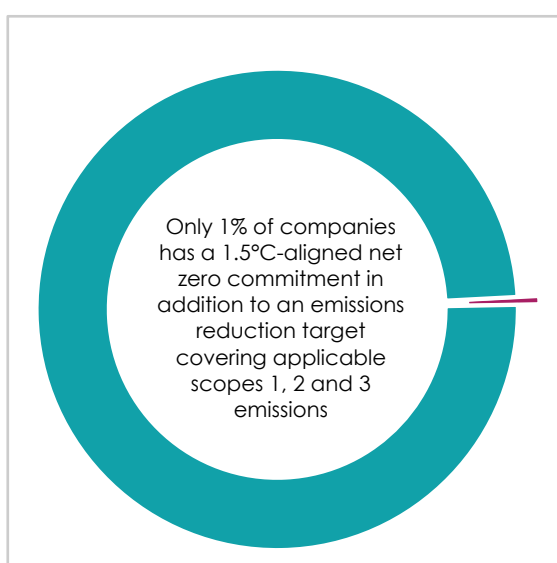
However, only 12% of companies have net zero targets covering all applicable scopes and **only 9% of companies have 1.5°C-aligned net zero targets covering all applicable scope 1, 2 and 3 emissions.**





The momentum towards net zero is not matched by short and medium-term target setting. Longer-dated net zero targets (for example, net zero by 2050) need intermediate absolute emissions reduction milestones to succeed. Without measurable short and medium-term targets addressing how companies intend to reach their net zero aim, there can be little confidence it will be achieved.

Only 3% of companies assessed have a net zero commitment in addition to an emissions reduction target for scope 1, 2 and, if applicable, scope 3 emissions. Only 1% of companies has set these targets in line with 1.5°C.



This lack of short and medium-term targets makes it difficult for investors and other stakeholders to understand the path companies expect to follow to fulfil their net zero ambition.

Predominantly due to this lack of aligned short and medium-term targets, this analysis finds **there will be a 36% overspend of the ASX200-specific 1.5°C carbon budget for the period 2021-2050** (an overspend of 741 MtCO_{2e}).

Predominantly due to the lack of short and medium-term targets, this analysis finds an estimated 36% overspend of the ASX200-specific 1.5°C carbon budget for the period 2021-2050

While we are encouraged to see the growing number of net zero targets, it follows that **more than 50% of the ASX200 have not set absolute emissions reduction targets.**

Given the scale of the challenge we face, the maturity of Australia's market and the Australian Government's new national target, that 50% must act to identify appropriate targets. This will be an ongoing area of focus for engagement by ACSI and our members.

Scope 3 emissions remain an area of concern: many targets do not include scope 3, even when it is considered applicable to the company. Of the companies assessed, only 1% have a 1.5°C-aligned emissions reduction target for scope 1, 2 and, as applicable, scope 3. While estimating these emissions is challenging, they hold inherent and significant market and transition risks, and companies need to do more to understand and address them.

In addition, we have identified significant data gaps. For example, it is unclear from the disclosure the extent to which net zero targets are dependent on the use of offsets, which means investors cannot understand whether they are being used appropriately.

Three sectors hold the largest share of emissions reported in the National Greenhouse and Energy Reporting (NGER) scheme: utilities, metals and mining and oil, gas and consumable fuels. Encouragingly, some of those companies most responsible for emissions, and other companies most highly exposed to a changing climate, appear to be responding.

To date, investor focus has been on these higher emitting sectors for which the challenge is greater and even more important, as are the business risks they face from the transition to a low carbon economy.

As universal owners of capital, institutional investors cannot diversify away from the impacts of climate change and as part of their fiduciary duty need to take action to mitigate risk. The challenge for institutional investors is not just to decarbonise an individual company, but to decarbonise the economy.

ACSI is encouraged by the growing number of ASX200 net zero commitments. But as identified in this analysis, there is much more to do if the ASX200 is to align with a 1.5°C trajectory.

This analysis has identified that **those not setting targets are often not disclosing their emissions**, so the first step for many is to begin to disclose emissions profiles, then set targets to reduce them.

Companies **with targets should ensure they are aligned with a 1.5°C trajectory, and then map how to reach them.**

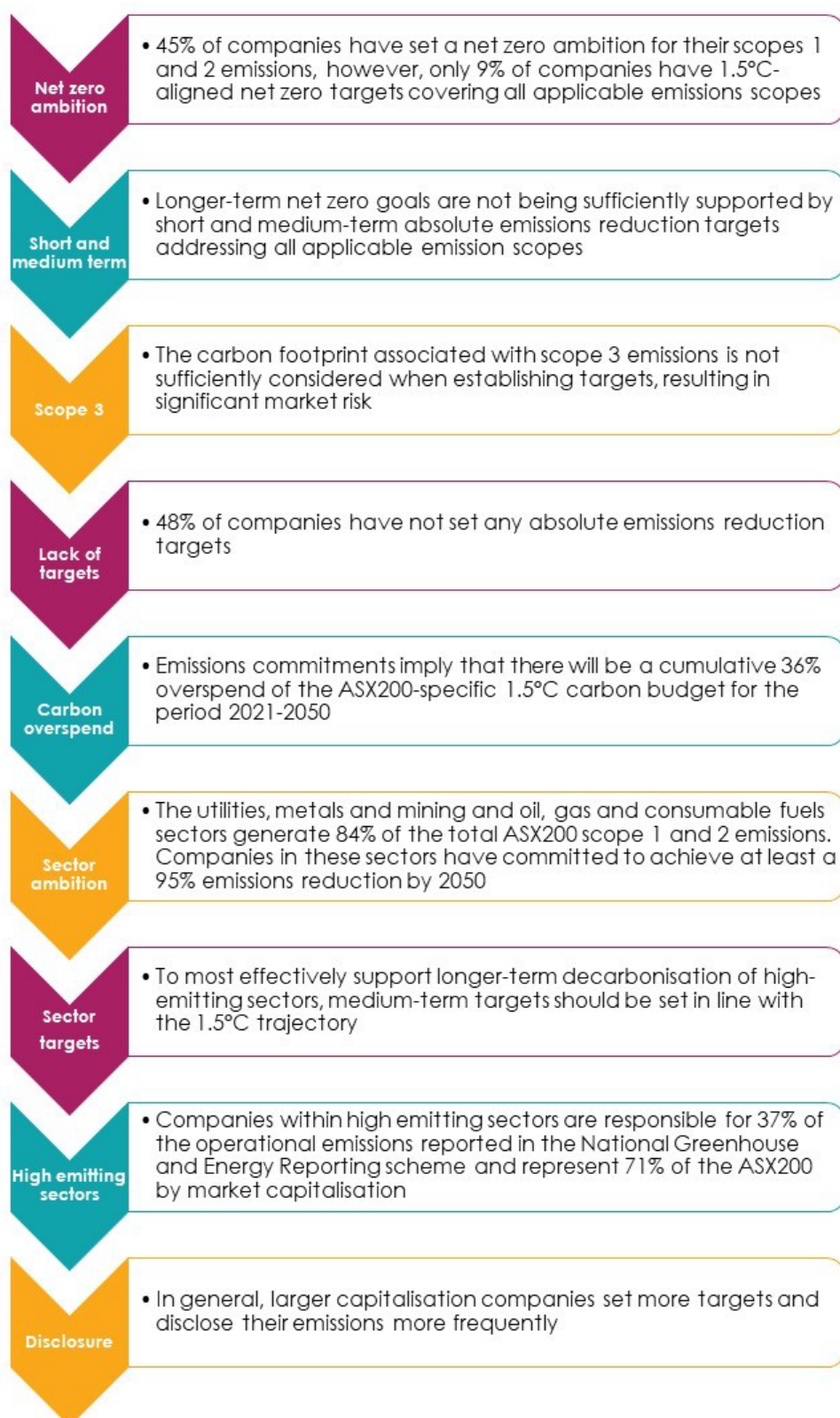
Investors are increasingly interested in the credibility of the approach companies intend to take to meet their stated ambitions. As such, **beyond target setting there will be an increasing focus on the technology, capital allocation and business model changes necessary to reach the 1.5°C target.**

The need for an ambitious 1.5°C-aligned outcome is stark and clear. The risks of missing that target are also increasing, and increasingly visible. ACSI members look forward to continuing to support companies as they make this vital transition and to holding them to account where more needs to be done.

“We’re not just engaged in portfolio transition, but also decarbonising the assets in our economy”

Mark Carney, ACSI Conference, 28 July 2022

Key analysis findings



Key elements of the methodology

While we encourage readers to consider the full methodology, here we highlight some of the key assumptions which are relevant to the analysis focus and outcomes.

- The Australian-based emissions of ASX200 companies were assessed against an Australia-specific 1.5°C pathway. [Climateworks Centre's Decarbonisation Futures '1.5C All-in'](#) is the scenario against which company targets and 1.5°C trajectory alignment were tested. ACSI recognises that this is only one possible pathway, and both this scenario and the ultimate trajectory will depend on many complex and interrelated factors. Nonetheless, the Decarbonisation Futures '1.5C All-in' scenario offers a credible illustration of how Australia could meet its requirements under the Paris Agreement, provided that all actors follow the emissions pathway outlined. Because of the focus on Australia-specific emissions, ASX200 companies with no operations in Australia were not assessed. Likewise, emissions of ASX200 companies that were generated outside of Australia were not included.
- Due to the imperative to keep warming below a 1.5°C temperature rise, the focus of the assessment is on absolute emissions reduction targets, not emissions intensity or renewable energy targets.
- Each company's absolute emissions targets are assessed against a trajectory unique to their emissions profile. Using its current emissions profile to guide the sector choices, these trajectories are developed based on the weighted average of emissions trajectories of the sectors in which a company is involved. A company's offsetting strategy, particularly how that contributes to national sequestration effort required in the 1.5°C pathway, has not been incorporated in the development of company-specific 1.5°C trajectories.
- The information used to compile this report has been collected from a number of sources, as climate-related targets are set and published by companies throughout the year, and in a range of disclosures. Targets disclosed before 31 March 2022 form the basis of this analysis.
- This analysis does not test the credibility of the underlying approach to decarbonisation, but instead looks at whether the proposed targets are sufficiently ambitious.
- This information is not intended as financial advice.

Technical analysis and findings

ASX200 companies' 1.5°C alignment

45% of companies have set a net zero ambition for their scopes 1 and 2 emissions, however, only 9% of companies have 1.5°C-aligned net zero targets covering all applicable emissions scopes²

- 45% of companies have made a net zero commitment covering scopes 1 and 2, and encouragingly 73% of these are 1.5°C aligned.
- However, more targets in line with a 1.5°C trajectory are required. Only 9% of companies have 1.5°C-aligned net zero targets covering all applicable scopes.
- The majority of the net zero targets have been set in the long term, however, some companies are setting net zero targets that are significantly more ambitious than the 1.5°C trajectory.

Net zero targets and alignment

ACSI is encouraged to see that many ASX200 companies are setting ambitious targets and aligning these with a 1.5°C trajectory. Of the companies assessed, 45% have a net zero emissions target covering their scope 1 and 2 emissions. Of these net zero commitments, 73% are in line with a 1.5°C trajectory.

However, only 12% of companies are addressing all applicable scopes in their net zero targets³, see Table 1 below. This analysis identified that only 9% of companies have 1.5°C-aligned net zero targets addressing scope 1, 2 and, where applicable, 3. These companies represent 15% of the ASX200 by market capitalisation.

² Please note, the findings in this section refer to a point-in-time assessment of companies' plans. Please also refer below for more information on the quantification of ASX200 companies' cumulative scope 1 and 2 emissions from now to 2050.

³ This analysis considers if the commitments set cover the company's full carbon footprint (scope 1, 2 and, depending on the materiality, scope 3). The materiality of scope 3 emissions has been assessed at a company-level to determine its applicability in this assessment. Refer to the methodology section for details on scope 3 applicability.

Table 1: Assessment of ASX200 companies' net zero targets

Commitment type and coverage ⁴			Number of companies ⁵	Proportion of companies assessed	Proportion of market capitalisation
Net zero targets	Scope 1 and 2	Commitment	84	45%	54%
		1.5°C-aligned commitment	61	33%	42%
	All applicable scopes	Commitment	23	12%	25%
		1.5°C-aligned commitment ⁶	16	9%	15%

Net zero target timeframes

This analysis identified that the majority of the net zero scope 1 and 2 emissions commitments aimed to be achieved in the long-term (2040+), with 60% of the net zero targets set over this timeframe. In comparison, 10% are aiming for the short-term (2022-2025) and 30% for the medium-term (2026-2039).

Net zero targets covering scope 3 have been set by 11% of companies. 8% of companies expect to achieve these targets in the long-term. 1% of companies are aiming for net zero scope 3 emissions in the short-term and 3% in the medium-term.

More ambitious net zero targets

Some companies are also setting net zero targets that are significantly more ambitious than the 1.5°C trajectory.

3% are aiming to achieve net zero in the short-term (between 2022 and 2025), which is well in advance of their 1.5°C trajectory. These commitments are targeting a reduction of at least 90% greater than the reduction required in the short term to be in line with 1.5°C. The greater ambition being set by these companies should be applauded, although a key question remains how these targets are to be achieved.

1% of companies have an aligned net zero target for scope 3 emissions and are aiming to achieve net zero emissions in 2025 and 2030. These companies' 1.5°C trajectory aims to achieve near net zero emissions in the long-term. Therefore, these commitments are outperforming the 1.5°C trajectory by more than 50%.

⁴ Coverage of 'all applicable' scopes refers to targets addressing scope 1, 2 and, as applicable, scope 3 emissions. Scope 3 is applicable to 177 companies in this assessment. See the methodology section for details on scope 3 applicability.

⁵ In total, 187 companies were included in this assessment. See the methodology section for details on the exclusion of companies.

⁶ The net zero scope 3 targets of 5 financial institutions have not been assessed due to insufficient information. For more information on the assessment of scope 3 targets refer to Table 3.

Longer-term net zero goals are not being sufficiently supported by short and medium-term absolute emissions reduction targets addressing all applicable emission scopes

- Establishing 1.5°C-aligned intermediate short and medium-term targets assists in decarbonising at an appropriate pace to achieve the long-term temperature goal.
- The reduction to be achieved in the short and medium-term to align with a 1.5°C trajectory is often underestimated, especially in terms of scope 3 emissions.

The picture of net zero target-setting is encouraging, and ACSI has seen many companies announcing their intention to reach net zero. As outlined above, however, many of these targets are to be achieved in the longer term. It is necessary to have appropriate short and medium-term targets to support the achievement of longer-term targets because the cumulative behaviour of emissions will determine the degree of global warming. Establishing 1.5°C-aligned intermediate short and medium-term targets assists in decarbonising at an appropriate pace to achieve the long-term temperature goal.

Short, medium and long-term emissions reduction targets

This analysis found that 30% of the companies assessed have a short, medium or long-term emissions reduction target⁷ for their scope 1 and 2 emissions. Only 6% have one covering scope 1, 2 and, as applicable, 3, see Table 2 below.

To address scope 1 and 2 emissions, 23% of companies have set net zero targets along with emissions reduction targets. Only a few companies are addressing all applicable scopes. 3% of companies have a net zero commitment and an emissions reduction target for scope 1, 2 and, as applicable 3 emissions. Only 1% of companies has set such targets in line with 1.5°C.

Underestimation of necessary short and medium-term emissions reductions

This analysis identified that the degree of reduction to be achieved in the short and medium-term to align with a 1.5°C trajectory is often underestimated, especially in terms of scope 3 emissions. 17% of the companies assessed have an emission reduction target aligned with a 1.5°C trajectory covering scope 1 and 2 emissions. However, only 1% have a 1.5°C-aligned emissions reduction target for scope 1, 2 and, as applicable, 3.

⁷ Emissions reduction targets refer to commitments targeting an absolute emissions reduction in the short, medium or long-term (net zero targets are not included here).

Table 2: Assessment of ASX200 companies' emissions reduction targets and overall commitments (net zero commitments supported by emissions reduction targets)

Commitment type and coverage ⁸			Number of companies ⁹	Proportion of companies assessed	Proportion of market capitalisation
Emissions reduction targets¹⁰	Scope 1 and 2	Commitment 1.5°C-aligned commitment	57	30%	59%
			32	17%	36%
	All applicable scopes	Commitment 1.5°C-aligned commitment	11	6%	8%
			2	1%	2%
Overall¹¹	Scope 1 and 2	A net zero target and an emissions reduction target	43	23%	40%
		1.5°C-aligned net zero target and 1.5°C-aligned emissions reduction targets	18	10%	14%
	All applicable scopes	A net zero target and an emissions reduction target	6	3%	4%
		1.5°C-aligned net zero target and 1.5°C-aligned emissions reduction targets	1	1%	0.4%
	Companies with no absolute emissions reduction targets		89	48%	27%

The carbon footprint associated with scope 3 emissions is not sufficiently considered when establishing targets, resulting in significant market risk

- This analysis identified that scope 3 emissions are applicable to 95% of ASX200 companies.
- Only 12% have set targets for scope 3 emissions. Fewer again are aligned with a 1.5°C trajectory, resulting in significant market risk.

⁸ Coverage of 'all applicable' scopes refers to targets addressing scope 1, 2 and, as applicable, scope 3 emissions. Scope 3 is applicable to 177 companies in this assessment. See the methodology section for details on scope 3 applicability.

⁹ In total, 187 companies were included in this assessment. See the methodology section for details on the exclusion of companies.

¹⁰ Refers to companies with at least one short, medium or long-term absolute emission reduction target (not net zero).

¹¹ Figures refer to companies having a net zero target and at least one short, medium or long-term absolute emission reduction target.

Scope 3 applicability and disclosure

Scope 3 emissions are applicable to 95% of ASX200 companies. Out of these 177 companies, 31% fully report their scope 3 emissions. Additionally, 21% disclose some, but not all, scope 3 emissions.

Scope 3 target setting: net zero and emissions reduction

Lower even than the frequency of disclosure is the rate of target-setting on scope 3 emissions, especially in the short and medium-term. Out of the 177 companies assessed, 12% have a net zero emissions commitment addressing scope 3 emissions. Only 9% have a 1.5°C-aligned net zero target for scope 3 emissions¹² (Table 3).

4% of the 177 companies have an emissions reduction target addressing scope 3 emissions. Only 1% of those targets is aligned with a 1.5°C trajectory.

While 1% of these 177 companies have set both a net zero and an emissions reduction target for scope 3 emissions, none of these targets are in line with a 1.5°C trajectory.

Scope 3 emissions can be significant and this analysis identifies that targets covering these emissions form a surprisingly small number of the targets being set. Scope 3 emissions information can be difficult to gather and subject to estimation, but they remain valuable in beginning to understand company-specific risk and market-wide progress towards net zero.

None of the companies in the construction materials, transport, hotels, restaurants and leisure and retail, wholesale and distribution sectors have set commitments to address scope 3 emissions.

Table 3: Assessment of ASX200 companies' scope 3 emissions commitments¹³

Scope 3 emissions commitments		Number of companies	Proportion of companies assessed	Proportion of market capitalisation
Net zero targets	Commitment	21	12%	37%
	1.5°C-aligned commitment	16	9%	21%
Emissions reduction targets¹⁴	Commitment	7	4%	7%
	1.5°C-aligned commitment	1	1%	1%
Overall¹⁵	Net zero target and emissions reduction target	2	1%	2%
	1.5°C-aligned net zero target and 1.5°C-aligned emissions reduction targets	0	0%	0%

¹² Commitments from companies not disclosing their scope 3 emissions sources or sufficient information for these to be estimated have not been assessed in terms of their 1.5°C alignment.

¹³ Figures and proportions in this table refer to the 177 companies for which scope 3 is applicable.

¹⁴ Refers to companies with at least one short, medium or long-term absolute emission reduction target (not net zero).

¹⁵ Figures refer to companies having a net zero target and at least one short, medium or long-term absolute emission reduction target.

48% of companies have not set any absolute emissions reduction targets¹⁶

- 48% of companies have not set any absolute emissions reduction targets.
- Almost half of the companies lacking climate targets operate in 4 sectors: other manufacturing, information technology, hotels, restaurants and leisure and other services. These companies also tend to disclose less information on their emissions profile.

Companies without targets

Despite some companies setting ambitious targets, 48% of companies assessed, representing 27% of the ASX200 by market capitalisation, have not set any targets at all. Almost half of the companies lacking climate targets operate in 4 sectors: other manufacturing, information technology, hotels, restaurants and leisure and other services. Emissions disclosure is also a common challenge for these companies, as 55% of the companies without targets do not report their Australia-specific scope 1 and 2 emissions.

The analysis identified that 18% of the companies assessed have set intensity-based targets for scope 1 and 2 or 3, however, such targets have not been included in this assessment.

Emissions commitments imply that there will be a cumulative 36% overspend of the ASX200-specific 1.5°C carbon budget for the period 2021-2050

- The lack of medium-term targets and the low level of 1.5°C alignment indicate a reduction of 34% (53 MtCO₂e) in emissions by 2035¹⁷, which falls short of the 1.5°C trajectory.
- Cumulatively, the expected scope 1 and 2 emissions exceed the cumulative emissions of the 1.5°C trajectory by 741 MtCO₂e or 36%.

Cumulative effect of target setting

Alongside the analysis of company targets, this analysis also considered the cumulative effects of the proposed target setting, and whether the overall results are in line with the ASX200-specific carbon budget based on the Decarbonisation Futures '1.5C All-in' trajectory.

Of the companies assessed, 50% have a net zero and/or an emissions reduction targets covering scope 1 and 2 emissions. This analysis found that, if achieved, these targets would drive a reduction of emissions within the ASX200¹⁸ of approximately 96% (151 MtCO₂e) by 2050.¹⁹ The lack of medium-term targets and the low level of 1.5°C alignment indicate a reduction of 34% (53 MtCO₂e) in emissions by 2035²⁰. This falls short of the 1.5°C trajectory, which suggests a reduction of 71% (110 MtCO₂e) by 2035.

¹⁶ Only absolute emissions reduction targets have been considered in this assessment. Other commitments (such as renewable energy or intensity reduction targets) are not included.

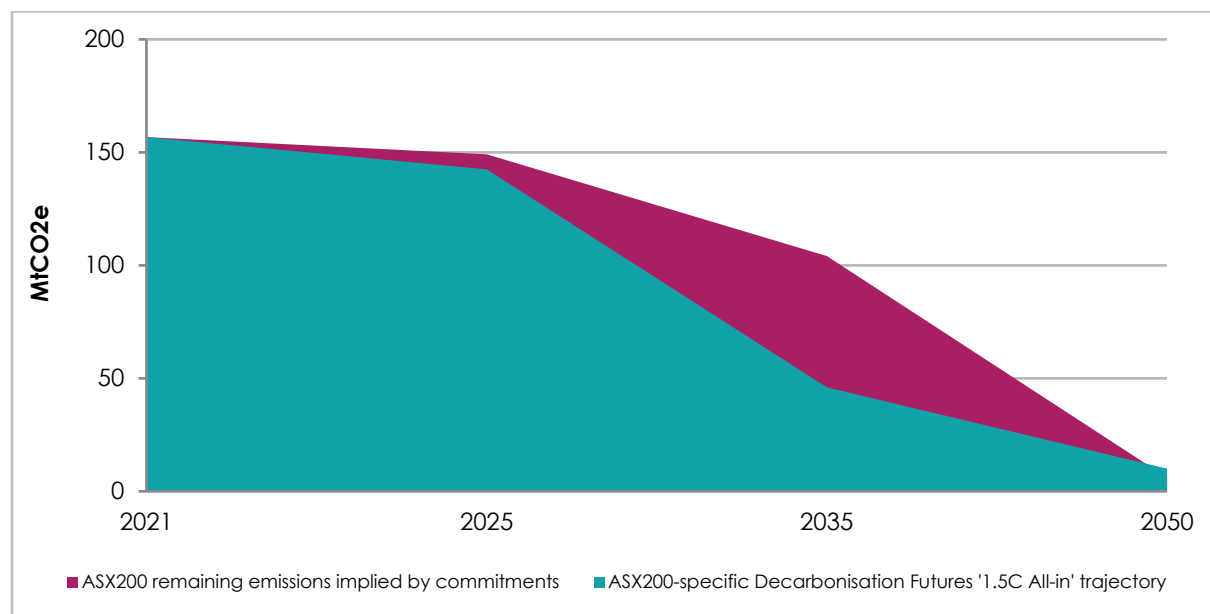
¹⁷ Compared to 2021 levels.

¹⁸ Additionally, four companies have a target for scope 1 and 2 emissions but do not disclose their Australia-specific emissions therefore, these are not considered in the cumulative emissions quantification.

¹⁹ Compared to 2021 levels.

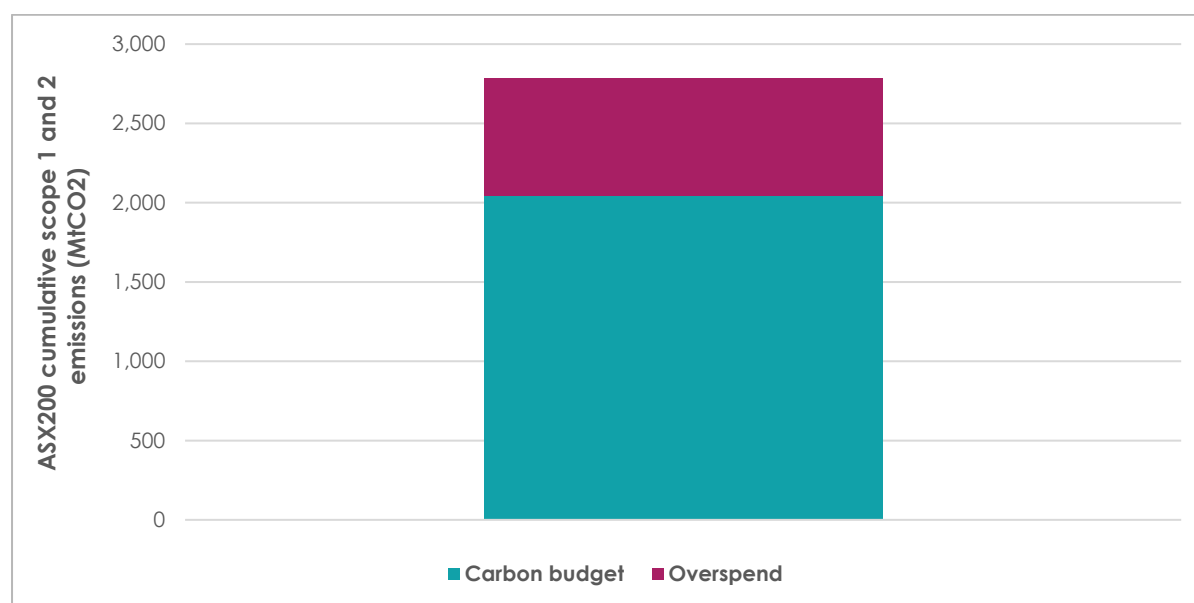
²⁰ Compared to 2021 levels.

Figure 1: Comparison between remaining scope 1 and 2 emissions of the ASX200 and ASX200-specific Decarbonisation Futures '1.5C All-in' emissions trajectory²¹ (magenta area reflects overspend)



Cumulatively, the remaining scope 1 and 2 emissions of the ASX200 amount to 2.8 GtCO₂e for the period 2021 to 2050. This exceeds the cumulative emissions of the 1.5°C trajectory by 741 MtCO₂e or 36%, see Figure 2.

Figure 2: Cumulative scope 1 and 2 emissions of the ASX200 for the period 2021-2050 compared to the ASX200-specific Decarbonisation Futures '1.5C All-in' carbon budget



²¹ Total Australia-specific emissions of the ASX200 are expected to be larger than quantified in this assessment as 52 companies have not reported their emissions (36 with no disclosures, 16 reported global emissions amounting to only 0.7 MtCO₂e or 0.5% of the total quantified emissions of the 135 companies in 2021) and have no reduction commitments.

Sectoral and market capitalisation insights

The utilities, metals and mining and oil, gas and consumable fuels sectors generate 84% of ASX200 scope 1 and 2 emissions. Companies in these sectors have committed to achieve at least a 95% emissions reduction by 2050

- Three sectors hold the highest proportion of scope 1 and 2 emissions among ASX200 companies: utilities (38%), metals and mining (34%) and oil, gas and consumable fuels (13%).
- Companies in the metals and mining sector intend to reduce scope 1 and 2 emissions by 99% by 2050, those in the oil, gas and consumable fuel sector are aiming for a 95% reduction and the utilities companies expect to reach net zero.

Emissions reduction commitments of higher-emitting sectors

The sector modelling shows that of the 14 sectors assessed, three hold the highest proportion of scope 1 and 2 emissions among ASX200 companies: utilities (38%), metals and mining (34%) and oil, gas and consumable fuels (13%). These sectors represent 26% of the ASX200 total market share and are responsible for 31% of the total emissions reported to the NGER scheme²².

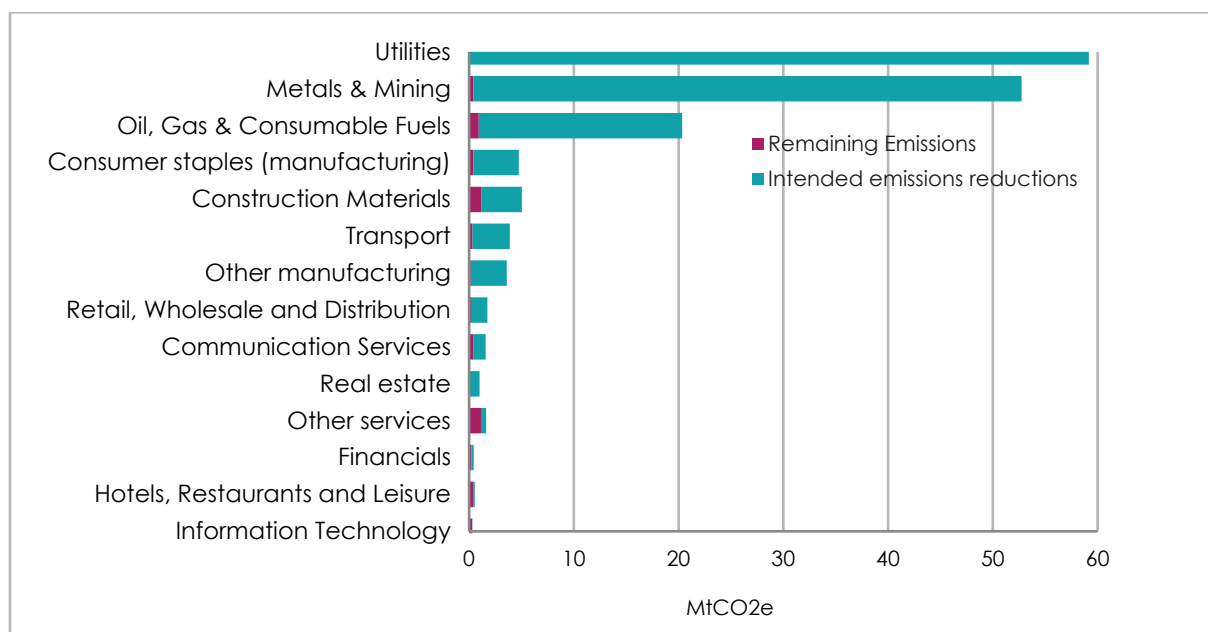
Encouragingly, given the significant emissions sources of these three sectors, each is aiming for at least a 90% reduction in scope 1 and 2 emissions by 2050. Companies in the metals and mining sector intend to reduce scope 1 and 2 emissions by 99% by 2050, companies in the oil, gas and consumable fuel sector are aiming for a 95% reduction and the utilities companies expect to reach net zero operational emissions, as outlined in Figure 3.

Emissions reduction commitments in other sectors

The consumer staples, other manufacturing, real estate, transport and retail, wholesale and distribution sectors have also committed to achieve at least a 90% reduction in scope 1 and 2 emissions by 2050.

²² The Clean Energy Regulators' NGER scheme requires organisations meeting specific emissions thresholds to report their emissions. More information on the scheme can be found on the [Clean Energy Regulators website](#).

Figure 3: Intended scope 1 and 2 emissions reduction per sector by 2050 (relative to 2021 emissions)



To most effectively support longer-term decarbonisation of high-emitting sectors, medium-term targets should be set in line with the 1.5°C trajectory

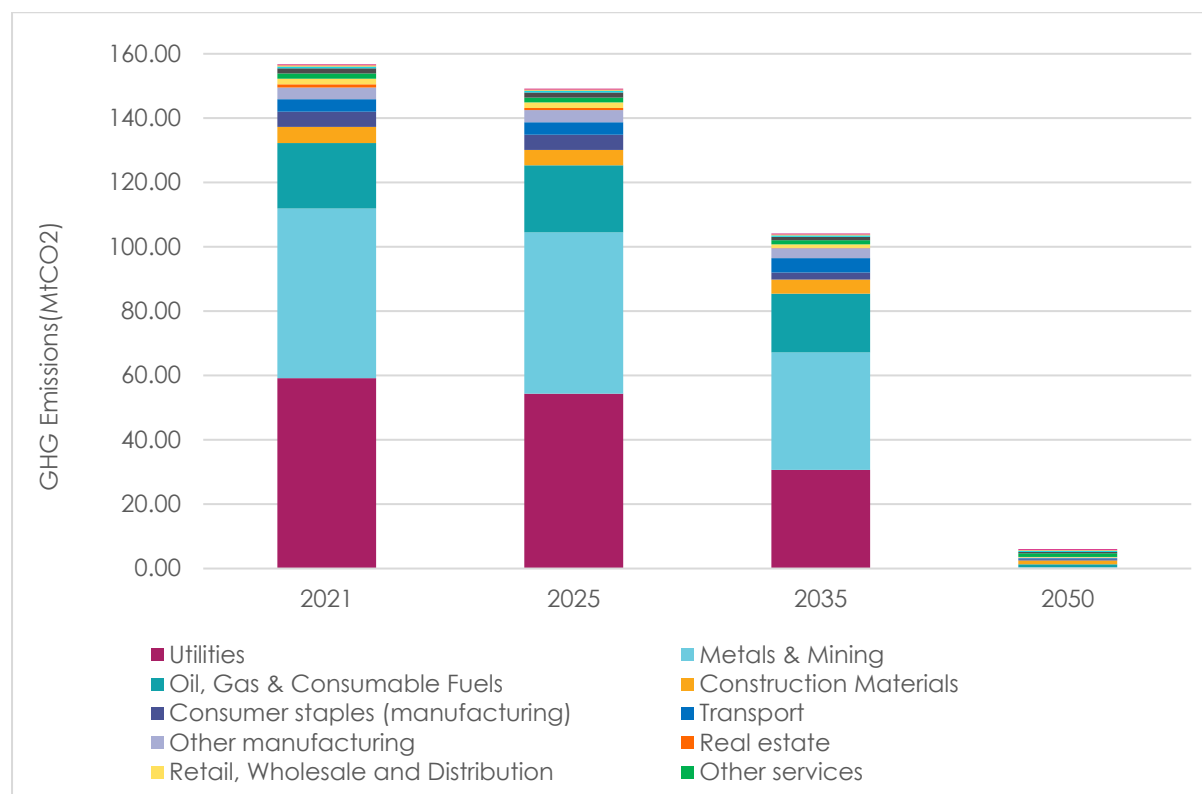
- On average, 20% of the companies in each sector have a 1.5°C-aligned scope 1 and 2 target for the medium-term.
- The utilities, metals and mining and oil, gas and consumable fuels sectors remain the top emitting sectors up to 2035 and collectively these sectors' implied commitments are only targeting a 5% emissions reduction to be achieved between 2021 and 2025 and 32% from 2025 to 2035. For these sectors, it is only between the medium and long-term where a 98% reduction is being targeted.

Intermediate targets in high-emitting sectors

It is in the medium term where the ASX200 1.5°C trajectory overspend is likely to occur, due to a paucity of short and medium-term targets. On average, 20% of the companies in each sector have a 1.5°C-aligned scope 1 and 2 target for the medium-term. The real estate sector is leading in terms of ambition in the medium-term with 60% of the companies having set a 1.5°C-aligned target.

The utilities, metals and mining and, oil, gas and consumable fuels sectors remain the top emitting sectors up to 2035 and collectively, utilities, metals and mining and oil, gas and consumable fuels sectors' implied commitments are only targeting a 5% emissions reduction to be achieved between 2021 and 2025 and 32% from 2025 to 2035. For these sectors, it is only between the medium and long-term where a 98% reduction is being targeted. This targeted decline between 2035 and 2050 is clearly illustrated in Figure 4. Expecting such a significant decline in emissions between 2035 and 2050 may be possible, but it leaves a great deal of open risk.

Figure 4: ASX200 corporates' intended emissions reductions per sector (MtCO₂e) over the years



Companies within high emitting sectors are responsible for 37% of the operational emissions reported in the National Greenhouse and Energy Reporting scheme and represent 71% of the ASX200 by market capitalisation²³

- Of the 80 companies reporting to the NGER scheme, 63% have a net zero target for scope 1 and 2 and 45% of companies' net zero scope 1 and 2 targets are aligned with 1.5°C.
- Around 53% of these 80 companies have a short or medium-term emissions reduction target and 28% are in line with a 1.5°C trajectory.
- In terms of scope 1 and 2 emissions, 57% of the oil, gas and consumable fuels and 61% of the metals and mining companies assessed have a 1.5°C-aligned net zero target while, on average, 37% of the companies across all ASX200 sectors have set such targets. None of the utilities have a 1.5°C-aligned net zero target.

²³ High emitting companies have been identified as those reporting to the Clean Energy Regulator's NGER scheme in 2020-21. This scheme requires companies meeting a specific threshold to report their emissions

NGER emissions reporters and target setting

Of the ASX200 companies assessed, 41% are high emitting companies reporting to the NGER scheme in 2020-21. These companies are responsible for 37% (146 MtCO₂e) of the total scope 1 and 2 emissions reported under the NGER scheme and represent 71% of the ASX200 by market capitalisation.

Of the 80 companies reporting to the NGER scheme, 63% have a net zero target for scope 1 and 2 and 45% of the 80 companies' targets are aligned with 1.5°C. 53% of these 80 companies have a short or medium-term emissions reduction target and 29% are in line with a 1.5°C trajectory.

ASX200 companies in the utilities, metals and mining and oil, gas and consumable fuels sectors are responsible for 31% of the total emissions reported under the NGER scheme (Table 4) and represent 84% of ASX200 companies' emissions reported to NGER (Graph 1). Specifically, two utilities companies are responsible for 15% of the total emissions reported to the NGER scheme in 2020-21 and for almost 40% of the emissions reported by all ASX200 companies.

NGER reporters: sectoral target setting and 1.5°C alignment

Overall, the scope 1 and 2 emissions reduction commitments set by the utilities, metals and mining and oil, gas and consumable fuels sectors are above the sectoral average. However, their commitments to address all applicable scopes lag those of other sectors (Table 4).

In terms of scope 1 and 2 emissions, 57% of the oil, gas and consumable fuels and 61% of the metals and mining companies assessed have a 1.5°C-aligned net zero target while, on average, 37% of the companies across all ASX200 sectors have set such targets. None of the utilities assessed have a 1.5°C-aligned net zero target.

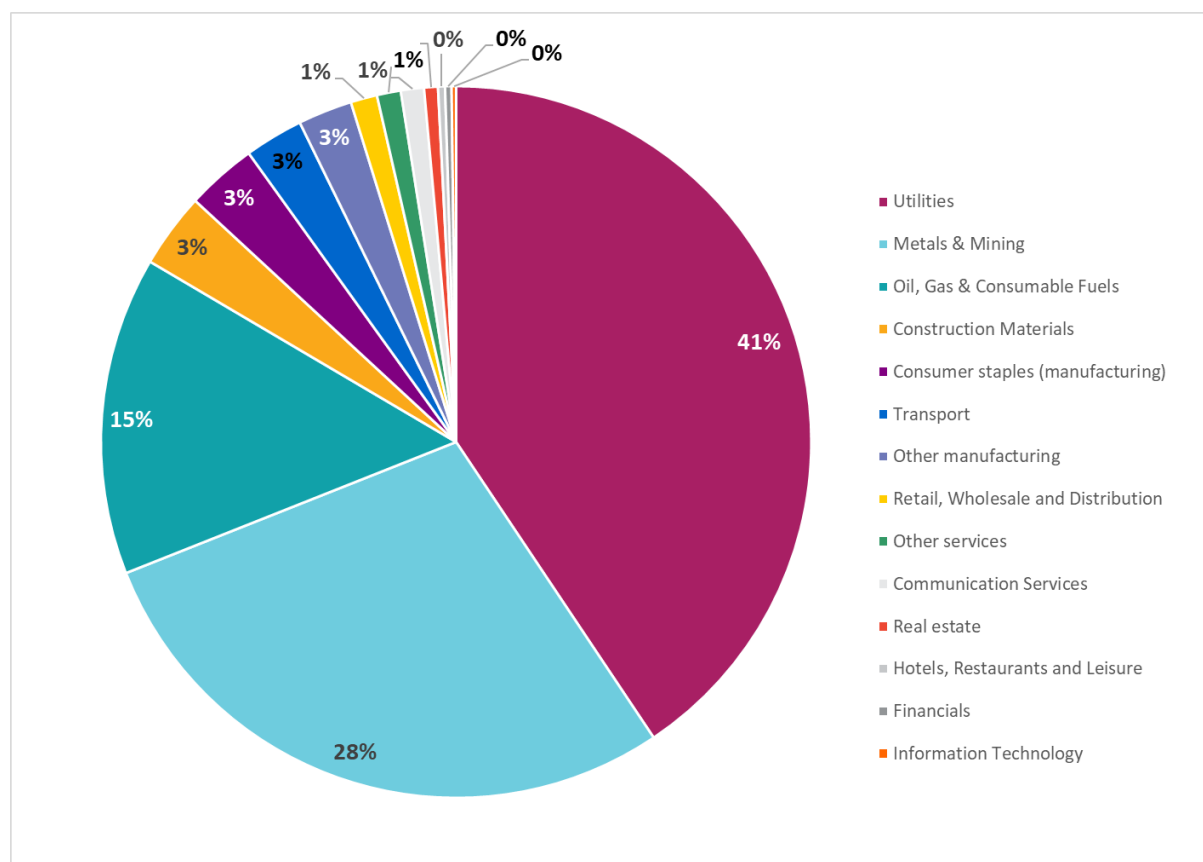
Utilities and oil, gas and consumable fuels are above the ASX200 sectoral average (21%) 1.5°C-aligned emissions reduction targets. 67% of utilities and 43% of oil, gas and consumable fuels companies reporting to NGERs have a target. Metals and mining companies fall below the average with 17%.

Only 2% of companies - which operate in the metals and mining sector - have a 1.5°C-aligned net zero target covering all applicable scopes (above the ASX200 average) and one company - operating in the oil, gas and consumable fuels sector - has an emissions reduction target for all applicable scopes.

Table 4: Highest emitting ASX200 sectors' emissions and commitments

			Utilities	Metals & mining	Oil, Gas & Consumable Fuels	ASX200 - sectoral average
Emissions reporting	Proportion of ASX200 companies reporting to NGERs		100% (3)	69% (18)	88% (7)	
	% of total NGER-reported emissions		15%	10%	5%	
	% of ASX200 companies' reported emissions in NGER		41%	28%	14%	
	% of ASX200 total emissions		38%	34%	13%	
Commitments	Scope 1 and 2	Proportion of companies with a 1.5°C-aligned Net zero target for scope 1 and 2	0%	61%	57%	32%
		Proportion of companies with at least one 1.5°C-aligned short, medium and long term scope 1 and 2 emissions reduction targets	67%	17%	43%	21%
	All applicable scopes	Proportion of companies with a 1.5°C-aligned Net zero target for scope 1, 2 and, if applicable, 3	0%	22%	0%	10%
		Proportion of companies with a 1.5°C-aligned emissions reduction target for scope 1, 2 and, if applicable, 3	0%	0%	14%	3%

Graph 1: Emissions of the ASX200 companies per sector reported to the NGER scheme in 2020-21



Financial institutions' scope 1 and 2 emissions represent less than 1% of the total NGER emissions reported by ASX200 companies. However, these organisations play a significant role in the economy and are exposed to significant risk because of their financed emissions.

In general, larger capitalisation companies set more targets and disclose their emissions more frequently

- The proportion of companies reporting their emissions and setting net zero and emissions reduction targets improves as their market capitalisation increases, but scope 3 disclosure remains a concern in all segments.

Market capitalisation: emissions and commitments

The proportion of companies reporting their emissions and setting net zero and emissions reduction targets improves as their market capitalisation increases (Table 5), but scope 3 disclosure remains a concern in all market segments.

Table 5: Emissions and commitments overview across ASX200, ASX100, ASX50 and ASX20 corporates

			ASX200	ASX100	ASX50	ASX20
Emissions	Disclosure	Proportion of companies reporting scope 1 and 2 emissions	72%	90%	92%	100%
		Proportion of companies reporting scope 3 emissions	47%	64%	76%	100%
Commitments	Scope 1 and 2	Proportion of companies with a 1.5°C-aligned net zero target	33%	41%	36%	45%
		Proportion of companies with at least one 1.5°C-aligned emissions reduction target	17%	24%	28%	50%
	All applicable scopes (1, 2 and, if applicable, 3)	Proportion of companies with a 1.5°C-aligned net zero target	9%	11%	6%	10%
		Proportion of companies with a 1.5°C-aligned emissions reduction target	1%	2%	2%	5%

APPENDIX A: 1.5°C ALIGNMENT METHODOLOGY

Climateworks Centre in collaboration with ACSI have defined a detailed assessment approach to provide insights on ASX200 corporates' commitments and alignment with the goals of the Paris Agreement, i.e. aiming to limit global warming to 1.5°C.

To achieve this goal requires that at a global level cumulative emissions are limited to 336Gt²⁴ from January 1, 2020. For Australia, this translates into a 74% emission reduction in 2030, compared with 2005, and achieving net zero by 2035 (Climateworks Centre 2020).

This document provides an explanation of:

- The analysis scope, data taken into consideration, and scenario used.
- How [Decarbonisation Futures](#) '1.5C All-in' (DF '1.5C All-in') scenario has been translated into company-specific 1.5°C trajectories.
- How the alignment of companies to DF '1.5C All-in' is assessed.
- The underlying design considerations of the methodology and how uncertainties are managed.

Analysis scope and data gathering

Scope, cut-off date and other parameters

The analysis covers the ASX200 listed companies in December 2021 (data captured for these companies reflects publicly disclosed information as of 31 March 2022).

The analysis:

- Does not take into consideration company changes after the cut-off date of 31 March 2022.
- Does not consider companies without operations in Australia as their emissions cannot be assessed against the DF '1.5C All-in' scenario, which provides an Australia-specific emissions pathway to 1.5°C.
- Assesses companies belonging to the same group as one entity even if listed separately on the ASX200.

Data assessed

This analysis assesses absolute emissions reduction targets (ERT). Not only does this ensure a link to the required decarbonisation to reach 1.5°C, it also preserves a direct link to company-specific performance. Given the large number of companies within the scope of this analysis and the diverse nature of business activities in which the companies are involved, it provides a common metric applicable to all.

Emissions intensity and other targets, for example renewable energy targets, are not the subject of this analysis.

²⁴ Understood as a 67% chance of remaining within that carbon budget (IPCC 2018).

Data gathering & validation

The current emissions levels and intended reductions of each company are required to measure the alignment of their commitments with a specific warming outcome (the rate of reduction that an average company in its sector would need to achieve is the third consideration, more details in the next section).

At a company level, the following have been taken into consideration:

1. Available data related to their current absolute emissions.
2. Available data related to their ERT as forward-looking projections.

Company information was gathered in late 2021 and early 2022, by ACSI staff, sourcing information from annual and sustainability reports, companies' websites and Task Force on Climate-related Financial Disclosures (TCFD) reports and other public sources. As noted above, data was collected from information publicly disclosed as of 31 March 2022. This information was provided to Climateworks Centre to inform their analysis.

Climateworks Centre contributed to this data gathering process by capturing the commitments' baseline years, understood as the reference point against which future emission reductions implied by commitments are measured, and the emissions breakdown of companies on the ASX200.

Two emissions breakdowns were determined for each company, differentiating between a) scope 1 and 2, and b) scope 3 emissions. When these were not disclosed by a company, they were estimated by, in order of priority:

- Using additional information disclosed by the company in the sources listed above, Carbon Disclosure Project (CDP) reports and official government websites (such as National Greenhouse and Energy Reporting (NGER)).
- Referring to the emissions breakdown of a company with similar operations.
- Referring to journal articles and sectoral reports detailing the typical emissions breakdown of a company operating in a particular sector.

When there was insufficient information to estimate the scope 3 sources and emissions breakdown of a company, these were not determined or included in the assessment.

Climateworks Centre's DF '1.5C All-in' scenario

About Climateworks Centre and Decarbonisation Futures

Climateworks Centre collaboratively promotes the advancement of research and tool development to support corporates alignment to a 1.5°C scenario by providing science-based, scalable and actionable guidance. This assessment is based on a [specific analytical](#) output developed by Climateworks Centre: *Decarbonisation Futures* '1.5C All-in' scenario (DF '1.5C All-in'). A single-scenario-benchmark approach is used for simplicity and comparability purposes.

Decarbonisation Futures is an initiative of Climateworks Centre, supported by CSIRO modelling. It provides an overview on priority technologies, deployment pathways and benchmarks for achieving net zero emissions. It utilises the Aus-TIMES Model – an Australian adaptation of a techno-economic modelling framework developed by the International Energy Agency (IEA) and used in over 60 countries – to explore through 'scenario analysis' three possible low-emission futures: '2C Deploy', '2C Innovate' and '1.5C All-in'. The Aus-TIMES model is one of Australia's premier energy systems models, and has been used for a variety of climate scenario modelling work including multi-sectoral modelling to inform net zero emission scenarios for the Australian Energy Market Operator's (AEMO) Integrated System Plan.

DF '1.5C All-in' provides detailed guidance on the level of emissions reductions required to achieve the 1.5°C temperature goal in different sectors of the Australian economy. It requires the combination of direct government intervention via policies designed to accelerate and regulate the deployment of demonstration- and mature-stage technologies, emerging technologies creating widespread change in emissions-intensive sectors through increased investment into research and development by the public and private sectors, and facilitation of innovation by businesses and individuals. It assumes action across all sectors, with collaboration between policymakers, businesses and individuals, and technology providers.

DF '1.5C All-in' is the scenario against which this analysis assesses ASX200 companies' target setting. As its name suggests, this scenario models an emissions outcome compatible with limiting global temperature rise to 1.5°C. This scenario stays within a 50% probability of a 1.5°C carbon budget for Australia, which implies the economy achieves net zero by 2035, and then continues on a net-negative emissions trajectory through to 2050 to improve the chances of achieving this goal. The Australian economy reaching net zero by 2035 is an ambitious goal.

DF '1.5C All-in' scenario²⁵ has been used as the benchmark describing one possible set of decarbonisation pathways for economic sectors in Australia to limit warming to 1.5°C.

The carbon budgets for Australia used in this scenario are 7.0 GtCO₂eq 2015-2050 for a 50% chance and 5.1 GtCO₂eq 2015-2050 for a 67% chance (see more details below).

This scenario provides a specific pathway setting out how emissions and economic activities might evolve across the different sectors of the economy in order to comply with the 1.5°C outcome under the socioeconomic condition where policy, technology progress and business and individuals work together.

One key consideration for this scenario is that it can show how a given industry has to act in order to align with a 1.5°C pathway — but this is provided that all actors follow the emissions pathway outlined.

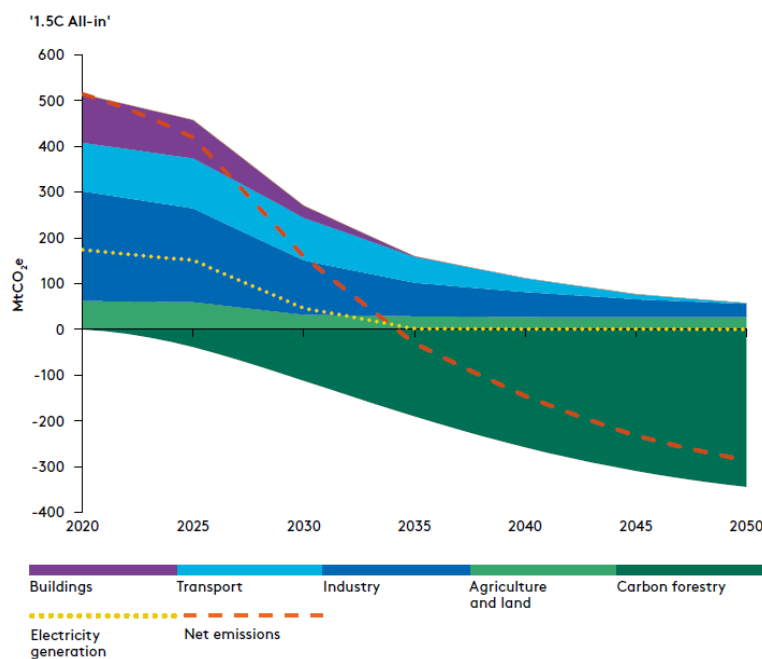
²⁵ For more detailed information, please go to "Decarbonisation Futures Technical Report"(2020) [here](#).

Climateworks Centre's DF '1.5C All-in' scenario overview

Key features:

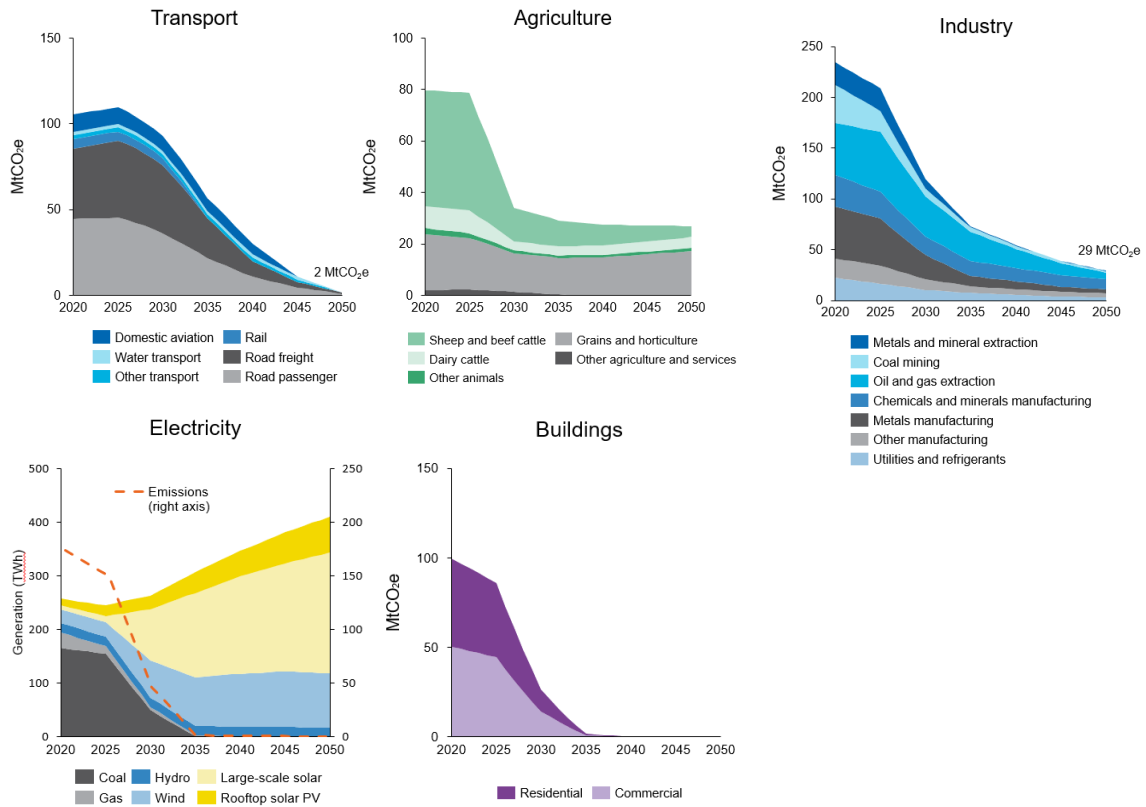
- Specific to Australia
- Covers all sectors and activities that contribute to emissions in Australia
- Provides detailed sectoral benchmarks, representing incremental actions and long-term transformative outcomes
- Considers the impacts of mature, demonstrated and emerging emission reduction solutions
- Emission reduction opportunities are based on Climateworks' four pillars of decarbonisation (energy efficiency, renewable electricity, electrification and switching to zero-emissions fuels, and non-energy emissions)
- Reductions in underlying emissions in the economy are prioritised before sequestration
- Science-based; aligns to a 50% chance of limiting global warming to below 1.5°C (or a 67% chance with limited overshoot)

Climateworks Centre's DF '1.5C All-in' scenario shows the Australia-specific emissions reduction trajectories for all sectors



The '1.5C All-in' scenario emissions always stay within the 50% chance of limiting temperature rise to 1.5°C budget. However, after reaching net zero emissions ~2035, carbon sequestration continues and leads to Australia being net-negative emissions from 2035-2050. This sequestration draws down emissions released into the atmosphere, increasing the chance of meeting the 1.5°C temperature goal to 67%, despite initially overshooting this budget. While there is uncertainty around the overshoot-and return mechanism, net-negative emissions only increase the chance of limiting warming to 1.5°C.

Sectoral emission reduction trajectories of DF '1.5C All-in' scenario



Full breakdown of modelled sectors (activities details)

Aus-TIMES subsector			Aus-TIMES division			Aus-TIMES division			
AGRICULTURE AND LAND	Livestock	Sheep and cattle	BUILDINGS	Residential	Separate house	ELECTRICITY	Generation	Black coal	
		Dairy			Townhouse			Brown coal	
		Other animals			Apartment			Gas	
	Other agriculture	Grains		Supermarket	Oil products				
		Other agriculture		Retail	Nuclear				
				Hotel	Hydro				
				Office	Solar				
	Forestry			Agricultural services and fishing	Public building			TRANSPORT	Road transport
		School			Passenger vehicle				
		Law court			Motorcycle				
Tertiary		Articulated vehicle							
Hospital		Light commercial vehicle							
Aged care		Rigid trucks							
Data centre		Rail transport							
Non-road	Air transport								

Aus-TIMES division			Aus-TIMES division		
INDUSTRY	Other manufacturing	Construction services	INDUSTRY	Metals	Alumina
		Meat products			Aluminium
		Motor vehicles and parts			Iron and steel – BF
		Other food and drink products			Iron and steel – EAF
		Other manufacturing products		Mining	Coal mining
		Other metal products			Oil extraction
		Other non-ferrous metals			Gas extraction
		Paper products			Iron ore mining
		Printing and publishing			Bauxite mining
		Rubber and plastic products			Other non-ferrous metal ores mining
		Textiles, clothing and footwear			Other mining
		Wood products		Chemicals and minerals	Cement
	Gas, water supply & waste	Gas supply			Non-metallic construction materials (not cement)
		Water supply			Petroleum refinery
		Waste			Other chemicals

Translation of scenario into company-specific 1.5°C trajectories

Climateworks Centre was responsible for identifying the company-specific trajectories through the DF '1.5C All-in' scenario and conducting the commitments 1.5°C alignment assessment.

When using the DF '1.5C All-in' scenario to assess a company's alignment, a key design question is how to allocate company emissions to the modelling sectors so a company-specific 1.5°C aligned rate of decarbonisation can be derived.

This was achieved by mapping the Global Industry Classification Standards (GICS)²⁶ sectors against the Climateworks Centre DF '1.5C All-in' modelling sectors, resulting in the creation of 14 ACSI/Climateworks Centre Project Sectors (Project Sectors). The sector mapping between these classification systems is provided below in Methodology Table 1 to illustrate the different GICS and Climateworks Centre modelling sectors included in each of the Project Sectors.

Companies on the ASX200 were allocated to the Project Sectors and assessed against a weighted average of the DF '1.5C All-in'

scenario emission trajectories for the modelling sectors corresponding to the economic sectors in which they operate based on their reported or estimated emissions breakdown (see more details in previous section related to Data gathering & validation).

This enables each company to have an individual 1.5°C trajectory, ensuring that highly diversified companies are assessed against trajectories that apply to the activities in which they are involved. However, companies' offsetting strategies, particularly how that contributes to national sequestration effort required in DF '1.5C All-in' has not been incorporated in the development of company-specific 1.5°C trajectories.

Unlike some other modelling formats, this approach is more tailored to each company's activities profile and does not require all the companies to converge to a required average reduction across time (convergence approach) nor expect that all the companies reduce at the same annual rates (rate-of-reduction approach).

²⁶ GICS is an industry taxonomy used by financial market participants the global financial community. It groups listed entities according to their main business activities. More details on GICS classification [here](#).

Methodology Table 1: Mapping of ACSI/Climateworks Centre Project Sectors to GICS Industries and Decarbonisation Futures modelling sectors

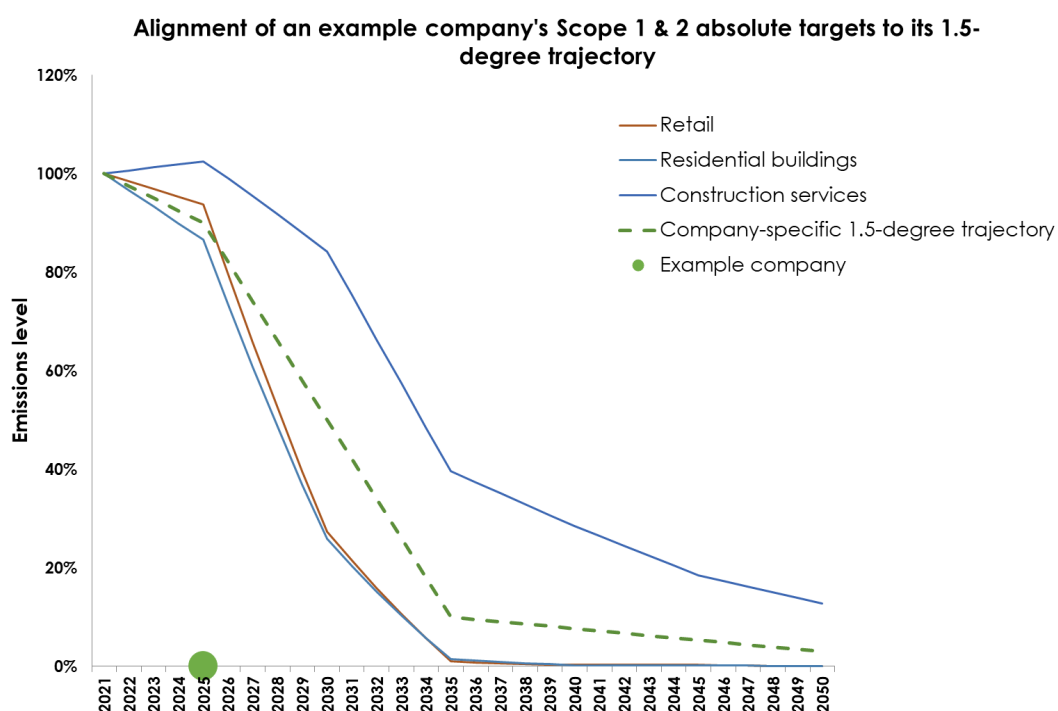
ACSI/Climate works Centre Project Sector	GICS Industry(s)	Decarbonisation Futures modelling sectors
Metals & Mining	Metals & Mining	Alumina, Aluminium, Coal mining, Gas mining, Iron and steel – blast furnace, Iron and steel – electric arc furnace, Iron ore mining, Non-ferrous metal ores mining, Oil mining, Other mining, Other non-ferrous metals
Oil, Gas & Consumable Fuels	Oil, Gas & Consumable Fuels	Oil mining, Gas mining, Coal mining, Petroleum refinery, Non-ferrous metal ores mining, Retail, Office, Commercial buildings - Overall, Other transport
Construction Materials	Construction Materials	Cement, Non-metallic construction materials (not cement), Aluminium
Consumer Staples (manufacturing)	Beverages, Food & Staples Retailing, Food products, Personal products	Dairy, Other agriculture, Other food and drink products, Agricultural services and fishing, Supermarket, Retail, Hotel, Office, Transport - Overall
Other Manufacturing	Chemicals, Containers & Packaging, Household Durables, Auto Components, Biotechnology, Health Care Equipment & Supplies, Health Care Providers & Services, Building Products, Electronic Equipment, Instruments & Components	Other chemicals, Rubber and plastic products, Paper products, Other metal products, Non-metallic construction materials (not cement), Motor vehicle and parts, Other manufacturing products, office, Commercial buildings - Overall
Utilities	Gas utilities, Multi-Utilities, Electric Utilities	Power generation, Gas supply, Gas mining
Real Estate	Equity Real Estate Investment Trusts (REITs), Real Estate Management & Development	Office, Retail, School, Hospital, Commercial buildings - Overall, Residential buildings, Construction services, Road transport - passenger
Transport	Road & Rail, Airlines, Transportation Infrastructure	Road transport - Freight, Rail transport - Freight, Domestic air transport, Other transport
Communication Services	Diversified Telecommunication Services, Entertainment, Interactive Media & Services, Media	Office, Data centre, Hotel, Commercial buildings - Overall, Road transport - passenger
Information Technology	IT Services, Software, Health Care Technology	Office, Data centre
Financials	Banks, Capital Markets, Consumer Finance, Diversified Financial Services, Insurance	Office, Data centre, Commercial buildings - Overall, Road transport - passenger
Hotels, Restaurants and Leisure	Hotels, Restaurants and Leisure	Office, Hotel, Commercial buildings - Overall
Retail, Wholesale and Distribution	Distributors, Multiline Retail, Specialty Retail, Trading Companies & Distributors	Retail, Commercial buildings - Overall, Transport - Overall, Other chemicals, Gas supply
Other services	Diversified Consumer Services, Energy Equipment & Services, Health Care Providers & Services, Commercial Services & Supplies, Construction & Engineering, Professional Services	Construction services, Materials mining, Office, Hospital, Commercial buildings - Overall, Road transport - passenger, Transport - Overall, Waste

Assessment of alignment to the DF '1.5C All-in' scenario

A company's 1.5°C alignment is assessed by comparing its emission reduction commitments against the emission reduction benchmarks based on its 1.5°C trajectory. See example below.

Example 1: Alignment assessment of a company's scope 1 and 2 absolute targets to its 1.5°C trajectory

The figure below shows three sectoral trajectories of the sectors in which an example company operates. The alignment of its commitments is assessed against its company-specific 1.5°C trajectory (green dashed).



Basis of the 1.5°C alignment assessment

1. Baseline

Baseline year is a reference point in time against which emission reductions in the future are measured. The baseline year used in this analysis is 2021. The ERTs with a 2021 or earlier targeted year have not been considered in this assessment, as the information was not available for all the companies.

For the commitments' alignment assessment the analysis has considered the baseline year specified by the company. When the baseline year was not specified, 2021 was assumed as the baseline year.

For the quantification of emissions reduction intended by all ASX200 companies from 2021 onwards, a normalisation of the baseline year of commitments has been done for those companies with commitments not using 2021 as the baseline year.

2. Assessment methodology

The alignment of corporates' commitments refers to a point-in-time assessment for three time periods, i.e. the short-term (2022-2025), medium-term (2026-2039) and long-term (2040+). The degree of alignment is determined by comparing projected emissions of corporates factoring in targets that they have set, against their company-specific 1.5°C trajectories, resulting in a percentage indicating the deviation of the projected emissions trajectories from their company-specific 1.5°C trajectories at the three time periods (over- or under-performing).

3. Net zero targets and 1.5°C-aligned pathways

a. Net zero target

'Net zero' means a point in time at which the total emissions being emitted into the atmosphere is equal to the total amount being absorbed from the atmosphere.

1.5°C-aligned net zero target

Net zero targets are assessed for their 1.5°C alignment by comparing the target year with the year when near zero emissions can be achieved in *DF* '1.5C All-in'. While *DF* '1.5C All-in' shows that when accompanied by carbon sequestration efforts, warming can be limited to 1.5°C when most sectors achieve near zero emissions by 2050, the power generation and the buildings sectors achieve this by 2035. Therefore, net zero targets for corporates where the majority of emissions come from generating power or use of buildings need to aim to be 1.5°C-aligned by 2035.

b. Emission reduction target

Emission reduction targets refer to targets that are not net zero, typically set in the short- and medium-term of the assessment period. The percentage reduction of targets are assessed for their 1.5°C alignment by comparing against the emissions reduction benchmarks based on company-specific 1.5°C trajectories.

4. Scope 3 applicability

This analysis considers if the commitments set up at a company level cover the company's full carbon footprint, understood as all the significant operational (scope 1 and 2 emissions) and value chain emissions (scope 3, or downstream and upstream emissions).

Corporates often report on their operational emissions known as scope 1 emissions, generated by their owned or controlled assets, as well as on scope 2 associated with the generation of purchased energy. Disclosing and reporting emissions from up-and-downstream activities (scope 3) is increasingly recommended by different standards and frameworks²⁷, and by investors more generally. The challenge of doing so stems from the availability and quality of data as they are not under direct control of the companies.

Climateworks Centre has reviewed the materiality of scope 3 emissions across the ASX200 to assess its applicability to this assessment. The following approach to address data limitations, in order of priority, has been adopted:

1. Proportion of reported scope 3 emissions (considering scope 3 as material when these represent at least 40%²⁸ of total emissions).
2. Climate Action 100+ benchmark methodology for Scope 3 applicability (sector based).
3. A combination of sectoral reports and data obtained from S&P Global Sustainable1.

As a result, scope 3 was assessed as being applicable for 95% of the companies assessed.

5. Cumulative emissions assessment

Climate change is directly linked to the cumulative emissions of long-lived greenhouse gases. It is the cumulative behaviour of emissions between a given date and when net zero emissions are achieved that will determine the degree of global warming. Therefore, conducting a cumulative assessment determines if a company's decarbonisation trajectory is in line with a 1.5°C trajectory.

The 'ASX200 total cumulative emissions' factoring in its emissions reduction commitments is calculated to compare with the 'ASX200-specific DF '1.5C All-in' trajectory carbon budget'.

²⁷ CA100+, SBTi, GHG Protocol, as well as TCFD, GFANZ, among others.

²⁸ The 40% threshold is in line with Science Based Targets Initiative's criteria and recommendations to set scope 3 targets.

Underlying design considerations and management of uncertainties

This section provides an overview of design considerations and some of their limitations.

Methodology Table 2: Analysis details

Basis of the analysis	Design considerations and limitations
Exclusion of companies from the scope of work	Companies belonging to Groups When a group and its businesses are listed separately on the ASX200, the company will be assessed at a group level because of the following reasons: - Emission reduction targets are set at a group level, - Emissions/information are not usually reported separately for the subdivisions, - Avoid double counting of emissions reductions. Companies without operations in Australia Companies that do not operate in Australia are not included in the analysis. This includes companies whose principal activities are outside of Australia and hence, have negligible emissions in the country.
Sector mapping	Companies' sectors The sector(s) in which companies are currently involved are assumed to remain unchanged from the baseline year of 2021 to 2050 in deriving the 1.5°C-aligned short-term, medium-term and long-term emission reduction benchmarks
Baseline year	Baseline year established in 2021 The data collected on the reported emissions of companies is for the year 2021, hence this has been selected as the baseline year against which emission reductions in the future are measured. Emissions reduction targets with a 2021 or earlier targeted year have not been considered in this assessment. Therefore, this analysis does not take into consideration the carbon budget used before that date Normalisation of commitments for emissions quantification purposes For the quantification of emissions reduction achieved from 2021 to 2050, the commitments with a baseline year pre-2021 have been normalised to a 2021 baseline year.
Metrics used to assess emissions reductions	Absolute emissions reported for scope 1, 2 and 3 - When emissions were reported using both operational control and equity share approaches, figures based on the former approach were used. Figures based on the latter are only used when targets made are based on equity share to convert them to targets based on an operational control approach. - When a company aims to achieve more than one target within the same timeframe (short, medium or long-term), only the most ambitious target is assessed. - Targets for different divisions of a company within any of the three time frames are combined and the resulting percentage of reduction out of the total emissions of the company is considered as one target for the alignment assessment. - This analysis does not account for changes in business activities (market share, acquisition, divestment and merger) to avoid penalising company's growth Emission intensity targets are not taken into consideration Data on companies' historical emission intensity has not been collected. The output structure from DF '1.5C All-in' scenario used is limited to absolute emissions only. Some arbitrary assumptions are needed to produce an emission intensity trajectory. Therefore, this assessment is only designed to assess the alignment of absolute emission reduction targets. Renewable energy targets are not taken into consideration These targets can be met via various methods such as physically deploying solar panels, procuring power purchase agreements and renewable energy certificates many of which do not necessarily lead to additionality and actual emissions reduction.

Targets	• Net zero target • 2021 is assumed to be the baseline year (unless clarified otherwise) • Net zero commitments aim for a 100% emissions reduction • When a net zero target is aimed to be achieved in the short or medium-term: ○ It is carried forward to be applicable in the long-term emissions reduction quantification (assuming this will remain their future target) ○ Regarding the alignment criteria, it will be considered NA for medium and long-term. • Net zero targets, aspirations, aims, etc. considered to be the same type of commitments (no differentiation between terms). • A limitation of this analysis is that the forward-looking projections based only on stated targets may not result in real emission reductions. • Carbon neutral targets Carbon neutral targets have not been considered in this assessment unless it is stated that these are to be achieved mainly through emissions reductions activities and the use of offsets is reserved for unavoidable emissions. • Intensity reduction targets Corporate emission intensity reduction targets are not quantified. See 'Metrics used to assess emissions reductions'.
Emissions from international operations (including Australia)	• Estimation of emissions when a company operates in and outside Australia and it does not report its emissions resulting from its operations in the country. The following approaches (in order of priority) have been used to determine or estimate corporates' Australia-specific emissions: • Consult the Clean Energy Regulator's NGERs database. • Estimate emissions based on the company's business activities (e.g production, volume breakdown by country, revenue breakdown by country, locations of operations, etc) • If no information is provided to accurately estimate these, the emissions will not be included in the quantification.
Absence of emissions disclosure and targets' assessment	• To undertake the quantification of emissions reductions resulting from a corporate's commitment, the emissions to which the target applies are required. When these emissions are not disclosed, the following approaches are followed: • If the company discloses emissions that include its overseas operations, an estimation for its Australia-specific emissions is established to quantify the reduction target and assess its alignment to the 1.5°C trajectory. • If the company does not disclose its emissions to which the target applies (and they can't be estimated), the emissions reduction achievable will not be quantified. Note the alignment to the 1.5°C trajectory will be assessed when the emissions breakdown can be estimated or assumed.
Scope 3 emissions disclosure	• Coverage • Companies reporting scope 3 emissions from operations only (e.i business travel, purchased goods) are considered as 'partially' reporting scope 3. • When the coverage of the scope 3 emissions disclosed is unclear, an estimate has been determined based on the emissions figures obtained, derived or estimated by S&P Global Sustainable. • Additional considerations for financial institutions and other similar entities • Disclosed scope 3 emissions must include investment portfolio emissions to be considered as addressed²⁹. • Royalty companies are considered in the same category as bank funding activities, their scope 3 emissions are assessed based on the companies/activities funded, similar to banks' financed emissions.
Scope 2 emissions assessment	• Reporting method When location and market-based data are provided, location-based has been used except for companies with a target using the market-based approach.

²⁹ Consideration in line with the Greenhouse Gas Protocol's *Corporate Value Chain (Scope 3) Accounting and Reporting Standard*.

Scope 3 emissions assessment

- **Scope 3 applicability**

To determine scope 3 applicability, this analysis takes a company-specific approach and considers the unique characteristics of each company. For companies with publicly available emissions breakdown, scope 3 emissions have been considered as material when they represent at least 40%³⁰ of total emissions. When a company emissions profile is not available or the information available is limited, a combination of company-specific value chain activities, information obtained from Climate Action 100+ benchmark methodology for scope 3 applicability on a sector level, sectoral reports, and S&P Global Sustainable1 data was used to determine scope 3 applicability. As a result, scope 3 is applicable for 95% of the companies assessed.

- **Scope 3 emissions unclear**

When a source of emissions is unclear and it is not a main source of scope 3 emissions, it is not considered in the assessment.

Use of offsets

- Emissions targets associated with the use of offsets are only considered as emission reduction targets if they are associated with unavoidable emissions. However, information on reliance on offsets has not always been made clear by companies and, therefore targets relying on offsets may have still been included in this study.
- If net zero targets are achieved solely through carbon offsets (not actual emissions reductions) these are not considered as net zero targets and are not included in the assessment.
- More information on offsets is available in the [Oxford Offsetting Principles report](#).
- Use of offset, particularly how that contributes to national sequestration effort required in DF '1.5C All-in' is not within the scope of this analysis and has not been assessed.

1.5°C alignment assessment of commitments

- **Alignment accuracy**

A 10% margin from the trajectory to allow for estimates based on assumptions when data availability is limited.

- **Alignment assessment baseline**

The analysis has considered the targets' baseline year specified by the company, only when the baseline year was not specified, 2021 was assumed as the baseline year.

- **Timeframes considered when assessing the targets:**

- Short-term (ST): 2022 - 2025
- Medium-term (MT): 2026 - 2039
- Long-term (LT): 2040+

- **Company-specific 1.5°C trajectories**

- The 1.5°C decarbonisation trajectory determined for each company is based on their emissions profiles in 2021 therefore the real 1.5°C trajectory that applies may vary as companies' emissions profiles evolve over time. Alignment of companies' commitments can evolve over time based on the update of data collected and scenario improvements.
- Companies' offsetting strategy, particularly how that contributes to national sequestration effort required in DF '1.5C All-in' is not within the scope of this analysis and has not been incorporated into the development of these trajectories.

³⁰ The 40% threshold is in line with Science Based Targets Initiative's criteria and recommendations to set scope 3 targets.

Cumulative emissions assessment and 1.5°C alignment

- **ASX200 total cumulative emissions**

The cumulative scope 1 and 2 emissions of a company from 2021 to 2050 are calculated by summing its annual scope 1 and 2 emissions factoring in its emissions reduction commitments. The annual emissions of a company without any assessed emission reduction commitments are assumed to remain constant from 2021 to 2050. An 'ASX200 total cumulative emissions' can then be calculated by summing up the cumulative emissions of all companies.

- **ASX200-specific DF '1.5C All-in' trajectory carbon budget**

The 1.5°C cumulative emissions of a company is calculated similar to the cumulative emissions of a company described above but by replacing the percentage of reductions targeted by the company with the percentage of reductions required by the company-specific 1.5°C trajectory. The sum of 1.5°C cumulative emissions of all ASX200 companies amounts to the 'ASX200-specific DF '1.5C All-in' trajectory carbon budget'.

- **Comparison assessment**

The 'ASX200 total cumulative emissions' can then be compared with the 'ASX200-specific DF '1.5C All-in' trajectory carbon budget'. If the former is larger than the latter, there is an 'overspend' of budget, implying a misalignment with the 1.5°C trajectory. If the former is equal to or smaller than the latter, the emissions of the ASX200 implied by companies' commitments are in line with the 1.5°C trajectory.

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