Submission 37 – Market Forces

Market Forces made submission 23 to the inquiry into carbon risk disclosure in the 44th Parliament.

This document is intended as a supplementary submission to the original submission 23.

All submissions received in the 44th Parliament can be accessed via the following link:
http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Economics/Carbon_Risk_Disclosure/Submissions

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Senate Standing Committee on Economics
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19 December 2016

RE: Supplementary Submission to the Senate Standing Committee on Economics – Carbon Risk Disclosure

Market Forces is pleased to make this supplementary submission to the Committee's Inquiry into Carbon Risk Disclosure.

We make this submission in light of our own research into the climate-related financial disclosures made by Australian listed companies, and the recent publication of the Recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD).

Current Disclosure Standards in Australia

Market Forces recently published research into 25 listed Australian companies with interests in the fossil fuel industry – primarily from the Energy, Utilities and Materials sectors.

We sought to adjudge the climate commitments made by listed companies, by applying the Oxford Martin Principles to those sectors most vulnerable to transition risk. In 2015, the Oxford Martin School developed a framework for engagement between investors and fossil fuel companies[1]:

1) Science: Does the company accept the science that climate stabilisation (at any temperature increase) requires net zero carbon dioxide emissions?
2) Strategy: During the transition to net zero, does the company have a strategy to limit future committed cumulative carbon dioxide emissions?
3) Milestones and Metrics: Has the company provided milestones and metrics to allow investors to monitor their progress in implementing their transition plan?

[1] Working Principles for Investment in Fossil Fuels, Oxford Martin Net Zero Carbon Investment Initiative, Oxford Martin School, University of Oxford, November 2015

The Oxford Martin School suggests that those companies that provided positive answers to each question were worth engaging with, and deserving of investor capital to support their transition to a low-carbon economy[2].

In addition to assessing the companies using the Oxford Martin Principles, Market Forces also determined which companies acknowledge climate change as a material business risk.

Market Forces found that:

- Only one of the 25 companies assessed addresses each of the Oxford Martin Principles - AGL Energy;
- Three of the 25 companies assessed partially address the three principles: BHP Billiton, Rio Tinto and South32;
- Ten of the 25 companies assessed fail to acknowledge the science of climate change at all, including index heavyweights Seven Group Holdings and WorleyParsons;
- Not one of the fourteen companies assessed in the ASX300 Energy sector has a strategy to reduce their emissions in the long-term;
- Just six of the 25 companies assessed acknowledge climate change as a material business risk.

The primary conclusion from this research is the distinct lack of progress in the year since the Paris Agreement was reached. Progress on disclosure of climate-related risks has been excruciatingly slow, which suggests that Australian listed companies are simply not coming under any pressure from either investors or regulators.

Please refer to our additional attachment for the complete analysis.

Task Force on Climate-related Financial Disclosures (TCFD)

Last week the Task Force on Climate-related Financial Disclosures (TCFD) published its recommendations following many months of collaboration between corporate executives, institutional investors and regulators.

Market Forces believes that the TCFD recommendations are a good first step to establishing a consistent dataset across industries and jurisdictions, which will drive better decision-making, and accelerate the transition to a low-carbon economy.

Primarily, Market Forces agrees that for many companies – particularly those in the Energy and Utilities sectors – climate change is a material business risk, and should be reported within mainstream financial reporting. Our own research suggests that the acknowledgement of climate change as a material business risk is not widespread in Australia. The Australian Securities and Investments Commission (ASIC) should mandate the recognition of climate change as a material business risk.

[2] Working Principles for Investment in Fossil Fuels, Oxford Martin Net Zero Carbon Investment Initiative, Oxford Martin School, University of Oxford, November 2015

Secondarily, Market Forces broadly agrees with the four key themes upon which climate-related disclosures should be made:

1) Governance
2) Strategy
3) Risk Management
4) Metrics and Targets

Those sectors identified by the TCFD to be most vulnerable to transition risk – Energy, Transport, Materials/Buildings, Agriculture/Food/Forestry – should be compelled to implement the TCFD recommendations by 30 June 2017. Some companies have already made progress towards such disclosures, but voluntary disclosure simply will not compel all firms to act.

Within the Governance theme, the TCFD failed to address direct or indirect lobbying against climate-related policies – including those to limit fossil fuel use or expansion, and those designed to encourage the uptake of renewable energy. Companies should mandatorily disclose memberships of industry groups, employment of lobbyists or lobbying firms, and direct meetings with members of government that are undertaken to influence climate-related policies. Companies should be forced to explain how these lobbying activities reconcile with their commitments to addressing climate change.

Scenario analysis is a necessary tool and should be widely encouraged or mandated. However, scenario analyses must be consistent with 1.5°C and 2°C pathways, such as the research conducted by the Stockholm Environment Institute[3]. Market Forces does not consider the IEA450 scenario compatible with limiting global warming to 2°C.

Our research suggests that AGL Energy and BHP Billiton are the only two Australian companies with fossil fuel interests to perform scenario analyses. While it is encouraging to see such analyses, we are cautious about how confident the conclusions are under all policy scenarios. In order to address these concerns, ASIC must inform the assumptions upon which scenario analyses are based. As more firms implement their own scenario analyses, comparisons between companies and sectors must be paramount. Consistent, comparable information is vital for investors to make informed decisions.

Finally, Market Forces firmly believes that the financial sector has a vitally important role in ensuring improved climate-related disclosure, including banks, insurers, asset managers and superannuation funds. As per the TCFD, “large asset owners sit at the top of the investment chain and, therefore, have an important role to play in influencing the organisations in which they invest to provide better climate-related financial disclosures”[4]. The Australian Prudential Regulatory Authority (APRA) must ensure that the financial sector mandatorily implements the recommendations of the TCFD.

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[3] Implications for Australia of a 1.5°C future, Working Paper 2016-09, Stockholm Environment Institute, 2016

[4] Recommendations of the Task Force on Climate-related Financial Disclosures, December 2016

Should you require further information, or commentary on any of the above, we can be contacted by email (preferred) at and telephone:
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Yours sincerely,

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MARKET FORCES

Business As Usual: Australian Companies Not Planning For Climate Change

December 2016

Executive Summary

The vast majority of listed Australian fossil fuel companies fail to positively address the Oxford Martin School's 'Working Principles for Investment in Fossil Fuels'[1], thereby providing justification for divestment.

The Oxford Martin Principles provide investors with the "terms of engagement" on which they should engage fossil fuel companies: Science, Strategy and, Milestones and Metrics. Positive responses to the three Principles provide investors with "a case for remaining engaged" and reason to "provide capital to support their transition"[2].

Fossil fuel companies' failure to address the three Principles suggest they are not recognising and planning for the transition risks posed by the Paris Agreement.

Market Forces' assessment of 25 listed Australian fossil fuel companies found that:

- Only one of the 25 companies assessed positively address each of the Oxford Martin Principles - AGL Energy;
- Three of the 25 companies assessed partially address the three principles: BHP Billiton, Rio Tinto and South32;
- Ten of the 25 companies assessed (40%) fail to acknowledge the science of climate change at all, including index heavyweights Seven Group Holdings and WorleyParsons;
- Not one of the fourteen companies assessed in the ASX300 Energy sector has a strategy to reduce their emissions in the long-term;
- Just six of the 25 companies assessed (24%) acknowledge climate change as a material business risk;
- Nine of the 25 companies assessed (36%) do not make submissions to the CDP (Carbon Disclosure Project).

The lack of progress by Australian companies in the year since the Paris Agreement is likely due to a number of factors: a lack of policy certainty in

[1] Working Principles for Investment in Fossil Fuels, Oxford Martin Net Zero Carbon Investment Initiative, Oxford Martin School, University of Oxford, November 2015

[2] ibid.

Australia; a lack of guidance from regulators; and the failure of institutional investors to exert their influence over companies.

Institutional investors must demonstrate how they are actively managing carbon out of their portfolios, and should use the Oxford Martin Principles to:

1. Implement and disclose a framework and timeframe for active engagement with fossil fuel companies;
2. Take punitive measures against companies that fail to address the framework, e.g. voting against director elections and/or remuneration reports;
3. Divest from those companies where progress is not forthcoming or inadequate.

Introduction

Knowledge of how Australian companies are managing climate risk and decarbonisation is vital for investors, particularly in relation to those companies most acutely affected, such as those within the fossil fuel sector.

Using Oxford Martin School's 'Working Principles for Investment in Fossil Fuels', Market Forces has conducted an analysis to further this understanding.

This analysis aims to assist investors in identifying those firms most actively identifying and mitigating the risks that climate change poses to their businesses. It also provides a framework with which investors can seek further disclosure from companies.

Institutional investors typically garner the most useful information on climate risk through direct conversations with company executives, or via proxy engagement firms. However, that information remains private.

Currently a major difficulty in assessing listed companies' climate commitments, or lack thereof, is the lack of consistent reporting, preventing scrutiny by the broader public and comparison between peers.

In order to address these issues, the Task Force on Climate-Related Financial Disclosures was established by the (G20) Financial Stability Board to formulate guidelines for voluntary disclosure on how to manage climate risks.

The globally recognized CDP[3] surveys thousands of companies annually on a range of questions relating to governance, policy and action on climate change. However, it is limited by its dependence on voluntary participation.

In its 2016 assessment of corporations globally, the CDP received just 86 responses from companies in the Australian S&P ASX200 index[4] (43%). In addition, the CDP reports at an aggregated global or national level, thus limiting the availability of information about individual companies.

The Australian Council of Superannuation Investors (ACSI) assesses the sustainability reporting practices of Australian listed companies annually[5]. However, climate risk is not specifically addressed, nor are individual company commitments listed and compared. Indeed, the guide is aimed at corporates to encourage disclosure, and to inform the market of institutional investors' expectations.

The progress of listed companies in addressing climate risk also provides a useful measure by which to assess the engagement practices of institutional investors.

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[3] Formerly the Carbon Disclosure Project
[4] Out of the starting blocks, Climate Change Report 2016, CDP
[5] Sustainability Reporting Practices of S&P/ASX200 Companies: 2016, Australian Council of Superannuation Investors

Given the degree to which Australians are exposed to fossil fuel companies through their superannuation, the broader community has a right to know how the companies most exposed to climate risk are managing this issue, and what action their superannuation funds are taking to ensure the companies they are invested in are actively reducing climate change risks.

The Paris Agreement – One Year On

The Paris Agreement witnessed governments around the world commit to limit global warming to well below 2°C above pre-industrial temperatures, and pursue efforts to limit warming to 1.5°C. The Paris Agreement effectively recognizes that the global economy is now operating within a carbon budget – CO2 emissions should not exceed 1000 gigatonnes from 2011 onwards[6].

The Australian Government committed in Paris to reduce emissions by 26-28% by 2030. Importantly, even if all Nationally Determined Contributions (NDCs) are implemented, global temperatures are predicted to rise by between 2.9°C and 3.4°C degrees by 2100[7]. Every five years, countries are expected to revise and improve their plans, with the first review due in 2020.

Many Australian companies have publicly stated their support for Australia's emissions reduction target, including AGL Energy, Origin Energy and Santos. However, Australia's target is not consistent with meeting the 2°C warming limit, nor has the federal government demonstrated how it is compatible with a 2°C commitment[8]. Despite this inconsistency, companies operating solely in a domestic setting seem to rely upon Australia's federal government policies to drive their own emissions targets, ignoring the inevitable pressure from foreign investors to go further.

Furthermore, the majority of companies involved in fossil fuel extraction in Australia – such as BHP Billiton, Rio Tinto and Wesfarmers – export the bulk of their production, thus putting them at the mercy of destination climate policies, and other measures that restrict fossil fuel production and consumption, particularly in Asia.

However, public disclosures from these companies fail to demonstrate that they are taking into account the emissions reductions targets of their export markets.

Climate talks held in November 2016 in Marrakech (COP22) attempted to take the Paris Agreement further, by deciding upon clarification of the rules applied to national commitments, to ensure transparency from all parties. As COP22 transpired in Morocco, the 2016 AGM season in Australia was in full swing, making it abundantly clear that there is a complete disconnect between global negotiations and domestic corporate ambitions.

The required urgency and severity in emissions reductions simply isn't permeating our boardrooms, creating somewhat of a dilemma for the community at large – how can they be changed?

Given the lack of independent shareholder resolutions raised at Australian company AGMs in 2016, it is clear that the investment community doesn't see the

[6] IPCC Synthesis Report (2014)
[7] The Emissions Gap Report, United Nations Environment Program, November 2016
[8] Paris Policy Brief Final, Climate Institute, 2015

lack of progress from our listed companies on climate change as an urgent problem. Not only are the vast majority of our energy companies projecting long-term growth in fossil fuel demand but, also, the lack of substantive discussion of the impacts of the Paris Agreement suggests a willful blindness to the criticality of the issue we are facing.

Oxford Martin Principles

In the year since the Paris Agreement was reached, corporate actors have had sufficient time to assess its potential impact on their businesses. Throughout the AGM season in Australia, there has been limited discussion of climate risk by listed companies in the Energy and Utilities sectors.

In fact, the flood of annual reports, annual reviews and sustainability reports in the second half of 2016 has been noticeable for the distinct lack of climate progress on display. However, several companies are expected to announce further emissions reduction targets in 2017, including BHP Billiton, Oil Search and Origin Energy.

In order to objectively judge the commitments made by listed companies, Market Forces has applied the Oxford Martin Principles to those sectors most vulnerable to transition risk. In 2015, the Oxford Martin School developed a framework for engagement between investors and fossil fuel companies[9]:

1) Science: Does the company accept the science that climate stabilisation (at any temperature increase) requires net zero carbon dioxide emissions?[10]
2) Strategy: During the transition to net zero, does the company have a strategy to limit future committed cumulative carbon dioxide emissions?
3) Milestones and Metrics: Has the company provided milestones and metrics to allow investors to monitor their progress in implementing their transition plan?

The Oxford Martin School suggests that those companies that provided positive answers to each question were worth engaging with, and deserving of investor capital to support their transition to a low-carbon economy[11].

According to the Oxford Martin School, “net global emissions of carbon dioxide must reach zero to stabilize global temperatures”[12], thus putting the focus on the transition to net zero emissions. The Principles provide an additional set of questions that investors should pose to companies to determine the viability of their commitments and strategy. Most importantly for companies involved in fossil fuel extraction, “what is the balance between investment in exploration or acquisition of new carbon reserves versus investment in carbon dioxide disposal?” Given the lack of disclosure of expenditure on technologies to capture carbon, for the majority of companies, the scales are heavily weighted towards increasing emissions.

[9] Working Principles for Investment in Fossil Fuels, Oxford Martin Net Zero Carbon Investment Initiative, Oxford Martin School, University of Oxford, November 2015
[10] Assume net zero emissions by 2050
[11] ibid.
[12] ibid.

Findings

Market Forces applied the Oxford Martin Principles to those companies in the S&P ASX300 with significant activities in the fossil fuel industry: extraction, combustion or distribution. A total of 25 companies included those in the Energy (14) and Utilities (5) sectors[13], in addition to six others[14].

Market Forces assessed the companies by reviewing all publicly available information, including annual reports, sustainability reports, media releases, websites and submissions to the CDP within the last two years.

Just one company positively addresses all three Oxford Martin Principles – AGL Energy. This is not a vindication of AGL's strategy nor its consistency with limiting global warming to 2°C. It simply suggests that investors have justification for remaining engaged with AGL. Investors should continue to push AGL to reduce its emissions as quickly as possible, particularly given its position as Australia's largest corporate emitter of greenhouse gases[15].

BHP Billiton positively addresses two of the Principles – Science and Strategy – but fails to provide sufficient information on long-term Milestones and Metrics. BHP Billiton is expected to announce a new emissions reduction target in early 2017.

Rio Tinto and South32 acknowledge the Science, but fail to provide a strategy to get to net zero emissions. Rio Tinto has set emissions intensity reduction goals, but its commitment to "significantly decarbonize"[16] undermines the need to completely decarbonize by 2050. While South32 sets emissions reduction targets every five years, and has committed to not develop new energy coal basins[17], it fails to address how it will reduce its emissions to zero.

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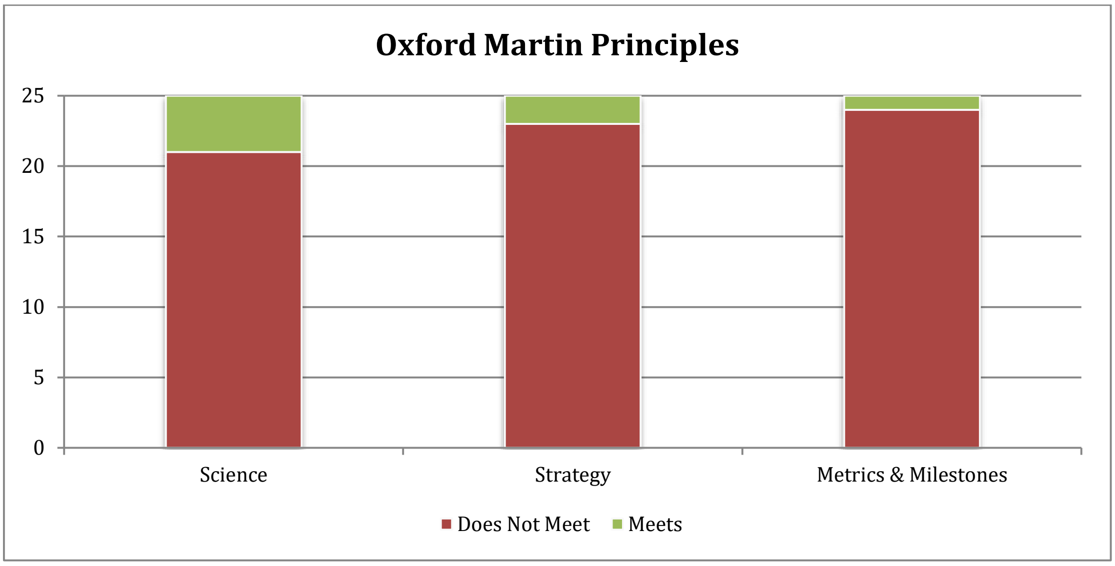
[13] As per MSCI Global Industry Classification Standard (GICS)
[14] Infigen Energy (Renewables) and Paladin Energy (Uranium) were excluded from the analysis
[15] 2016 Sustainability Report, AGL Energy Ltd
[16] 2015 Annual Report, Rio Tinto Ltd
[17] http://www.south32.net/sustainability/stewardship/environment



Scenario analysis alone, like those provided by AGL Energy and BHP Billiton, is insufficient to positively address the Oxford Martin Principles. If companies are to completely decarbonize by 2050, then a thorough strategy, accompanied by measurable goals, must be disclosed. For example, both BHP Billiton and Wesfarmers refer to Carbon Capture and Storage (CCS) as a means to address future emissions. Yet neither company provides estimates of the cost, nor the volume of emissions CCS is expected to sequester.

Of the fourteen companies assessed in the S&P ASX300 Energy sector, there are thirteen oil and gas companies and one coal company – Whitehaven Coal. Not one of the fourteen members of the Energy sector has a long-term target to reduce their emissions. Oil Search, Origin Energy and Woodside Petroleum have short-term strategies to reduce emissions intensity, but do not disclose a plan to get to net zero emissions.

Notably, all companies involved in gas extraction subscribe to the narrative that gas is a 'transition fuel'. Santos states, "natural gas is a key part of the solution, with the ability to reduce electricity sector emissions by fifty percent in Australia"[18]. However, the 'transition fuel' view ignores the need to transition to net zero emissions. Even BHP Billiton has acknowledged that "in the long run, emissions from the use of natural gas will also need to decline"[19]. None of our gas companies are planning beyond the 'transition fuel' horizon, or for the possibility that gas may simply be leapfrogged by renewables.

Ten of the 25 (40%) companies assessed fail to acknowledge the science of climate change, or its impacts in any capacity, including index heavyweights Seven Group Holdings and WorleyParsons.

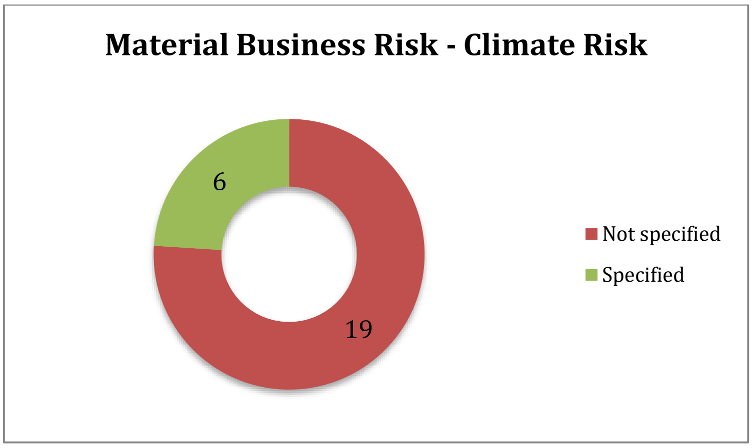
[18] 2015 Sustainability Report, Santos Ltd
[19] Climate Change: Portfolio Analysis, BHP Billiton, 2015

Material Business Risk & Disclosure

Research by the University of Melbourne found that the current reporting practices of the 20 largest Australian carbon emitters are "highly varied"[20]. Market Forces believes that listed companies, particularly those most vulnerable to regulatory and technological change, should view climate change as a material business risk.

In the United States, the Securities and Exchange Commission has stated that companies should be reporting on all material business risks posed by climate change[21]. While listed Australian companies are legally obliged to report their exposure to material business risks, there is currently no obligation for companies to report on carbon or climate risk.

Just five of the 25 companies (20%) assessed include climate change and its impacts as a 'material business risk' – AGL Energy, BHP Billiton, DUET Group, Origin Energy, South32 and Woodside Petroleum.



In terms of disclosure, despite the CDP's widespread acceptance throughout the business and investment communities, nine of the 25 companies (36%) assessed have not made a submission to the CDP, including Beach Energy, Seven Group Holdings and Whitehaven Coal. This lack of disclosure will inevitably become an issue for institutional investors, particularly international investors for whom disclosure of climate risks currently is, or is soon to be mandatory.

[20] https://pursuit.unimelb.edu.au/articles/carbon-risk-disclosure-the-risk-for-australian-companies
[21] Commission Guidance Regarding Disclosure Related to Climate Change, Securities and Exchange Commission, February 2010

Conclusions

The most startling conclusion from this assessment of 25 listed Australian companies is the distinct lack of progress in the year since the Paris Agreement was reached. In September 2015, the Governor of the Bank of England clearly enunciated the risks posed by climate change[22], which was widely reported at the time. Ignorance of the issue simply will not stand up to scrutiny anymore.

There are several possible reasons why so little progress has been made by Australian companies in addressing climate risk. Firstly, the lack of policy certainty at both state and federal government level is often cited throughout the business community. Yet all of our coal, oil and gas producers are impacted by policy change in multiple jurisdictions, so Australia's weak climate change policies cannot be solely to blame. Companies exporting fossil fuels to Asia are potentially more susceptible to changes in climate policy in those countries than they are to Australia's climate policies. However, this has not translated into widespread changes in either operational strategy or climate risk management.

Secondly, there is a distinct lack of guidance from regulators, including the Australian Prudential Regulatory Authority (APRA) and the Australian Securities and Investments Commission (ASIC) on climate risk. Unlike the SEC in the United States, APRA nor ASIC have not encouraged further disclosure from investors or companies respectively to assist in understanding their vulnerability to climate risk. Our regulators must implement guidelines on climate risk disclosure; possibly following the imminent guidelines of the Financial Stability Board Task Force on Climate-related Financial Disclosures (TCFD)[23].

Finally, the lack of progress may also suggest that institutional investors are either indifferent to climate risks, or are simply unwilling to exert their sizable influence over corporate behaviour. The Oxford Martin Principles provide institutional investors with a framework to engage with fossil fuel companies. Where the principles are not met, investors could take punitive action – by voting against directors, or remuneration reports; or ultimately, divestment from the company altogether.

Institutional investors must demonstrate how they are actively managing carbon out of their portfolios, and should use the Oxford Martin Principles to:

1) Implement and disclose a framework and timeframe for active engagement with fossil fuel companies, e.g. Oxford Martin Principles;
2) Take punitive measures against companies that fail to address the framework, i.e. voting against director elections and/or remuneration reports;
3) Divest from those companies where progress is not forthcoming or inadequate.

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[22] http://www.bankofengland.co.uk/publications/Pages/speeches/2015/844.aspx
[23] https://www.fsb-tcfd.org/

Those companies most vulnerable to the transition risks posed by climate change have had sufficient time to assess the issues. The progress by Australian listed companies, in particular, has been excruciatingly slow. There is a legitimate argument that diversified companies such as Macquarie Group, Seven Group and Wesfarmers should be engaged further. However, engagement with these companies must be conducted within a specific framework and timeframe. Companies failing to meet expectations must be challenged through opposition to board appointees and executive remuneration.

If companies are unwilling to acknowledge and plan for the risks posed by climate change, and in the absence of shareholder resolutions to force change, investors are left with no alternative but divestment.

Appendix

Market Forces – ASX Company Assessment – Simple

Company	Sector	Science	Strategy	Metrics & Milestones	Material Business Risk	CDP Participant
AGL Energy Ltd	Utilities	✓	✓	✓	✓	✓
APA Group	Utilities	✗	✗	✗	✗	✓
AWE Ltd	Energy	✗	✗	✗	✗	✓
Beach Energy Ltd	Energy	✗	✗	✗	✗	✗
BHP Billiton Ltd	Materials	✓	✓	✗	✓	✓
Caltex Australia Ltd	Energy	✗	✗	✗	✗	✓
Duet Group	Utilities	✗	✗	✗	✓	✓
Energy World Corporation Ltd	Utilities	✗	✗	✗	✗	✗
ERM Power Ltd	Utilities	✗	✗	✗	✗	✗
FAR Ltd	Energy	✗	✗	✗	✗	✗
Karoon Gas Australia Ltd	Energy	✗	✗	✗	✗	✓
Liquefied Natural Gas Ltd	Energy	✗	✗	✗	✗	✗
Macquarie Group Ltd	Financials	✗	✗	✗	✗	✓
Oil Search Ltd	Energy	✗	✗	✗	✗	✓
Origin Energy	Energy	✗	✗	✗	✓	✓
Rio Tinto Ltd	Materials	✓	✗	✗	✗	✓
Santos Ltd	Energy	✗	✗	✗	✗	✓
Senex Energy Ltd	Energy	✗	✗	✗	✗	✗
Seven Group Holdings Ltd	Industrials	✗	✗	✗	✗	✗
Sino Gas & Energy Holdings Ltd	Energy	✗	✗	✗	✗	✗
South32 Ltd	Materials	✓	✗	✗	✓	✓
Wesfarmers Ltd	Consumer Staples	✗	✗	✗	✗	✓
Whitehaven Coal Ltd	Energy	✗	✗	✗	✗	✗
Woodside Petroleum Ltd	Energy	✗	✗	✗	✓	✓
WorleyParsons Ltd	Energy	✗	✗	✗	✗	✓

Market Forces – ASX Company Assessment – Detail

Company	Science: Does the company accept the science that climate stabilisation (at any temperature increase) requires net zero carbon dioxide emissions?	Strategy: During the transition to net zero, does the company have a strategy to limit future committed cumulative carbon dioxide emissions?	Milestones and Metrics: Has the company provided milestones and metrics to allow investors to monitor their progress in implementing their transition plan?	Business Risk	CDP	Sources
AGL Energy Ltd	**Yes** AGL accepts the Intergovernmental Panel on Climate Change (IPCC) conclusion that: warming of the climate is unequivocal; anthropogenic greenhouse gas emissions are extremely likely to be the cause; and that the risks associated with climate change are reduced substantially if warming is limited to less than 2 degrees Celsius above pre-industrial levels. Achieving this outcome would require complete decarbonisation of the world economy by 2100 and emission reductions of up to 70% by 2050. (p3, Carbon Constrained Future)	**Yes** The revised Greenhouse Gas Policy states that AGL will: • Continue to provide the market with safe, reliable, affordable and sustainable energy options; • Not build, finance or acquire new conventional coal-fired power stations in Australia (i.e. without carbon capture and storage); • Not extend the operating life of any of its existing coalfired power stations; • Close, by 2050, all existing coal-fired power stations in its portfolio; • Improve the GHG efficiency of its operations, and those over which it has influence; • Continue to invest in new renewable and near-zero emission technologies; • Make available innovative and cost-effective solutions for its customers, such as distributed renewable generation, battery storage, and demand management solutions; • Incorporate a forecast of future carbon pricing into all generation capital expenditure decisions; and • Continue to be an advocate for effective long-term government policy to reduce Australia's emissions in a manner that is consistent with the long-term interests of consumers and investors. (p3, Carbon Contrained Future)	**Yes** SCENARIO 2 – '2 DEGREE' CARBON BUDGET Adopting a 10.1 Gt or 10,100 Mt overarching carbon budget for Australia for the period 2013 to 2050, it is possible to derive an emissions reduction trajectory for Australia and then subsequently the electricity sector and the National Electricity Market. The annual reduction in emissions has been derived linearly from 2020 to reflect the current policy environment. Between 2020 and 2050, emissions are reduced by approximately 7 percent per annum which results in the sector being effectively decarbonised by 2050. (p8, Carbon Constrained Future)	Yes	Yes	2016 Annual Report Carbon Constrained Future 2016 http://agl2016.sustainability-report.com.au/ AGL Greenhouse Gas Policy 2015

Market Forces – Business As Usual

Company	Science: Does the company accept the science that climate stabilisation (at any temperature increase) requires net zero carbon dioxide emissions?	Strategy: During the transition to net zero, does the company have a strategy to limit future committed cumulative carbon dioxide emissions?	Milestones and Metrics: Has the company provided milestones and metrics to allow investors to monitor their progress in implementing their transition plan?	Business Risk	CDP	Sources
APA Group	**No**	**No** APA continues to support reducing carbon emissions as a responsible risk mitigation response to climate change. APA supports technology agnostic domestic carbon abatement polices to meet Australia's 26-28% Paris COP21 carbon reduction commitment. In the longer term, as international and domestic carbon policy and markets mature, APA's assets will play an important role in meeting Australia's long-term emission reduction targets as energy consumption shifts from carbon intensive fuels, such as coal, to more carbon efficient fuels, such as natural gas. (S7, Sustainability Report)	**No**	No	Yes	2016 Annual Report 2016 Sustainability Report 2015 CDP Response https://www.apa.com.au/about-apa/sustainability/environment/
AWE Ltd	**No** As a producer of fossil fuels, AWE recognises it has a responsibility to minimise emissions and to work with others including industry, government and research centres to enhance its global response to climate change. (p18, 2016 Sustainability Report)	**No**	**No**	No	Yes	2016 Annual Report 2016 Sustainability Report

Market Forces – Business As Usual

Company	Science: Does the company accept the science that climate stabilisation (at any temperature increase) requires net zero carbon dioxide emissions?	Strategy: During the transition to net zero, does the company have a strategy to limit future committed cumulative carbon dioxide emissions?	Milestones and Metrics: Has the company provided milestones and metrics to allow investors to monitor their progress in implementing their transition plan?	Business Risk	CDP	Sources
Beach Energy Ltd	**No** Beach recognises climate change as a global challenge. As a member of the oil and gas industry, we have a significant role to play in managing our carbon emissions and have put production procedures in place to minimise the incidence of uncontrolled and controlled atmospheric emissions. At some of our facilities, we have installed solar powered telemetry units, which allow field operators to remotely monitor and capture data on the status of equipment from a central location, thereby reducing vehicle traffic and engine emissions. (p26, 2015 Annual Report)	**No**	**No**	No	No	2016 Annual Report Sustainability Policy (13 July 2016) 2015 Annual Report

Market Forces – Business As Usual

Company	Science: Does the company accept the science that climate stabilisation (at any temperature increase) requires net zero carbon dioxide emissions?	Strategy: During the transition to net zero, does the company have a strategy to limit future committed cumulative carbon dioxide emissions?	Milestones and Metrics: Has the company provided milestones and metrics to allow investors to monitor their progress in implementing their transition plan?	Business Risk	CDP	Sources
BHP Billiton Ltd	**Yes** We accept the Intergovernmental Panel on Climate Change (IPCC) assessment of climate change science, which has found that warming of the climate is unequivocal, the human influence is clear and physical impacts are unavoidable. (p45, Annual Report) Paris Agreement: Key commitments • Achieving net zero emissions in the second half of the century. (p5, Climate Change: Portfolio Analysis)	**Yes** Our strategy is focused on working in partnership with others to develop and deploy low emissions and renewable technologies that can achieve material emissions reductions across our operations and value chains. Our approach to climate change has always been underpinned by engagement and the technology partnerships below provide examples of how industry can work together to identify solutions: - Carbon Caputure and Storage (CCS) - Lakeland Solar and Storage - GE Ecomagination (p12, Climate Change: Portfolio Analysis) As a major producer and consumer of fossil fuels and energy, we prioritise GHG emissions reductions and energy efficiency at our operations. However, GHG emissions will remain an inevitable part of BHP Billiton's business, even with low emissions technology becoming more effective and commercially viable. Identifying cost-effective and robust offsets (carbon credits) is important to meeting future GHG emissions reduction commitments so we are also supporting mechanisms such as Reducing Emissions from Deforestation and Forest Degradation (REDD+) (p13, Climate Change: Portfolio Analysis)	**No** We have set a target to keep total operational GHG emissions below our FY2006 baseline in FY2017 (2). In FY2016, the Company's total GHG emissions were 18 MtCO2-e, 13 per cent lower than the baseline, with performance driven in part by emissions reduction projects and improved productivity. Projects tracked since FY2013 as part of the GHG target achieved more than 950,000 tCO2-e of annualised abatement in FY2016 at our operations. We are currently developing a new Company GHG target for the period after FY2017, taking into account GHG forecasts and reduction opportunities, low emission and renewable technology options, and the expectations of our stakeholders. (p13, Climate Change: Portfolio Analysis)	Yes	Yes	2016 Annual Report 2016 Sustainability Report Climate Change: Portfolio Analysis Views After Paris (10-Oct-16) 2015 CDP Response

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Caltex Australia Ltd	**No** We are committed to addressing the serious issue of climate change and are currently working with governments to develop effective policies to reduce emissions. At Caltex, we accept the science behind global warming and understand that climate change presents a significant risk to economies, societies and the environment. There are costs for us in reducing emissions but also opportunities, and a responsibility to the community to act. We support setting a national goal for reducing greenhouse gas emissions, which should be determined and adjusted on the basis of the best available science. (Website)	**No** Caltex continues to hold a watching brief over the Government's Direct Action Policy Emissions Reduction Fund (ERF). With respect to the Reverse Auction Process under the ERF, Caltex conducted project suitability assessments in 2015, but did not apply for auction participation. (p21, Annual Review) We continue to support greenhouse gas reduction policies which maintain the international competitiveness of Australian industries such as petroleum refining. Governments should also look to more effective policies to reduce emissions from light vehicles, such as a package of 'complementary measures' to encourage new, more efficient vehicle technology and use of alternative fuels. (Website)	**No**	No	Yes	2015 Annual Report 2015 Annual Review https://www.caltex.com.au/our-company/environment 2015 CDP Response
Duet Group	**No** Climate change will exacerbate many of Australia's existing challenges around water security, resource scarcity and extreme weather events. The global energy sector, as a major emitter, has an obligation to meet the growing demand for energy, while also looking for opportunities to minimise the carbon-intensity of operations. (p31, Annual Report)	**No** In order to prepare our businesses for the risks climate change presents, and to minimise our footprint, we are assessing opportunities for the following: • GHG emissions management: through operational efficiency and identifying clean fuel alternatives to diesel, we aim to minimise our own operational footprint, as well as support our customers to manage theirs • Adaptation and resilience: ensure our businesses are sufficiently resilient to be minimally impacted by changes in weather patterns and the impacts of other climate-related factors. (p31, Annual Report)	**No**	Yes	Yes	2016 Annual Report

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Energy World Corporation Ltd	**No**	**No**	**No**	No	No	2016 Annual Report
ERM Power Ltd	**No**	**No**	**No**	No	No	2016 Annual Report
FAR Ltd	**No**	**No**	**No**	No	No	2015 Annual Report Environment and Sustainability Policy (13 Mar 2008)
Karoon Gas Australia Ltd	**No** Supports an international agreement between governments on climate change, which seeks to limit global temperature rise to under two degree Celsius from pre-industrial levels. (CC2.4, CDP Response)	**No** The Company continues to seek cost-effective, reliable and environmentally efficient methods for addressing future greenhouse gas emissions and energy consumption. Karoon has been working with external contractors to consider carbon offsetting projects that could be sustainable and respond to the Company's existing emissions and that may be scaled to respond to future (post-development) emissions. (p34, Annual Report)	**No**	No	Yes	2016 Annual Report 2015 CDP Response
Liquefied Natural Gas Ltd	**No** Policy responses to climate change are of special interest to energy providers such as LNGL. The Company is positioned to contribute to climate change solutions and we support measures to progressively reduce GHG emissions in line with established climate targets. (p59, Annual Report)	**No** We see climate change legislation influencing future buyer behaviours contributing to increasing natural gas demand. (p7, Annual Report)	**No**	No	No	2016 Annual Report

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Macquarie Group Ltd	**No** Climate change presents significant challenges to society and generates both risks and opportunities for Macquarie's business and stakeholders. Consistent with its strong risk management focus, Macquarie considers climate change and future carbon constraints within the existing risk framework. (p26, Annual Report)	**No** Since 2010, Macquarie has maintained its carbon neutral commitment by reducing and offsetting emissions from its office energy use and business air travel. In FY2016, to meet this commitment, Macquarie purchased and retired a diverse portfolio of voluntary carbon offsets focusing on project quality and verifiable emissions reductions. (p28, Annual Report)	**No**	No	Yes	2016 Annual Report 2015 CDP Response http://www.macquarie.com/au/about/company/environmental-social-governance-esg
Oil Search Ltd	**No** Oil Search acknowledges climate change is an important issue to the PNG Government, the responsible investment community and many national and international stakeholders. The company expects controls aimed at reducing the volume of greenhouse gases emitted will be introduced in the future in PNG. The impact of regulatory change is currently being considered in the evaluation and development of a new Climate Change Strategy. Oil Search's climate change approach and performance is overseen by the HSS Committee. (Website)	**No** New asset project developments represent the most significant emissions reduction opportunities. As such it is a requirement that all new developments must be planned and designed in a manner that reduces emissions. For existing assets, the Company's approach to emissions reduction includes taking advantage of opportunities to reduce emissions as part of ongoing facility maintenance and flare management. Oil Search monitors the emissions performance of all operated assets and is on track to achieve the Company's target of reducing emissions intensity in 2016 by 12%, against a 2009 baseline. (Website) Planning began on Oil Search's new Climate Change Strategy, to replace the current emissions target which is due to expire at the end of 2016. (p35, Annual Report)	**No**	No	Yes	2015 Annual Report http://socialresponsibility.oilsearch.com/

Market Forces – Business As Usual

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Origin Energy	**No** As a major Australian energy provider, we acknowledge the role we play in addressing climate change and unequivocally support measures to progressively reduce global carbon emissions. We believe Australia's bipartisan commitment to a 26 to 28 per cent reduction in emissions by 2030, from 2005 levels, is a credible starting point. This target, and future targets, will require further significant policy development. (p29, Sustainability Report)	**No** We measured the decarbonisation rate of our portfolio's life cycle emissions from 2014 against a target decarbonisation rate derived from the IEA to limit global warming to 2°C, with the objective of formally announcing our target by the end of the 2016 calendar year. (p31, Sustainability Report)	**No**	Yes	Yes	2016 Annual Report 2016 Sustainability Report 2015 CDP Response
Rio Tinto Ltd	**Yes** In December, during the annual Conference of Parties 21 (COP21), a global agreement was reached to address climate change. Rio Tinto signed the Paris Pledge for Action to reduce greenhouse gas emissions, which is a further example of our commitment to be part of the climate solution. (p4, Annual Report) For the long term, we are committed to significantly decarbonising our business by 2050 and making our businesses and projects resilient to climate change impacts. To drive this internally, we are building climate change related metrics into our planning, risk and investment decisions. (p4, Annual Report)	**No** We set quantified emissions intensity reduction goals. Over the last seven years we have achieved a reduction of more than 21 per cent in our emissions intensity, exceeding the targets we set. We have extended our GHG emissions intensity target to 2020. The new target is for a 24 per cent reduction from our 2008 baseline. For the long term, we are committed to significantly decarbonising our business by 2050 and making our businesses and projects resilient to climate change impacts. To drive this internally, we are building climate change related metrics into our planning, risk and investment decisions. (p4, Annual Report)	**No** In 2008 we set a target of ten per cent reduction in total greenhouse gas (GHG) emissions intensity, to be achieved by 2015. We have exceeded this target and reduced our total GHG emissions intensity by 21.1 per cent compared with 2008. This represents a reduction in our total GHG emissions of 18.1 million tonnes of carbon dioxide equivalent (CO2-e) over the same period. We have extended our GHG emission intensity target period to 2020. The new target is for a 24 per cent reduction in emissions intensity from our 2008 baseline. (p26, Annual Report)	No	Yes	2015 Annual Report 2015 Strategic Report 2015 CDP Response

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Santos Ltd	**No** The science is clear, globally we must reduce greenhouse gas emissions to limit the temperature rise to no more than two degrees. This requires all countries, all businesses, and all communities to contribute. (p3, Sustainability Report)	**No** Natural gas is a key part of the solution, with the ability to reduce electricity sector emissions by fifty percent in Australia. At Santos, we will continue to identify opportunities to reduce our greenhouse footprint and stress-test our strategy against a range of carbon pricing scenarios. (p3, Sustainability Report)	**No**	No	Yes	2015 Annual Report 2015 Sustainability Report 2015 CDP Response
Senex Energy Ltd	**No**	**No**	**No**	No	No	2016 Annual Report 2015 Sustainability Review Environmental Management Policy (1 May 2014)
Seven Group Holdings Ltd	**No**	**No**	**No**	No	No	2016 Annual Report
Sino Gas & Energy Holdings Ltd	**No**	**No**	**No**	No	No	2015 Annual Report

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South32 Ltd	**Yes** We accept the findings of the Intergovernmental Panel on Climate Change, in particular, that human activity is changing the climate. Emission Reduction - Progress emission reduction projects that permanently reduce our emissions. - Stay below our 2015 emission baseline in 2021. - Review our emission reduction approach every five years from 2021 to ensure we make a pragmatic and affordable transition toward the global goal of achieving net zero emissions by 2050. (Website)	**No** We will focus on three key areas to address the challenge of climate change including Emission Reduction, Climate Resilience and Climate Change Opportunity. Consistent with this we commit to: Emission Reduction - Progress emission reduction projects that permanently reduce our emissions. - Stay below our 2015 emission baseline in 2021. - Review our emission reduction approach every five years from 2021 to ensure we make a pragmatic and affordable transition toward the global goal of achieving net zero emissions by 2050. Climate Resilience - Implement intelligent land management, whereby land holdings are used to create enduring social, economic and environmental value through projects such as water and biodiversity conservation. - Incorporate climate change modelling in our planning and investment decisions to ensure physical resilience to changes in rainfall, temperature and extreme weather events. Climate Change Opportunity - Continue to provide the raw materials that support climate action and enable the transition to a low carbon future. Consistent with this, we have chosen not to develop any new energy coal basins. - Work in partnership with green finance providers to create long-term benefits to society and the environment. (Website)	**No** The South32 Climate Change Strategy was approved by our Board in FY2016. This established an emissions reduction target, where FY2021 Scope 1 emissions will not be above our FY2015 Scope 1 emission baseline of 11,212kt CO2-e. This translates into abating approximately 800kt of GHG emissions within the next five years, based on current forecasts. (p27, Annual Report)	Yes	Yes	2016 Annual Report http://www.south32.net/sustainability/stewardship/environment

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Wesfarmers Ltd	**No** We recognise that the climate is changing due to human actions and we acknowledge that business and Australia have a part to play in mitigating this climate change. Wesfarmers supports Australia's commitments under the Paris Agreement to work towards a global agreement to limit global warming to 1.5°C – 2°C above pre-industrial levels. We believe industry and governments must continue to work together to achieve this outcome. Long-term policy certainty is a pre-requisite for decarbonisation to occur efficiently and affordably. We will continue to improve the greenhouse gas efficiency of our operations, which reduces our own business costs and risk, as well as contributing to climate change mitigation. (Website)	**No** We will continue to improve the GHG efficiency of our operations, which reduces our own business costs and risk, as well as contributing to climate change mitigation. (p58, Annual Report) Wesfarmers Resources is a member of COAL21, which is an initiative of the Australian coal industry to support the pre-commercial demonstration of low emissions coal technologies, including carbon capture and storage. So far the COAL21 Fund has committed more than $300 million to demonstration projects for low emissions coal technology solutions. (Website)	**No**	No	Yes	2016 Annual Report 2016 Shareholder Review http://sustainability.wesfarmers.com.au/our-principles/environment/climate-change-resilience/ http://sustainability.wesfarmers.com.au/our-data/investment-in-coal-assets/
Whitehaven Coal Ltd	**No** At Whitehaven, we recognise that the production of coal and coal-fired generation are associated with GHG emissions, and we are aware of our responsibilities to help preserve the Earth's environment for current and future generations. As a major coal producer, we also recognise our responsibility to continue providing the energy people need. (p51, Annual Report)	**No** At an operational level we minimise our energy use where possible. Our energy intensity continues to decrease as we become more efficient and our greenhouse gas emissions per saleable tonne of coal produced have declined from that reported in previous years. (Website)	**No**	No	No	2016 Annual Report http://www.whitehavennews.com.au/sustainability/environmental-management/

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Woodside Petroleum Ltd	**No** We accept the Intergovernmental Panel on Climate Change's assessment of climate change science and believe that natural gas has a major role to play in containing global average temperatures. Achieving this requires stable regulatory frameworks capable of achieving current and future emissions reduction targets. (p34, Annual Report)	**No** Since 2013, Woodside's flaring intensity has decreased from 14.2 to 9.2 t/kt. This has seen a reduction of 900,000 tonnes of greenhouse gases. To ensure that we continue to improve our flaring performance, our 2016 target has been reduced to 9 t/kt. Optimisation of the safety, reliability and availability of our producing assets is fundamental to deliver reductions in greenhouse gas emissions intensity. This core business focus, combined with targeted energy efficiency and flare reduction initiatives, facilitates effective emissions management at Woodside. (p20, Sustainability Report)	**No**	Yes	Yes	2015 Annual Report 2015 Sustainability Report 2015 CDP Response
WorleyParsons Ltd	**No**	**No** WorleyParsons is establishing a leadership position in low carbon technologies through both pilot, demonstration and commercial scale projects. For example, WorleyParsons is involved in The Australia-China Post Combustion Capture (PCC) Feasibility Study Project. The project scope involves considering the technical, economic, social, environmental and legal and regulatory feasibility of retrofitting (post-combustion) carbon capture technology to a power plant owned by Huaneng Group in the Jilin Province of China. The facility has the potential to capture approximately one million tonnes per annum. WorleyParsons also participated in a bidding consortium to build Australia's first large scale solar thermal power station and has since delivered and operated wind solar thermal projects throughout the world. (CC6.1a, CDP Response)	**No**	No	Yes	2016 Annual Report 2015 CDP Response http://www.worleyparsons.com/InvestorRelations/corporateresponsibility/Pages/CREnvironment.aspx