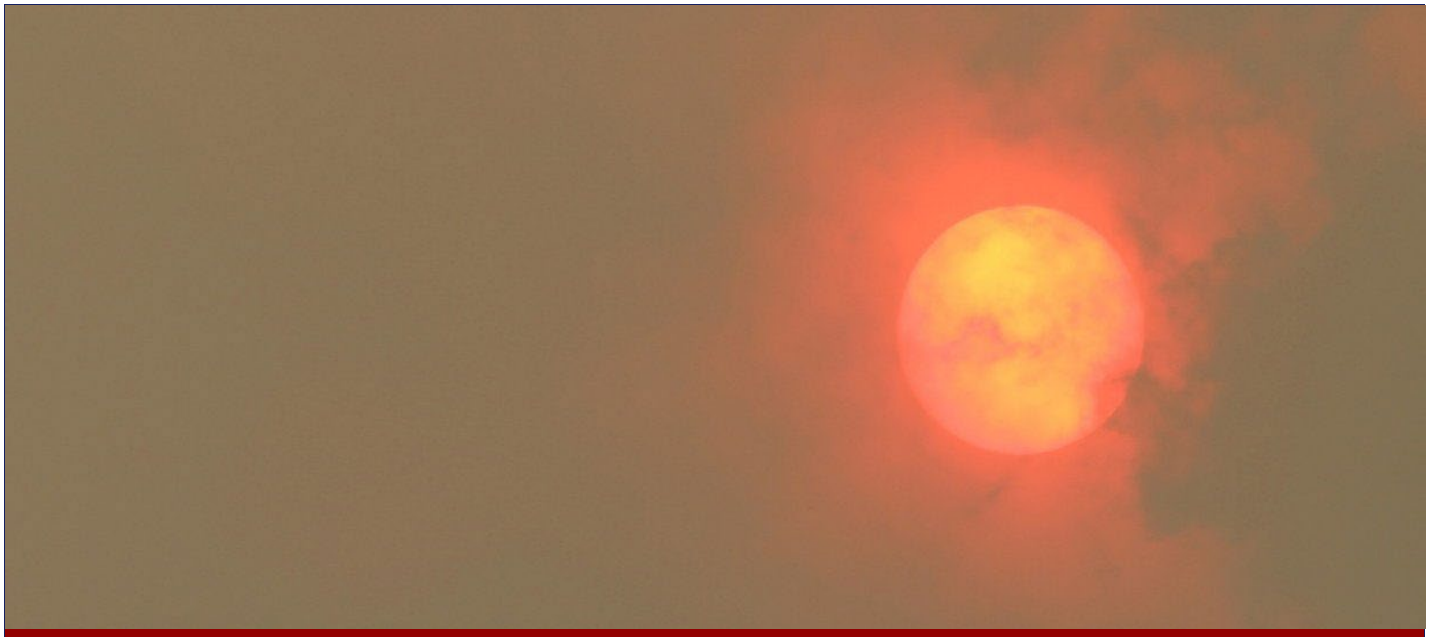


Changing the climate on corporate emissions

Final Report

Dr Leanne J Morrison
RMIT University
August 2021

CPA Australia
Global Research Perspectives Program

RMIT UNIVERSITY

'CHANGING THE CLIMATE ON CORPORATE EMISSIONS' A Foreword from CPA Australia

A CPA Australia funded project from RMIT University

Global warming projections and their impact

The most recent global warming assessments from the Intergovernmental Panel on Climate Change (IPCC) released in August 2021, warns that human activity has caused an approximate 1.1°C of global warming above pre-industrial levels and that warming is likely to reach 1.5°C by between 2030 and 2040 if there is not a rapid shift to reduce emissions.

Nevertheless, successive Emissions Gap Report assessments (latest December 2020) from the UN Environment Programme point to global warming of more than 3°C by the end of the century based on current national emissions reduction commitments. To limit the increase in global average temperatures to 1.5°C, emissions need to halve by 2030, and drop to net zero by the middle of the century for the best chance of avoiding the worst environmental, economic and human impacts of climate change.

International institutional response

This objective of holding the increase in the global average temperature to well below 2°C above pre-industrial levels is contained in the United Nations Framework Convention on Climate Change (UNFCCC) 2015 Paris Agreement, to which Australia is a signatory.

The long-term temperature goal is supplemented by a collective objective of the parties to the UNFCCC to achieve net zero emissions in the second half of the century. Parties, in the main national governments, aim to reach global peaking of greenhouse gas emissions as soon as possible, recognising that peaking will take longer for developing country parties.

Each party to the UNFCCC is required to maintain and communicate five-yearly successive Nationally Determined Contributions (NDCs) explaining their domestic mitigations and anthropogenic emission removal measures.

The IPCC Emissions Gap report noted the encouraging climate policy development of the growing number of countries committing to net-zero by around mid-century. The IPCC nevertheless goes on to warn that current NDCs remain seriously inadequate to achieve the climate goals of the Paris Agreement.

Responses beyond national governments – the momentum towards net-zero

Since the inception of the Paris Agreement the world has witnessed the phenomenon of regional and municipal governments, along with private sector entities from across the broad spectrum of the investment supply-chain, adopting into their operations and strategies, net-zero emissions targets. See for example The Climate Pledge.

The reason for this can be seen readily in the wide sectoral breakdown of greenhouse gas emissions spanning a multitude of activities, interactions and interdependencies. With emissions coming from such a diversity of sectors, we need many solutions and many participants working towards decarbonisation of the global economy.

For private sector entities, commitment to net-zero is compelling. The rationale includes business model resilience, opportunity in innovation, securing funding sources, anticipating regulatory intervention, maintaining social licence and reputation management. Nevertheless, there are potential pitfalls. Such risks may include misapplication of the underlying complexities of climate science, naivety in assumed resilience, failure to sufficiently embed net-zero strategic intentions within operations, 'legacy' issues associated within embedded operations and a mismatch between external rhetoric and actual internal transformation.

What the 'Changing the climate on corporate emissions' report says about the state of play within Australian companies – challenges and the need for a healthy scepticism

The study explores the effect of corporate climate change-related KPIs on entities' carbon emissions levels. Specifically considered is how these KPIs are developed, recognised, measured and reported on.

The key finding is that there is an insufficient link between internal/ departmental KPIs, a company-wide target, national emissions targets and the global Paris Agreement-based emissions reduction target. Australia's shift away from fossil fuel dependency, and its meeting of international commitments – limited though they might be – is seriously hampered. Within the available source of targets, the Task Force on Climate Related Disclosures (TCFD) has emerged as the preferred and most robust option, though meaningful progress is hampered in Australia by continued uncertainty in national policy settings.

The study also finds:

- Fragmented and mixed use of KPIs which are often still in a state of development.
- Widely mixed motivations towards both adopting an ambitious emissions reduction trajectory and reporting externally on such.
- Particularly institutional investors, and to a lesser but still significant degree regulators, are the driving factor within a somewhat confused and ambiguous policy position from the national government. This has contributed to slow and fragmented development within companies.
- The manner and emphasis of external reporting of emissions and climate-related risks varies widely – treated in some instances as a core factor in the business, and in other instances quarantined as a discrete discourse.

- The current state of development in corporate emissions KPIs and reduction targets potentially leaves some companies open to the risk of being accused of 'greenwashing'.
- Approaches to 'embeddedness' in reporting in many ways reflect~~s~~ the variability across companies in managements' perceptions of how pervasive climate-related and wider ESG issues are beyond the boundary of the company itself.
- The Greenhouse Gas Protocol offers a suitable path towards standardisation of emissions disclosures, yet the absence of a suitable level of mandating, and uncertainty about measurement, of indirect emissions (Scope 3) impedes the sufficiency of market and stakeholder information reporting.
- Finally, there is significant variability in practice across the ASX industry sectors with the most robust and sophisticated methodologies evident in the Industrials and Energy sectors.

Andrew Hunter
CEO, CPA Australia
August 2021

Executive Summary

The aim of this project is to better understand the role of corporate climate change KPIs and targets in the wider context of global warming, and ultimately to contribute to better corporate approaches to climate change obligations. In responding to this aim, this report presents the results from 12 in-depth semi-structured interviews, and quantitative analysis of 36 companies' climate change targets and outcomes are presented, along with an analysis of findings and key policy recommendations.

The study found that corporate approaches to climate change in Australia's largest companies vary widely. The KPIs and targets set by each company similarly have varying results. Targets relating to the TCFD and 2015 Paris Agreement were found to be the most widely discussed targets during interviews and are having the largest impact on the reduction of company-specific emissions. Recommendations of this report include the development of Federal policy guidance; the alignment of corporate emissions targets with Federal targets; standardisation of climate change reporting and the disclosure of internal targets and KPIs. These recommendations will improve comparability and allow companies to better discharge their accountability towards stakeholders. Of these stakeholders, it was found that institutional investors wield the highest level of influence, however this role would be best filled by the Federal Government, which at present, provides inadequate guidance or pressure on corporate sector emissions and climate change policy.

Contents

Introduction

This final report presents the results and analysis of the study 'Changing the Climate on Corporate Emissions', as part of the reporting obligations to the funders, CPA Australia. It is the final report, submitted on 30th April 2021 (Milestone E).

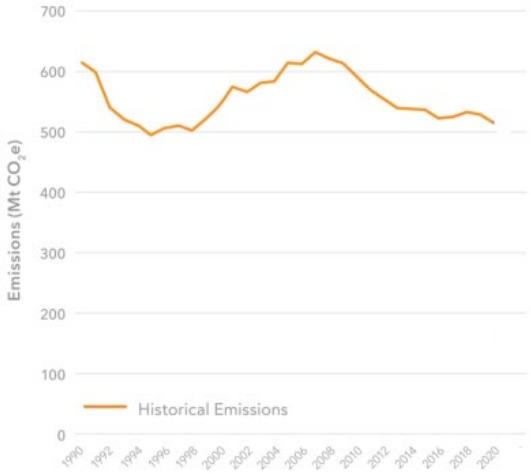
Australia's national emissions are currently not decreasing at a rate which will allow for meeting the commitments made to the 2015 UN Paris Agreement to reduce emissions in order to avoid the most harmful effects of climate change. In fact, if Australia continued to decrease emissions at recent rates (net decrease of 6.8 mt CO2e annually since 2005), we would meet net zero emissions in March of 2096. Fortunately, the Federal government does have slightly higher goals, and aims to decrease emissions by 26-28% of 2005 levels by 2035, and net zero by 2050 (Australian Government, 2021). While initially these goals were in line with the 2015 Paris Agreement, they have recently been exposed as some of the weakest in the world, when global leaders recently met at the Climate Summit of 2021.

In the absence of strong Federal climate policy, the burden of developing targets and reducing emissions has fallen at the feet of the corporate sector. Given that companies are responsible for over 70% of global emissions (Kumarasiri & Gunasekarage, 2017), a large proportion of Australia's agreed emissions reduction depends on corporate cooperation. With 58% of large companies reporting on their emissions and climate change risks (ACSI, 2017), on the surface it appears that Australian companies are proactively addressing their climate change obligations. In addition, Australia is signatory to the 2015 UN Paris Agreement, which necessitates a radical reduction in emissions. Why, then, have Australia's national emissions not significantly decreased?

Figure 1, below, illustrates that since 1991, Australia's emissions have both increased and decreased, and currently sit at approximately 513 Mt of CO_2e per annum. The challenges inherent in reaching the national goal of net zero emissions by 2050 can be extrapolated from this graph, as can the predicted level of economic disruption which grows exponentially as 2050 draws closer, if emissions are not significantly reduced in the meantime.

This problem points towards a potential misguidance of KPIs and targets such as those based on carbon accounting, the Global Reporting Initiative (GRI) and the Task Force on Climate-related Financial Disclosures (TCFD). The goal of this study, therefore, is to examine whether such targets have been effective thus far, paying attention to the role of company specific targets (KPIs), legislation, global targets and the rate of corporate emissions reductions.

Figure 1: Australia's national emissions 1990-2020



(Hewson et al., 2021, p. 8)

Background

Australian companies have been increasingly reporting on climate change issues over the past twenty years (KPMG, 2020, Andrew & Cortese, 2011). In 2020, 60% of Australia's ASX100 recognised climate change risk in their annual reporting (KPMG, 2020). Despite this increase in recognition, research has found that there is little compelling evidence that emissions levels of companies are actually decreasing (Doda et al., 2016).

The disconnection between levels of reporting, emissions and climate change risk is problematic, and potentially linked to commonly used climate-related KPIs such as carbon accounts; relative and absolute emissions measures, and; inadequate targets. Reporting is variously guided by responses to the TCFD recommendations, the Global Reporting Initiative (GRI), the UN Paris Agreement and UN Sustainable Development Goals, leaving Australian companies with a large degree of uncertainty and flexibility.

Prior research undertaken by the researcher (currently under review) indicates that even though Australia's highest emitting companies are addressing the TCFD recommendations, their climate change related reporting conveys avoidance discourse. While many companies score highly on a number of evaluations systems, the disconnect between the reporting practices and actual emissions is further highlighted by Australia's highest emitters often leading the ranks in 'quality' of reporting (see for instance ACSI, 2017).

Climate science has called for businesses to radically change their culture, business models and activity in order to make the necessary reductions in carbon emissions to abate widespread and profound environmental crisis (IPCC, 2018). The response has been to capture factors of environmental damage which are easily measured, by using performance indicators based on measures such as carbon accounting. While these may have the potential to be useful in keeping corporations to account, there has been little evidence to point towards meaningful change (Doda et al., 2016). This research project steps beyond the commonly used rankings of report quality, to question the commonly used climate change KPIs in order to point towards a better way to account for corporate emissions and climate change issues.

Findings

The next sections outline findings from the semi-structured interviews, followed by analysis of the report discourse and quantitative analysis including statistical and descriptive analyses.

Interviews

Interviews with managers overseeing the climate change response of 12 ASX200 companies indicated that the ways in which these companies addressed, measured and reported climate change issues varied significantly. As such, the development, measurement, and reporting of climate change issues were discussed, along with a range of influencing factors, such as government policy, the TCFD, the 2015 Paris Agreement, investor pressure and other stakeholder impacts.

Of these, the interview analysis indicated that TCFD was a powerful bridge between corporate decision making and climate change mitigation. Several of the interviewees highlighted the TCFD as such:

> *The TCFD was great for that to provide a nice framework and it also re-integrated a lot of our senior management and boards because you now had a language that was principally prepared for investment and insurance and finance risks. (Participant 8)*
>
> *The TCFD flipped all that on its head and just said, "Yes, that's the consideration." It doesn't even prescribe you to have a science-based target. Just says you need to set targets, but if you're going to set a target, it needs to be credible and it needs to be ambitious. (Participant 11)*
>
> *...which is really what like TCFD gets to, right, because they're saying climate change is a financial risk. You already have financial risk frameworks as part of your business and part of your licence to - like not just social licence to operate but also just your financial licence to operate. You need to manage material financial risks. (Participant 1)*
>
> *And that's made it a lot easier. The board also, we just have a great board. So a very switched on bunch of people … the TCFD was a ground breaker for them. I think that really got their attention. (Participant 5)*
>
> *I think it's been impactful in … two main ways. One it's given a vernacular to talk about climate risk in the discussion, in the classification of, or the definition of what a transition risk versus a physical risk is. And it's set out basically categories of risk that it expects companies to recognise and disclose their approach … secondly, it's given investors something that they can ask for. So it's because of that now the investment community has come to us, asking us to report against TCFD and our board gets asked questions, they ask our executives about it. (Participant 3)*
>
> *We'd had some really good discussions with the board about carbon and future likely carbon cost liabilities before we started talking about including reporting on Task Force for Climate-related Financial Disclosures but they do link together really well. There's a great framework that's been provided now with those recommendations so we can try and have an aligned way of reporting… (Participant 6)*

Other factors influencing target setting include of course the 2015 Paris Agreement. This agreement is between countries, rather than the corporate sector, however it is widely accepted that the corporate sector has a large role to play in assisting nations to meet expectations. Essentially, the Paris Agreement is an agreement made by 197 countries to keep

"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" (United Nations, 2015, p. 3). The following excerpts represent typical responses to the Paris Agreement as conveyed during the interviews:

> *What's overlaid with all that is last year we set a science-based target based on a 1.5 degree trajectory in line with the Paris Agreement. We went with the most ambitious target that you possibly could go with, and we track our emissions. (Participant 11)*

> *So basically our commitment is - so we recognise the science of climate change and really it's about - the main aim of Paris I guess is limiting the level of greenhouse gas rises below two degrees, and that's one of the primary [avenues]. So when we think of what our company is doing in that sort of space and what is [Company 4] doing in our space, it's our aim is really how do we go about reducing our emissions on a longer - both from a short-term perspective and from a longer term sort of perspective? (Participant 4)*

> *It covers the Scope 1 and 2 emissions, and there's a separate target for scope 3, as you've pointed out, it was certified by the Science Based Targets initiative. And that is how it is certified as being under the aims of the Paris Agreement. So when it comes to... I think from a company perspective, what the Paris Agreement has done is that its indicated a global movement away from emissions intensive fuels. (Participant 3)*

Although the Australian Government is a signatory to the 2015 Paris Agreement, its approach is to attempt to limit emissions to a "target of 26–28% below 2005 levels by 2030" (Parliament of Australia, 2020), which is far less ambitious than many other signatories, and criticised globally. Almost all companies commented disparagingly on the lack of guidance from the Federal Government on climate targets, regulation and legislation. These comments were made through corporate reporting mechanisms (reports, website or media comment) and in the interviews. Overall, it was felt that Federal guidance on these issues would provide certainty and a more stable economic pathway to a low carbon future. Across most of the interviews, there was a general dissatisfaction with the leadership of the Federal Government on this issue, and with the lack of helpful policy:

> *And then NGERS, the government one, is defined by operational control. And so that is unique to Australia. So that frustrates global investors who want a whole building perspective when through Australian legislation, we define our boundary as by legislation. (Participant 3)*

> *... there's been next to nothing from the government on the climate change front ... my observation is that the regulators are kind of filling that void and are spending a lot of time working with regulators internationally to get some coherent frameworks together to help manage financial services and institutions ... I think in their words they've sort of stepped in to fill the void that policy and legislation has left. (Participant 1)*

> *... Federal Government policy ... one is our risk mitigation, so sooner or later you will expect more stringent carbon policy. I think everyone knows a more stringent carbon policy is coming, whether that's in two years' time, five years' time, 10 years' time, so we have to do the right thing making sure you've got the right trajectory. (Participant 4)*

> *Our company position is that we will work with our governments on whatever targets they decide. So not so much. I know a lot of companies are pushing for net-zero, we haven't*

pushed on any particular target or direction, but whatever target the Australian government has, we will support and work on that. That is the company position. (Participant 5)

Government led frameworks such as the NGERS do not currently require companies to calculate or report Scope 3 emissions (although there is a Bill currently tabled for discussion in Parliament which recommends Scope 3 reporting in NGERS). An important but often overlooked aspect of carbon accounting includes Scope 3 (indirect) emissions. Of the 34 companies which reported on their direct (Scope 1 and 2) emissions, 16 also included Scope 3 emissions. The challenges of calculating and reporting on Scope 3 emissions were discussed by many of the participants. These discussions ranged from a sense that calculating Scope 3 emissions in a robust way is not possible (as in the first two excerpts from Participants 7 and 12), to some early attempts and data collection for Scope 3, as in the second two excerpts from Participants 1 and 3:

... it's so hard to measure emissions associated with underwriting portfolios. So [Company 7] has been part of a CRO forum initiative which has tried to develop a methodology for Scope 3 emissions from underwriting activities. The conclusion of that was here are some possible approaches. It's some guidance, it's what we did and what the outcomes were. But we couldn't stand behind it to say it's a methodology because there's just too many issues with it at the moment, particularly around data collection and systems ... (Participant 7)

What is really difficult. I mean, you know, we've got properties where we have no operational control whatsoever (Participant 12)

Then the Scope 3 emissions arising from our public markets and equities and fixed interest, that's a lot harder because it essentially relies on our investment team and they use a third party to help them. They can only do this on an annual basis because the data collection is just huge. They basically collate all the underlying carbon emissions from the underlying investment companies and reach a carbon intensity figure for the portfolio. Naturally they can't - they don't necessarily manage to cover the whole portfolio because some companies or asset classes, they just don't have the information for.(Participant 1)

So for Scope 3, for example, there's no argument that emissions of our tenants is Scope 3. That's understood. It's just whether we disclose it or not. And that just depends on whether we have the data as to tenant use. And so we are working with tenants to find ways to get that data. (Participant 3)

Despite these challenges, some companies were further along with developing methods to collate, calculate and report on their indirect emissions. This was the case with Company 6:

We'll have about five times as much discussion about carbon including for the first time, a full Scope 3 carbon footprint forecast based on the science-based target initiative screening tool. So, not just our audited Scope 1, Scope 2 and Scope 3 but also the wider Scope 3 for the first time we'll be giving a forecast on that. (Participant 6)

... we've set a supply engagement target for Scope 3, which sets us the target to engage and have 87 per cent of our suppliers in relation to goods and services purchased and use of goods sold - use of sold products to have set science-based targets over the next five years. So, we've got a large engagement piece of work that we're going to need to do to help encourage other companies to move in that direction, too. (Participant 6)

Overall, there was a diverse range of perspectives evident throughout the interviews, ranging from the view that a particular company had very little responsibility to reduce emissions

(Company 10), or that the boundary of responsibility lay in operations (e.g. emissions from office, rather than investment policy – see Participant 1, below):

> *... we've been carbon neutral since 2013 across our corporate operations… the rationale behind that was a bit of a corporate responsibility play but also a way of demonstrating leadership at the time. (Participant 1)*

> *... offset the emissions, that's neither here nor there. But I think once we're having close to zero emissions, once we've got renewable energy, they're very negligible, the emissions that we're producing as a company. But in terms of the emissions that we're financing or underwriting through investment or through underwriting then, yes, that's really where it sits. So it's coal, oil, gas, agriculture, transport, all the high-emitting portfolios. (Participant 7)*

At the other end of this spectrum were companies which seemed to be taking a proactive approach in leading their industry, fully cognisant of their influence and the multiple ways they could contribute to addressing climate change.

> *... site managers and the business that have the responsibility to manage those things, not a separate team… we've always looked at energy efficiency because it affects our cost price. So it's very integrated into the business strategy in a much more practical everyday way than a lot of companies…It's a core part of our business. (Participant 5)*

> *That way you don't have overlapping boundaries. So if you're a tenant of ours we're your Scope 3's, but in these current protocols you're also our scope 3's and if we're running an aligning accounting period, I can't finish my carbon accounting until I get all your emissions, but you can't finish your accounting until you get all my emissions...*

> *The other one is supply chains apart from what the slavery, but the whole supply chain characteristics of, you know, do you have at risk supply chains. Do you have issues with supply chains because of current affairs, the supply chain thing will become a critical measure of investment… (Participant 12)*

In terms of internal performance indicators, some interviewees openly discussed the ways in which climate change performance was measured within their company, and how various managers had climate change measures linked to expected outcomes, whereas others either had no climate change related KPIs, or were not fully aware of the multiple measures being used internally throughout their company. While the targets which are generally communicated via the external reporting mechanisms (discussed in the following sections) represents the culmination of multiple layers of internal targets (in many of the sample companies), each company had varying levels of internal targets. The following interview excerpts demonstrate this range:

> *[Researcher]: Do you have any targets around your emissions?*
> *[Participant 10]: Not at this stage, no.*

> *So, this target we set three years ago and at that time … was about operating emissions, and the reason it was operated is those are the emissions that [Company 4] controls. We also at the time had what we call non-operated assets … operated by other companies so we had joint venture interests in them … If you don't operate the assets, you're not on the ground, you don't have control. So that's why the target two is about what can we control? What can we influence? (Participant 4)*

> *The scorecard is pretty much broken up into ... people and culture element. The zero harm element is about 30%, of which 10% is the greenhouse gas emissions… the organisation was*

very much structured into divisions. When you take the carbon emissions up to a divisional level, it sort of made more sense… it's about it saying looking at your baseline, you've got to come up with initiatives because it encompasses greenhouse gas emission avoidance as well as greenhouse gas emission reduction. (Participant 11)

… the KPIs for particular managers play a role in doing that. So, we've got a slightly different way of approaching it in as much as we have what we've called what he's called objectives and key results… And when we then link those to our enterprise risk management. And out of all of that stuff, the CEO has long term incentives directly linked to delivering sustainability outcomes. (Participant 12)

What's guided us there is our science-based target. Essentially, net zero by 2050 on a 1.5 degree pathway I should say. We put a range out there of 45 to 50% reduction by 2035. We've got the interim target. We want to basically between 45... Again, we did the modelling. We just didn't pluck numbers out of the air because it's what everyone was saying. We did the modelling and looked at it and what's achievable for [Company 11]. (Participant 11)

Understanding the motivations for these companies to manage and report on their climate change impacts is a key factor in understanding how they manage and report on these issues. For example, are companies taking climate change action in order to position themselves as a favourable investment in a low carbon future; to avoid possible costs; for ethical reasons, or due to public pressure? The following excerpts demonstrate the range of motivations for the sample companies:

*For [Company 1] and that asset investment side it's been very much driven by **institutional clients**. So, they're constantly asking how do we better manage our portfolios to manage the climate risks … **Regulator** interest played a big role as well. So APRA is increasingly interested in the way that financial institutions are dealing with climate risk, recognising that it's a financially systemic risk that threatens the stability of Australia's financial systems… What's interesting is that it's - at least from my observations it's less - essentially less visibility among retail clients. So, your mum and dad clients, **superannuation** - which kind of surprised me … there's just such a big push in the population that doesn't really engage with their superannuation or financial advice or anything like that. [Participant 1]*

*… **institutional investors** is obviously one of them, but I think as I mentioned it's about the less we burn our product the more we can sell, so that's a really key factor … every molecule of the gas we save we can sell, so you get **revenue**. So that's one other key factor. (Participant 4)*

*And the thing that really kicked it off with the board also was the **High Court[1] opinion** by Hutley SC. And he made a legal opinion that climate change risk is foreseeable … with the TCFD, you now have a structured way to see that coming. And that the boards were personally liable to manage that with any other risk as part of their **fiduciary duty**. (Participant 5)*

*…where we have **large investors** or **customers**, such as in the EU and Europe and preparing for that, doing the right thing in relation to what we believe our investors and customers would see as being the right thing to do for an organisation of our scale. (Participant 6)*

[1] Point of clarification. The Opinion, though very influential, was independently sourced by the Centre for Policy Development from a brief from MinterEllison Solicitors, rather than judicial opinion developed by the High Court of Australia.

*There hasn't been a stronger investor pressure from our big **institutional investors**. I think there have been a few discussions, but not as strong as I perhaps might have expected. (Participant 7)*

*I think our **employees** would like to see [Company 10] take a position on climate change, and energy reduction, and waste reduction. (Participant 10)*

From the interviews, it became apparent that institutional investors are a predominant influence on whether and how a company reports on climate change issues, and on whether and how they undertake climate change abatement activities. To a lesser extent, customers, the legal system, employees and board members' characteristics have influenced these decisions.

Climate Change Reporting

The initial sample of companies includes those 12 with which interviews were undertaken. Of these 12 companies, all produce a general sustainability report, all commented on climate change issues in their annual report to some degree, five provided additional climate related information on their website, six report directly to the CDP (formerly known as the Carbon Disclosure Project) and four produce a standalone report dedicated to climate change issues. The reports of this sample of 12 companies were examined qualitatively to closely analyse the discourse used around climate change issues. The nature and detail of the climate change reporting varied widely, as discussed below.

Embedding climate change into core business

There is a difference of embeddedness between these companies, with some companies integrating climate change issues into discussion of core performance, while others communicate about climate change issues in a way that conveys a sense of separateness to core business. Some examples of discourse which demonstrate a variety of levels of embeddedness with regards to climate change are presented below. The first selection of quotes represents ways companies within the sample are conveying a sense of embeddedness, or connectivity with climate change:

The transition to a lower-carbon economy requires significant and, in some cases, disruptive changes across economic sectors and industries. We understand the financial sector must take action now to identify where financial dislocations and sudden losses in asset value may occur. In order to help identify the information needed by stakeholders to appropriately assess and price climate-related risks and opportunities, [Company 2]'s risk team is conducting a review of its current approach to managing climate-related risk with a view to making recommendations, which will be considered for implementation in 2020, to better embed climate-related risk in [Company 2]'s policies and processes.

The catastrophic Australian bushfire season of 2019-20, combined with record-setting drought conditions in the years prior, confirmed that climate change is directly affecting our social wellbeing and causing significant economic impacts.(Company 3)

The excerpt above, from Company 3's climate change report, presents climate change as a scenario embedded into multiple levels of social and economic life. This approach to climate

change can be contrasted with the statement below, from Company 10's sustainability report, which completely disregards any impact climate change could have on its business:

> *The [Company 10] business predominately operates online employment marketplaces and is not currently directly affected by the physical impacts of climate change.*
>
> *[Company 4] recognises the science of climate change and supports the objective of limiting global temperature rise to less than 2 degrees Celsius. Our strategy focuses on natural gas which we believe will continue to play a key role in a low carbon future. We are committed to being part of the solution by supporting the twin objectives of limiting greenhouse gas emissions while providing access to reliable and affordable energy to domestic and global markets.*
>
> *Climate change is a global challenge. [Company 8] recognises that changes to the environment influence the operation of our business and our assets, and we are committed to identifying and managing climate change risks across our business.*

The quote from Company 4's climate change report similarly represents a sense of dis-embeddedness with climate change issues, overlooking the scientific warnings against the significantly high levels of GHG associated with natural gas. In addition, Company 4's report tends to focus on market-based and economic impacts and contributions to climate change, rather than physical and social impacts.

The excerpt from Company 8's climate report has a similarly narrow focus; failing to mention the profound and far reaching impacts of climate change. In Company 8's context, this statement is written within their TCFD report, and therefore is necessarily a report which focuses on financial risks, however as the earlier examples show, even within this framework, it is possible to express an embedded approach which surpasses the predominantly economic focus of the TCFD.

The power of discourse in shaping the ways organisations and people treat the environment cannot be understated (Morrison, 2020, Alexander & Stibbe, 2014). As such, while this level of analysis is less tangible than the quantification of emissions, it is important to remember that discourse has profound and far reaching impact on climate change policy and action. A discourse which presents climate change as an embedded process which has profound and far reaching impacts on society, nature and economies promotes the idea that it is urgent and important to abate. In contrast, discourse which presents climate change as something separate and distant from the workings of the organisation limit the ethical restraints on CO_2e emissions (Morrison et al., 2018, Stibbe, 2014).

Targets

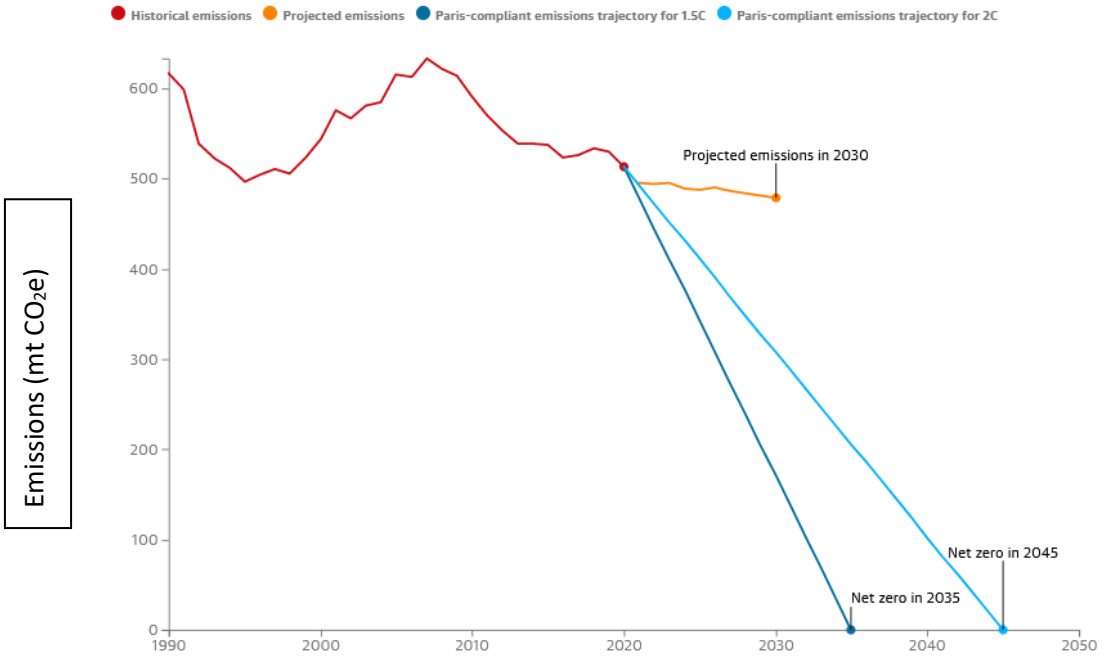
Given that Australia is a signatory to the 2015 Paris Agreement, the Federal Government has by some inference agreed to at least net zero emissions by 2050[2]. How Australia will meet this target, and whether it is ambitious enough is the subject of debate. In 2014, the Australian Climate Change Authority (CCA) set out the emissions pathway which Australia would need to follow in order to adhere to the Paris Agreement, however since then, no

[2] An alternative interpretation of the Paris Agreement (United Nations Framework Convention on Climate Change) might lead to a conclusion that Australia need only reach net zero at some point between 2050 and 2099.

review has been undertaken (Hewson et al., 2021). Recent research indicates that in order to adhere to the Paris Agreement, Australia's target should be net zero by 2045 instead of the original 2050, and 50% below 2005 levels by 2030.

These targets align with the goal of limiting global warming to well below 2 degrees above pre-industrial levels (United Nations, 2018). However, in order to align with the more stringent goal of limiting global warming to well below 1.5 degrees above pre-industrial levels (United Nations, 2018), Australia's 2030 target needs to be 74% below 2005 levels, with net-zero emissions achieved by 2035 (Hewson et al., 2021). This is due to the historical and ongoing emissions patterns of Australia. The most current and authoritative data argues that net zero by 2050 will not be sufficient for Australia to meet its obligations (Hewson et al., 2021; see also Figure 2, below). Regardless of the science, the net zero by 2050 discourse remains dominant in political and corporate articulations.

Figure 2: Historical and projected emissions targets



(based on data from Hewson et al., 2021, Australian Government, 2020)

In the absence of federal policy or clear guidance in meeting the Paris Agreement (a position supported by the interview data), most of the States and Territories have agreed individually to the goal of reducing emissions to net zero by 2050. As such, a company target of reaching net zero by 2050 implies an alignment with the Paris Agreement, with State goals, and with the implicit federal target, and as such does not represent any more ambitious target than adhering to minimum standard expectations (and according to the current science, not enough to meet minimum expectations).

With the above in mind, an absence of a stated target can be assumed to be equivalent to a stated target of net zero emissions by 2050. Of the 12 companies examined, eight had either no specific target or any formal alignment with the Paris Agreement, with four aiming to achieve these targets within a reduced timeframe.

Most of the 12 interviewed companies have put specific KPIs in place in order to reach the overall emissions targets. These KPIs are put in place in relation to specific members, with many remuneration bonuses linked to meeting particular sustainability and climate related targets (amongst a mix of other criteria). Twenty of the sample companies submitted a report to the CDP, in which KPIs are discussed. Such specificities were not disclosed in the more publicly facing sustainability or climate change reports, but were discussed in more depth in the interviews.

The reporting of the expanded sample of 36 companies was analysed in order to discern the types of targets used. Of the targets explicitly mentioned in the reporting, three primary groupings were discerned:

(1) a company-specific target based on the context of the company itself;
(2) a 'Science Based' target;
(3) the 2015 Paris Agreement.

In addition to conveying targets, a number of companies produce a report in alignment with the TCFD. TCFD recommendations include the reporting of "targets used by the organisation to manage climate related risks and opportunities, and performance against these targets" (Task Force on Climate-related Financial Disclosures, 2017, p. 7). As such, a fourth target grouping is included in this study, that of:

(4) targets in alignment with the company's TCFD reporting.

Each of these targets are discussed below.

1. Several the companies within the sample of this study set their own **company-specific emissions targets**. These targets did not necessarily relate to the 2015 Paris Agreement or climate reporting frameworks. Often it was found that these specific targets related more closely with what the company could achieve, rather than any external guidance or global imperatives. Although any reduction in emissions is an improvement in terms of climate change outcomes, it is globally agreed that ultimately, net zero emissions as early as possible is necessary to avoid the worst effects of climate change. As such, a company-specific target risks being ineffectual, if not linked to global goals.
2. '**Science Based Targets**' is an organisation which provides guidance for organisations to reduce GHG emissions at levels necessary to adhere to the 2015 Paris Agreement. Science Based Targets draw from current climate science to meet the goals of the Paris Agreement. To be able to claim that the company's target is a 'Science Based Target' validation must be sought from (and paid for) 'Science Based Targets' (Science Based Targets, 2020). Science based targets were problematised by several interviewees, for example:

... the idea of calling it the science based target when the science says you've actually got to stop it and where if we want to avoid entering a territory of high risk of dangerous climate change, we've got to eliminate emissions essentially now to avoid going above 1.5 degrees average temperature. (Participant 8)

3. The **2015 Paris Agreement** is a global agreement made by 197 countries, in which they have pledged to reduce emissions to the extent that average global temperatures

should be no more than "1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change" (United Nations, 2015, p. 3). This is often interpreted as net zero emissions by 2050. Australia is also a signatory, although the federal policy guiding this outcome has been criticised by the United Nations and other signatory nations. For example, the UNCC has requested the Australia submit more ambitious 2035 targets in preparation for the 2021 Climate Summit in Glasgow. Many companies state their support of the Paris Agreement in the sustainability or climate change report, although predominantly they refer to net zero by 2050, which, as discussed, is not supported by the current science as an adequate target to adhere to the Agreement (Hewson et al., 2021).

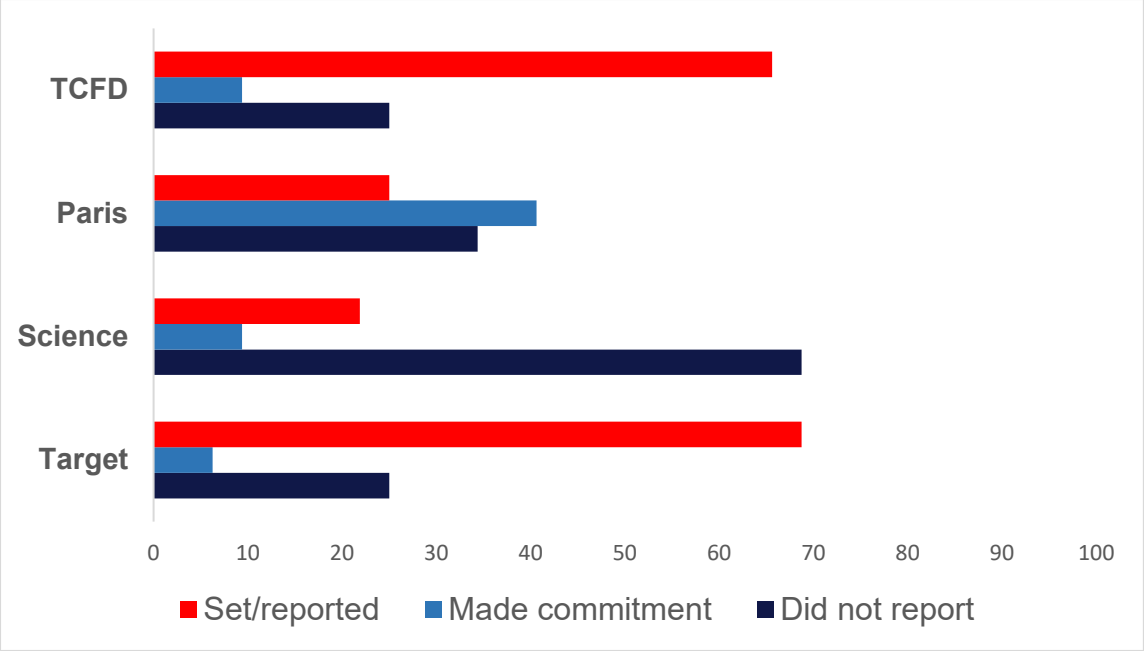
4. The **TCFD** is an organisation set up by the Financial Stability Board which has produced a set of guidelines and recommendations for companies to report on their climate related financial risks, and associated climate change metrics. Though acknowledged to be voluntary, the TCFD states its disclosures should be made in the preparer's mainstream financial filing, in other words depending on jurisdictional requirements, the annual reporting package which includes audited financial results. As such, the TCFD across the globe is subject to a differing range of national regulatory and semi-regulatory mechanisms seeking to drive its uptake. The TCFD adheres to the measures recommended in the 2015 Paris Agreement, recommending 'scenario planning' and risk assessment reporting for a range of levels of potential climate change outcomes (Task Force on Climate-related Financial Disclosures, 2017).

While the four criteria above are not all explicit targets, they do at least refer to targets. For example, a company which states its support for the 2015 Paris Agreement is implicitly stating its contribution to a global target of no more than 1.5 - 2 degrees higher than pre-industrial temperatures, whether they have specifically stated this or not. Similarly, reports which align with the TCFD should consequently include a target, since this is a key recommendation from the TCFD (although the TCFD provides no guidance as to how this target should be developed).

Several companies within the sample stated their commitment towards one or more of these criteria. For instance, while 21 of the 36 companies investigated had produced a TCFD report, four had made a commitment towards producing one in the future. Of the sample, 22 of the companies stated a company-specific emissions target, three committed to developing a target, whereas eight had neither a target or any stated intention of developing one, and two made no comment about climate change at all. In terms of the 2015 Paris Agreement, only eight companies explained how their activities aligned with the goals, whereas 13 companies made statements of support without any evidence of supporting actions, and 16 companies made no reference to the Paris Agreement.

This perhaps reflects the lack of Federal Government leadership around our national commitments, in comparison with the leadership being provided by non-governmental sources such as the TCFD, and other organisations such as 'Science Based Targets'. The commitment of the sample companies towards setting targets, adoption of the TCFD, Paris Agreement and Science Based Targets in % is given in Figure 3, below.

Figure 3: Commitment and adoption of various targets by sample companies (%)



The correlation analysis between Target, the TCFD, Science-Based Targets, and the 2015 Paris Agreement is outlined in Table 3. The analysis indicates that while all four potential bases for targets link back to the 2015 Paris Agreement (particularly the TCFD, Science-Based Targets and reference to the 2015 Paris Agreement itself), the TCFD had the strongest relationship with the Paris Agreement.

This finding implies that companies adopting TCFD recommendations are more likely to demonstrate their commitments towards the adoption of the 2015 Paris Agreement. The two next significant outcomes of this analysis were that both the 2015 Paris Agreement and the TCFD are significantly and moderately correlated with setting an emission reduction target, which implies that companies adopting these initiatives are more likely to set targets for their emission reduction. Despite the Science-Based Targets specifically relating to the Paris Agreement, if Science Based Targets were used, a reference to the Paris Agreement was weak. The correlation analysis also indicates a strong and negative correlation between TCFD and change in emission reduction.

The above correlations imply that companies adopting the TCFD guidelines are more likely to achieve reduction in their emission levels. Along with these findings, the correlation between Science-Based initiatives and change of emission is insignificant, but negative in direction. This implies that the Science-Based initiatives are only somewhat associated with a reduction in emission levels.

Table 3: Correlation analysis

Correlations						
		Change	Target	Science Based	2015 Paris Agreement	TCFD
Change	Pearson Correlation	1				
Target		-0.108	1			

Science Based		-0.041	0.372*	1		
2015 Paris Agreement		-0.291	0.549**	0.331*	1	
TCFD		-0.441*	0.556**	0.315	0.667**	1

In the next stage of analysis, regression analysis was performed to confirm the findings from the correlation analysis. As expected, the regression analysis indicated the value of TCFD reporting, as illustrated in Table 4, below. TCFD had the strongest relationship with a reduction in emissions during the period, whereas an independent target on its own was more strongly linked to a significant *increase* in emissions during the period (between 2018 and 2019, the period examined here).

Table 4: Standardised coefficient of the regression analysis

KPI's	Standardised Coefficients	Sig.
(constant)		0.184
Science Based	0.071	0.679
2015 Paris Agreement	-0.176	0.424
TCFD	-0.436	0.048
Capital	-0.229	0.177
Target	0.574	0.008

Sector Differences

Descriptive statistics were also prepared in order to determine any differences between sectors within the sample. Some interesting results found that the Healthcare industry generally had poor climate change reporting practices, with only one company committed to setting targets in the future, and no other targets or support of the Paris Agreement conveyed through their reporting. Potential reasons for this include the view that the Healthcare industry meets its social license in other ways (developing and providing healthcare) and that there is little pressure on this industry to also meet other environmental and social obligations.

- Industries which ranked highly in terms of setting an **emissions target** included; Real Estate (100%); Industrials (100%); Consumer Staples (100%); Telecommunications (100%), and; Materials (83.3%) sectors. These results, while based on a small number of companies (e.g. one company in the case of the Telecommunications industry sector) were in many cases supported by the interview data. For example, the Real Estate industry sector has a strong culture of climate change and environmental impact management. Also, the materials and industrials sectors are closely associated with mining and industrial activities which traditionally attract a high level of public attention in environmental issues. Similarly, Consumer Staples companies have a high

public profile and have historically attracted public and political scrutiny regarding their social and environmental impacts.

- Setting a '**Science Based Target**' tended to be restricted to the Industrials industry sector (100%), and to a lesser extent, the Consumer Staples (50%) and Financials sectors (33%).
- Expressing support for the **2015 Paris Agreement** was more common, with 100% of the Energy; 89% of the Financials; 75% of the Real Estate, and; 66.7% of the Materials industry sectors at least conveying a sense of support for the Agreement. Specific explanation of how these companies were supporting the Agreement on an operational or practical level was less prevalent though, with 50% of the Materials; 50% of the Real Estate; 11% of the Financial and none of the Energy industry sectors providing evidence of practical steps in contribution to the Agreement.
- While the **TCFD** was discussed at length in many of the interviews, and a general sense of the positive outcomes of this initiative was expressed strongly, the reporting practices of the sample told a slightly different story, with 65.6% of the sample producing a report in alignment with the TCFD, and a further 9.4% expressing a commitment towards producing a TCFD report at some point in the future. Reports aligned with the TCFD were most prevalent in the Industrials (100%); Energy (100%); and Materials (83.3%) industry sectors. Again, this result might be explained by the public profile of these industries and their historical attraction of scrutiny around their environmental practices.

Discussion

In answering the research question which guides this study: ***What is the effect of climate change related KPIs on corporate carbon emissions levels?***, this study has found a strong relationship between TCFD reporting (i.e. targets associated with TCFD) and a reduction in carbon emissions, within the sample examined.

The relative strength of this relationship, along with the relationship between the company specific targets set by the companies themselves, and an increase in emissions over the period reveals a critical problem in the company level KPIs (targets) and effective emissions abatement. In understanding this critical problem, the sub questions of this research explored: *How are the climate change related KPIs (i) developed, (ii) recognised, (iii) measured and (iv) reported.* It was found that the climate change managers had little oversight with regards to (i) developing, (i) recognising and (iii) measuring the internal KPIs. As such, the internal KPIs were not reported externally (iv).

A notable lacuna in the interview data was that the internal KPI's of each company, and thus, of the managers within each company with regards to climate change indicators, were not clear-cut. Many of the interviewees, despite being senior climate change managers, could not provide a clear example of the climate change related KPIs of other senior managers within the company. This is likely due to the more individualistic, or specific patterns of setting KPIs for managers, however it would also seem that the climate change managers might be in the best position to assist in the measurement and design of effective climate change related KPIs within the company, with the overall effect being to meet the external KPIs (targets) of the company as a whole.

The risks inherent in setting individualised climate change related KPIs for managers without the oversight of climate change managers, is that the internally set KPIs may not feed into company-wide targets, and subsequently, not feed into national and global targets necessary to avoid the worst impacts of climate change. These risks are inherent in the company-specific targets, and in the absence of Federal policy or legislation, there is a risk that company's internal and external KPI's do not feed into the globally agreed targets, as illustrated in Figures 4 and 5, below.

Figure 4: Ideal relationships between company, national and global emissions targets

Figure 5: Current relationships between company, national and global emissions targets

Presently, the internal climate change related KPIs (1) appear to be set according to internal discretion, rather than in alignment with company-wide targets (2). Echoing this pattern, the least effective company-wide targets were those which do not align with national or global emissions targets. This is again reflected in that the national emissions targets do not appear to be aligned with the globally agreed targets.

At every junction in the above process, the steps are not aligned with each other, and lead to a dangerous situation where climate change targets risk being useful for 'greenwash' or impression management purposes, but not contributing to the global targets in any meaningful way.

While there is no doubt that a reduction in emissions is a step in the right direction, if it is not specifically aligned with the company-wide target as it lacks cohesion. Further, due to the lack of federal commitment to ambitious emissions abatement, it is not possible for company-wide targets to be both ambitious enough to meet the necessary abatement levels (according to the 2015 Paris Agreement), and to align with national emissions targets (3). The chain is further broken in the next step for the same reason, with current federal policy widely criticised for its ineffectiveness in making a meaningful contribution towards global emissions abatement (4), as per the 2015 Paris Agreement.

The findings also point toward some other related issues which indicate a high level of confusion within corporate climate change reporting and target setting. The lack of standardised reporting mechanisms and the flexibility in choice for companies not only creates the opportunity for reporting of unclear climate change factors (e.g. relative emissions; emissions intensity), but also fails to provide clear guidance for companies. At present, companies which report on climate change issues are 'starting from scratch', spending time and resources in developing their own reporting methods. This was supported in discussions with the participants:

> *... from the mid-2000's there was a dedicated team looking at climate change, whether it was reporting, or it was a delivery of projects and the sort of strategies that companies would take. (Participant 4)*
>
> *So it's not flash in the pan stuff. There is a lot of systematic and methodical working towards carbon neutrality. (Participant 8)*
>
> *... all of that sort of led to us starting to do sustainability reporting about ten, eleven years ago. And they're sort of progressively grown really. So I guess we were sort of one of the early people doing it ... (Participant 12)*

In addition to the time and resources spent developing different systems within each company, during the interviews some of the inherent problems were discussed, as in the following excerpt:

> *... with companies that are just starting out on this journey tends to be an add on or someone extra. And then I think it flows through the company in a way that it always seems like a bit of an add on like something extra, but in reality, it's core to everything. (Participant 5)*

In this context, the value of the TCFD was mentioned multiple times during interviews as a helpful guide in not only developing reporting methods, but also how to embed climate change considerations into the decision-making processes of the company:

> *So certainly the shareholder resolution was what kickstarted it all. Then TCFD came along around that time as well. (Participant 7)*
>
> *We'd had some really good discussions with the board about carbon and future likely carbon cost liabilities before we started talking about including reporting on Task Force for Climate-related Financial Disclosures but they do link together really well. There's a great framework that's been provided now with those recommendations so we can try and have an aligned way of reporting... (Participant 6)*

The impact of the TCFD was acknowledged during interviews, a perception which was supported by the quantitative results which found a strong effect between adopting TCFD recommendations and a reduction in emissions. This finding indicates that the adoption of TCFD may have an immediate effect on emissions reductions. Thus, this finding should be followed up in consequent years in order to check for changes in this pattern. It may be that since the TCFD recommendations were released only recently (in 2017), changes will become more evident over time. The impact of the TCFD could be further strengthened by linking company targets with the various national targets, given that the TCFD doesn't currently provide guidance on target setting beyond stating that they should be set.

Scope 3 emissions were discussed with all interview participants, leading to some interesting (and varied) insights. Responses ranged from those who felt that the collection of Scope 3

emissions was not only impossible, but not useful (given that Scope 3 emissions are by definition, outside of the control of the company); to a company which had developed methodology to the point where reporting of Scope 3 emissions would be available within the next reporting period. The importance of tracking indirect emissions was articulated by the participant from that company:

> *... we now are aware that 98 per cent of our estimated full carbon footprint is Scope 3 and only two per cent of Scope 1 and Scope 2 together. (Participant 6)*

Overall, the findings point towards a lack of cohesion, or sense of separateness between company strategy and global goals.

Once examined closely, it appears that this pattern is evident at all steps (see Figures 4 and 5). The discourse analysis of the narrative within climate change reports also supports this sense of disconnection between the company and the global effects of climate change. This sense of disconnection between the company and the environment more generally has been established in prior studies by the principal researcher (see Morrison, 2020, Morrison et al., 2018), but the process of disconnection in the context of climate change, and specifically in terms of KPIs and targets, is yet to be demonstrated in the accounting literature.

A need for a standardised way to report on emissions has become evident. While a standardised method of emissions calculation has been established through *The Greenhouse Gas Protocol* (The Greenhouse Gas Protocol, 2012), which is standard practice for Australian carbon accounting, this protocol is not mandatory, leading to multiple methods of calculation and presentation within the sample.

A common argument made by the interviewees of companies which either didn't report, or reported only basic information, was that they had very little to report on. For example, Participant 10 reported the following:

> *We are an office-based company. We don't produce anything and we don't have any transportation beyond, of course engaging commercial airlines to fly some of our employees from one office to another, and we don't have even a fleet of cars or anything, and we don't own an office, we lease it. We don't have a data centre, we use external providers in the cloud. So by saying that, what I mean is that it's not a large concern for [Company 10], in terms of its own impact and possibilities for what it can do.*

Demonstrating this problematic issue, some of the companies within the sample have developed their own ways to report on their emissions. While this may be useful for the company, it is not useful for readers of the reports.

These are similar arguments which led to the global standardisation of accounting preparation and presentation. For example, Company 12 reports on 'market based', 'like-for-like', 'location based', 'intensity' emissions. While these specifics may be accurate (although difficult to verify, given their specificity to the company), they are confusing for readers attempting to compare between companies. Investigation into the interview data and CDP reports determined that this sense of obfuscation is related to KPIs and climate outcomes. For instance, over the period, Company 12's emissions increased by 57%.

Recommendations

In the context of the findings of this study, recommendations include the development of standards for climate change reporting, which could then be applied similarly to accounting standards. The TCFD is currently the most standardised approach for companies, however it is focused on financial risks. This is helpful to companies, however it needs to be broadened to also incorporate the risk of the company's contribution to climate change. This would encompass stronger guidance on carbon accounting methodologies and processes, limiting the reporting of 'relative' or 'intensity' or emissions, and other emissions reporting practices evidenced in this report (e.g. 'like-for-like', and 'market-based' emissions). Ideally all companies would report on Scope 1, 2 and 3 emissions in a standardised way. Such standardisation would ensure the links between global targets, company targets and internal KPIs, an alignment which was found lacking in this study. Like other accounting information, this information would then be comparable between companies.

As a result of this analysis, this report offers the following key recommendations:

1. **Federal Policy Guidance**

This report recommends that the Federal Government develop and provide clear climate change policy that aligns with the 2015 Paris Agreement obligations towards a maximum 1.5 degree rise in temperatures above pre-industrial levels. Based on Hewson et al (2021), the 1.5 degree target would mean Australia's 2030 target needs to be 74% below 2005 levels, with net-zero emissions achieved by 2035. To assist with the necessitated reductions, the 'National Greenhouse and Energy Reporting Amendment (Transparency in Carbon Emissions Accounting) Bill 2021' currently tabled for discussion in Parliament should be considered.

2. **Corporate emissions to align with Federal targets**

This report recommends that the renewed Federal targets should then be more stringently imposed on large emitters. Several mechanisms could be implemented for this linkage, including a carbon price, a cap-and-trade system, providing the carbon price floor is set at an adequate level to financially disincentivise high level emissions.

3. **Standardisation of Climate Change Reporting**

The preparation and presentation of emissions, in particular, would benefit from a standardised approach. This should align with the GHG Protocol and TCFD reporting, leading to the omission of relative emissions reporting unless accompanied by absolute emissions data. All companies should be reporting on absolute Scope 1 and 2 emissions, and moving towards the inclusion of Scope 3 emissions. Standardisation would increase transparency and accountability around corporate climate change obligations.

The role of imposing such standardisation on companies should be filled by Federal Government, and not left to market forces, institutional investors or financial sector institutions, as it currently does (in the form of public pressure, stakeholder resolutions, the TCFD/FSB and ASX). The lack of guidance from the Federal Government on climate change is widely acknowledged, and a perspective shared by almost all participants in this study. This lack of guidance and legislation is also recognised globally, creating high level risk and uncertainty for the Australian corporate sector, and for the Australian economy.

4. **Disclosure of internal targets and KPIs**

This report recommends that companies disclose their internal targets and their relationship with the national and international targets (i.e. Federal targets and 2015 Paris Agreement). For this purpose, the managers overseeing climate change issues should play a key role in establishing the emissions reductions targets within each organisation. Once internal targets are made transparent, the company's level of accountability in terms of contribution to national and international targets becomes clearer to stakeholders. For example, where most of the sample companies examined here mentioned their support for the Paris Agreement, only eight explained how their actions contribute to it. The disclosure of internal targets and KPIs allows stakeholders to better understand how the company is actualising their stated support.

Conclusion

In answer to the primary research question: ***What is the effect of climate change related KPIs on corporate carbon emissions levels?***, this study has found that while there are four primary targets used by Australian companies, it is TCFD-related targets which have the greatest relationship to reduced emissions, whilst company-specific targets having the strongest relationship with increased emissions. This study has also highlighted the problematic disconnection between KPIs, company targets, national targets and global targets; a chain of effects which should be closely aligned if the outcomes (global targets) are to be achieved. This disconnection is evident in the way internal climate change KPIs are *(i) developed, (ii) recognised, (iii) measured and (iv) reported,* compounded by a lack of oversight from the climate change managers, and by extension, a lack of connection with national and global targets. Such disconnection between KPIs and targets at different levels is a dangerous situation, which risks the use of climate change reporting as an impression management strategy.

Limitations of this study include the small sample size, which although it represents 15% of Australia's 200 largest listed companies, is made up of small numbers of companies from each of the industry sectors (e.g. only one telecommunications company). This limitation is overcome, however by the incorporation of descriptive analysis, and the strength of the associated qualitative data from the in-depth interviews. Another limitation is the timescale used. Since the TCFD was only introduced in 2017, there has not been enough time to properly evaluate the long-term impacts of its recommendations. A replication of this study in five and ten years' time would likely yield further meaningful data. Problematically though, the urgency of climate change means that solutions need to be developed before long term results can be known. Ultimately, the goal is to find ways to support companies to reduce their emissions to net zero in a very short timeframe (United Nations, 2018).

Glossary

CO_2e

CO2 equivalent/CO2-e/Carbon equivalent. Since there are six greenhouse gases, each with different levels of intensity, or global warming potential, they are converted into a universal unit of measurement. CO_2e is the universal unit of measurement to indicate the global warming potential of each of the six GHGs, expressed in terms of the global warming potential of one unit of carbon dioxide (GHG Protocol Initiative, 2004).

GHG

Greenhouse Gases (GHGs) are generally agreed to be the six gases listed in the Kyoto Protocol: carbon dioxide (CO2); methane (CH4); nitrous oxide (N2O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF6). Often Co2e or GHG are colloquially described as 'carbon'.

NGERS

The National Greenhouse and Energy Reporting Scheme (NGERS) is informed by The National Greenhouse and Energy Reporting Act 2007 (NGER Act). It is a national framework for reporting company GHG emissions, energy production and consumption, overseen by the 'Clean Energy Regulator', a department of the Australian Government.

Scope 1 emissions

Scope 1 emissions are direct emissions from the activities of the organisation, or under their control. This includes fuel combustion such as gas boilers on site, fleet vehicles and air-conditioning leaks.

Scope 2 emissions

Scope 2 emissions are indirect emissions from electricity purchased and used by the organisation. Emissions are created during the production of the energy and eventually used by the organisation.

Scope 3 emissions

Scope 3 emissions are all other indirect emissions from activities of the organisation, occurring from sources that they do not own or control. These are usually the greatest share of the carbon footprint, covering emissions associated with business travel, procurement, waste and water.

TCFD

The Task Force on Climate-related Financial Disclosures, also known as the Task Force, or TCFD is an industry-led task force established by the Financial Stability Board. The TCFD released their final report and recommendations in 2017, and has become one of the most frequently used frameworks for organisations to report on their climate related risk.

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Appendices

Appendix A: Methodology

The primary question posed by this research asks: ***What is the effect of climate change related KPIs on corporate carbon emissions levels?*** Several underpinning issues need to be examined in order to explore the problems embedded in this question, such as whether some targets might be more effective than others, and how they are implemented. Thus, sub questions of this research will explore: *How are the climate change related KPIs (i) developed, (ii) recognised, (iii) measured and (iv) reported.*

The sample for this study is made up of 36 ASX200 companies. The ASX200 companies predominantly report on climate change issues such as climate change risk, emissions levels and targets (ACSI, 2017). Many of the ASX200 companies also report as part of Australia's National Greenhouse Gas Inventory (Australian Government, 2016). This means that information about the climate change KPIs and emissions levels of these companies is more easily accessed.

In order to answer these questions, a mixed methods approach was utilised. First, semi-structured interviews with management of 12 ASX200 companies were undertaken. The climate change related KPIs (including targets, both overall and internal) which are in use by the organisation were sought through these interviews, in addition to the reasons for these KPIs which inform the development, recognition, measurement and reporting practices. Interviews were semi-structured to allow for unique perspectives of the interviewees to be discussed, along with any contextual issues the interviewee deemed important (Qu & Dumay, 2011, Whiting, 2008, Barriball & While, 1994). The interviewees were selected on the basis of their role in climate change management and reporting within the company. This follows the method of previous studies which used interviews with management directly involved with the sustainability and environmental reporting of the company (Morrison, 2020).

The 12 companies with which these managers are associated are in diverse industries within the ASX150 (largest 150 listed companies in Australia). Nine are ASX100 (largest 100) companies, and three are considered high Scope 1 (see Glossary) carbon emitting companies, with the remaining being relatively high Scope 2 (see Glossary) carbon emitting companies. This represents a good range of industries and emissions patterns for the purposes of this project.

Participant recruitment involved a Research Assistant making phone and email contact with 93 of the ASX200 companies in order to identify a specific contact for climate change or sustainability responsible managers. The companies were selected based on previous research undertaken by the chief investigator, that a positive response rate of 30-35% was achievable (32% of 93 = 30). After contacting the relevant personnel within each of these companies, only 16 potential participants responded positively, leading to 10 interviews completed from this first phase. When it became evident that response rates were well below expectations, the remaining 107 ASX200 companies were contacted through publicly available email addresses and online contact forms. In four instances this led to a positive response, which eventuated in two additional interviews completed, totalling 12 complete interviews in all.

Due to the study taking place during Covid-19 related lockdowns, the semi-structured interviews were undertaken over the phone and on online platforms such as Skype and

Microsoft Teams. The interviews lasted for between 40 and 90 minutes, at the behest of the participant, and were recorded and transcribed for further analysis. The climate change reports associated with the 12 companies of the participants were also closely read for patterns of discourse and discussion of climate change which could triangulate the interview data.

Next, a quantitative analysis of reporting and emissions was undertaken. For this phase, the sample was expanded to include 36 companies of diverse industries (including the original 12 companies). The proportion of industries in the sample reflects the same proportion of industries from within the ASX200, as illustrated in Table 1, below. The emissions levels reported by these 36 companies, (including those with whom interviews were undertaken) were located through the National Greenhouse Gas Inventory and the companies' own reports. These emissions levels were examined, and comparisons made to identify the relationships between climate change related targets and emissions levels through descriptive analysis. These quantitative findings are triangulated with qualitative examination of the way climate change related targets are being reported.

Table 1: Breakdown of Industry Sectors of Sample

ASX Sector	**Companies in Sample**	**Interviews undertaken**
Consumer Discretionary	2	1
Consumer Staples	2	
Energy	2	1
Financials	9	3
Health Care	5	1
Industrials	2	1
Information Technology	2	
Materials	6	1
Real Estate	4	4
Telecommunication Services	1	
Utilities	1	
Total	36	12

Table 2: Coding of Sample Companies and Interview Participants, compared with Industry Sector

Company Code	Interview Code	GICS
Company 1	Participant 1	Financials
Company 2	Participant 2	Financials
Company 3	Participant 3	Real Estate
Company 4	Participant 4	Energy
Company 5	Participant 5	Materials
Company 6	Participant 6	Healthcare
Company 7	Participant 7	Financials
Company 8	Participant 8	Real Estate
Company 9	Participant 9	Real Estate
Company 10	Participant 10	Consumer Discretionary
Company 11	Participant 11	Industrials
Company 12	Participant 12	Real Estate

Following the interviews, a quantitative lens was adopted in order to discern any underlying patterns and relationships between the emissions patterns and targets set by the companies. Not all of these companies are required to report under the NGERS, and in those instances where NGERS reporting was evident, only emissions associated within the boundaries of Australian operations is reported (and therefore differs from the emissions reported in the corporate report which represents whole-of-organisation emissions). As such, in order to standardise the sample, emissions data was collected from each of the companies' reports and collated, and NGERS emissions data was used to triangulate the self-reported emissions.

The reports were then searched for relevant climate change targets. These targets had been identified through the interview process, and include (1) a target specific to the company; (2) a 'Science Based Target'; (3) alignment with the 2015 Paris Agreement, and; (4) target in alignment with the TCFD recommendations. Search terms used to find this evidence within the reports included TARGET; INDICATOR; TCFD; TASK-FORCE; SCIENCE BASED; EMISSIONS and; PARIS. It became apparent that there was a spectrum of responses to each of these points, from a vague mention, to specific evidence of action. As such, values were assigned (0/0.5/1) to represent evidence of commitment levels, with 0 representing no mention, 0.5 representing a mention and 1 representing a full commitment or supporting evidence in the publicly available reports. These values convey what is communicated publicly, and therefore may not represent the internal targets of the companies.

With this data, a regression analysis and descriptive statistics were undertaken. This part of the analysis measured for relationship between the various types of targets and any change in emissions, relationships between targets, and industry specific patterns. The findings from the qualitative semi-structured interviews, as well as this quantitative analysis are presented below in the findings section of the report.

Appendix B: Sector taxonomy used by ASX

Sector	Industry Group
Energy	Energy
Materials	Materials
Industrials	Capital Goods
	Commercial & Professional Services
	Transportation
Consumer Discretionary	Automobiles & Components
	Consumer Durables & Apparel
	Consumer Services
	Media
	Retailing
Consumer Staples	Food & Staples Retailing
	Food, Beverage & Tobacco
	Household & Personal Products
Healthcare	Health Care Equipment & Services
	Pharmaceuticals, Biotechnology & Life Sciences
Financials	Banks
	Diversified Financials
	Insurance
Information Technology	Software & Services
	Technology Hardware & Equipment
	Semiconductors & Semiconductor Equipment
Telecommunication Services	Telecommunication Services
Utilities	Utilities
Real Estate	Real Estate

(Market Index, 2017)