

# ALIGNMENT TO CLIMATE REGULATORY SCENARIOS: A CASE STUDY OF AUSTRALIAN COMPANIES

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## EXECUTIVE SUMMARY

While technological progress will likely play a critical role in catalyzing a transition to a low carbon economy, regulation has historically been a key lever in efforts to reduce global carbon emissions to combat climate change. Within the financial sector, climate change scenario analysis has begun to take a more prominent role in climate change risk management, after recommendations from the Financial Stability Board's (FSB) Task Force on Climate-related Financial Disclosure (TCFD) were published in July 2017. Institutional investors are thus increasingly looking for ways to measure their portfolios' exposure to various climate scenarios.

This paper contributes to that effort by providing a concise framework for viewing how companies are positioned under various climate change regulatory scenarios. In this iteration, we have adopted a lens of direct regulatory risk, as informed by carbon emissions reduction targets, leaving future flexibility to build in other important transition scenario factors, such as physical, reputational, technology disruption and market risks.

Our model tested the ability for companies to transition to a carbon constrained market under three proposed regulatory scenarios, leveraging Science Based Targets<sup>1</sup> to understand sector adaptation capability and using the MSCI AU200 Index as a case study. The scenarios are based on Australia's 2030 country level policies, company emissions data and industry level emission reduction expectations corresponding to each regulatory scenario. We found that:

- **Approximately 40% of MSCI AU200 Index companies fell short of the carbon reduction requirements under the current target** set by the Australian Government under its Nationally Determined Contribution (NDC). As such, a large portion of the MSCI AU200 Index was at risk of facing regulatory penalties under policies aligned with Australia's NDC. This increases to 52% if the Australian Government strengthens its carbon reduction requirement to align with a 2-degree warming target.
- **Under all three regulatory scenarios, the sectors that faced the greatest exposure to carbon related regulatory penalties were Utilities, Energy, Health Care and Consumer Staples.** Conversely, the sectors with the least burden across all regulatory scenarios were the Consumer Discretionary, Telecommunication Services, Information Technology and Financials sectors.
- **Under all three scenarios, the aggregate carbon emissions reduction of MSCI AU200 Index constituents fell short of the prescribed requirements.** For investors that aim to align their portfolio with the carbon reduction requirements of each regulatory scenario, a portfolio tracking the MSCI AU200 Index universe of companies could exclude the lowest performing companies. Those companies would constitute 6%, 14% and 13% of the index weight, respectively, for Scenarios 1, 2 and 3, as of August 2018

<sup>1</sup> Science Based Targets, 2018, August 2018: <https://sciencebasedtargets.org/>

## BACKGROUND

Future climate scenarios are complex hypothetical constructs. They are designed to challenge current thinking, provide alternatives to Business as Usual (BAU) states, and enhance critical thinking<sup>2</sup>. To reduce the complexity of such future scenarios, they are often broken down into two key categories:

- Transition risk scenarios (policy and legal, market, technology, reputational)
- Physical risk scenarios

*While there are two overarching scenario risk types, transition and physical, there are also multiple sub-types within transition risks beyond policy and regulation, such as technology disruption, consumer sentiment, and reputational. Further, there are multi-step scenarios that combine transition scenarios with physical risk outcomes.*

Further, gridlock in Australia's climate and energy policy is likely to continue through the medium term, creating uncertainty for investors as to where their portfolios may face greater or lesser climate related risks. Based on the market capitalization of the MSCI AU200 index, Australia's market is often characterized as resource and financial sector heavy, two areas that have a growing focus on climate related risks and opportunities. Nevertheless, with the inexorable increase in carbon emissions and the growing urgency to reduce them, other sectors are not immune.

In this analysis, we focused on transitional risks in Australia. Specifically, we narrowed in on regulatory and policy change scenarios to understand their varying degrees of impact across sectors. The impact of climate policy on each sector will depend on the stringency of the regulation implemented and the inherent capacity of an industry to reduce emissions, depending on the nature of its operations. While physical, market and reputational impacts are important elements of future climate risk scenarios, they represent potential subjects for future analysis and are outside the scope of this modeling exercise.

According to Science Based Targets (SBT)<sup>3</sup> and the International Energy Agency's (IEA) Energy Technology Perspectives (ETP)<sup>4</sup>, certain sectors, such as power utilities, have a greater technological and economic capacity to reduce emissions than others, such as cement or aluminum production. Science Based Target (SBT) emission reduction estimates (2010 – 2050) were used as proxy indicators for our sector reduction capacity figures. We translated the SBT's sector emission reduction estimates (Figure 1) into sector reduction capacities, then mapped them to our 157 sub industry groups. These factors indicate each sub industry's assumed technical capacity to reduce its emissions intensity.

These sector reduction capacities, in conjunction with a country's emission reduction pledge, underpin the logic of our model and results. This provides insight into where company constituents of the MSCI Australia 200 Index (as of 24 August 2018) are positioned from an emission alignment perspective under certain regulatory scenarios, including a scenario that targets a two-degree limitation to warming.

<sup>2</sup> TCFD, The Use of Scenario Analysis in Disclosure of Climate-related Risks and Opportunities, August 2018: <https://www.tcfhub.org/home/scenario-analysis>

<sup>3</sup> Science Based Targets, 2018, August 2018: <https://sciencebasedtargets.org/>

<sup>4</sup> International Energy Agency, 2018, Energy Technology Perspectives, August 2018: <http://www.iea.org/etp/>

**FIGURE 1. SCIENCE BASED TARGETS SECTOR EMISSION REDUCTION ESTIMATES**

| Science Based Target (SBT) sector  | SBT emission reduction estimates (2010-2050) |
|--|--|
| Power Generation   | 95%  |
| Food, Beverages, and Tobacco   | 87%  |
| Manufacturing, Machinery and equipment, Electronics, Construction, Metals and Mining | 87%  |
| Freight transport  | 85%  |
| Light road transport   | 76%  |
| Heavy road transport   | 65%  |
| Rail transport   | 65%  |
| Pulp and Paper   | 64%  |
| Iron and Steel   | 55%  |
| Retail, Finance, Real Estate, Health, Education and commercial services              | 55%  |
| Chemicals and Petrochemicals   | 52%  |
| Cement   | 37%  |
| Air transport  | 26%  |
| Aluminum   | 23%  |

Source: Science Based Targets, 2018<sup>5</sup> <https://sciencebasedtargets.org/wp-content/uploads/2015/05/Sectoral-Decarbonization-Approach-Report.pdf>

<sup>5</sup> Science Based Targets, 2018, *Sectoral Decarbonisation Approach*, September 2018: <https://sciencebasedtargets.org/wp-content/uploads/2015/05/Sectoral-Decarbonization-Approach-Report.pdf>

## SCENARIO ANALYSIS

Three scenarios have been provided to highlight potential policy outcomes:

Scenario 1: Current Australian Target for all sectors

Scenario 2: Utilities granted relief

Scenario 3: Warming limited to 2°C

**FIGURE 2. SCENARIOS AT A GLANCE**

| Scenarios                | 1. Current Australian target for all sectors   | 2. Utilities granted relief  | 3. Warming limited to 2°C   |
|--------------------------|--|--|---|
| Assumptions              | <ul style="list-style-type: none"> <li>Emission reduction targets equal across all sectors</li> <li>Companies more technically capable to reduce emissions granted emission target relief</li> </ul> | <ul style="list-style-type: none"> <li>Emission reduction targets based on sector capacity to reduce, i.e. those more capable to reduce incur emission target penalties</li> <li>Power sector granted regulatory relief</li> </ul> | <ul style="list-style-type: none"> <li>Emission reduction targets based on sector capacity to reduce, i.e. those more capable to reduce incur emission target penalties</li> <li>Country target doubled to align with a 2°C warming target</li> </ul> |
| Country reduction target | 26-28%   | 26-28%   | 52%   |

### SCENARIO 1 – CURRENT AUSTRALIAN TARGET FOR ALL SECTORS

This scenario assumes Australia's current Nationally Determined Contribution (NDC)<sup>6</sup> target remains at 26-28% below 2005 levels to be achieved by 2030, and is applied equally across all sectors. The sector reduction capacities are applied as industry carbon transition relief and/or penalty i.e. those industries with more capacity to reduce are given relief compared to those with restricted capacity to reduce, as reductions are achieved more efficiently and regulatory burden is overcome more easily.

### SCENARIO 2 – UTILITIES GRANTED RELIEF

This scenario assumes Australia's current NDC<sup>6</sup> target remains at 26-28%, however the utility sector is given regulatory relief, which in turn places additional penalties on all remaining

<sup>6</sup> Australian Government Department of the Environment and Energy, 2015, Australia's 2040 climate change target, August 2018: <http://www.environment.gov.au/climate-change/publications/factsheet-australias-2030-climate-change-target>

sectors. Sector regulation is further linked to capacity to reduce emissions, i.e. more stringent regulation will be placed on those industries more capable to reduce, as opposed to Scenario 1's flat regulation policy, which grants relief to those more capable of reducing their emissions.

### SCENARIO 3 – WARMING LIMITED TO 2°C

This scenario is the most progressive and assumes Australia's emission reduction target has been lifted to 52%, aligned with Australia's required carbon budget in a 2°C world<sup>7</sup>. Furthermore, sector reduction capacity biases have been applied i.e. more stringent regulation has been placed on those industries more capable to reduce, as opposed to Scenario 1's flat regulation policy, which grants relief to those more capable of reducing their emissions.

### MODEL FRAMEWORK

To create the scenarios and run the model, this report relied on three factors:

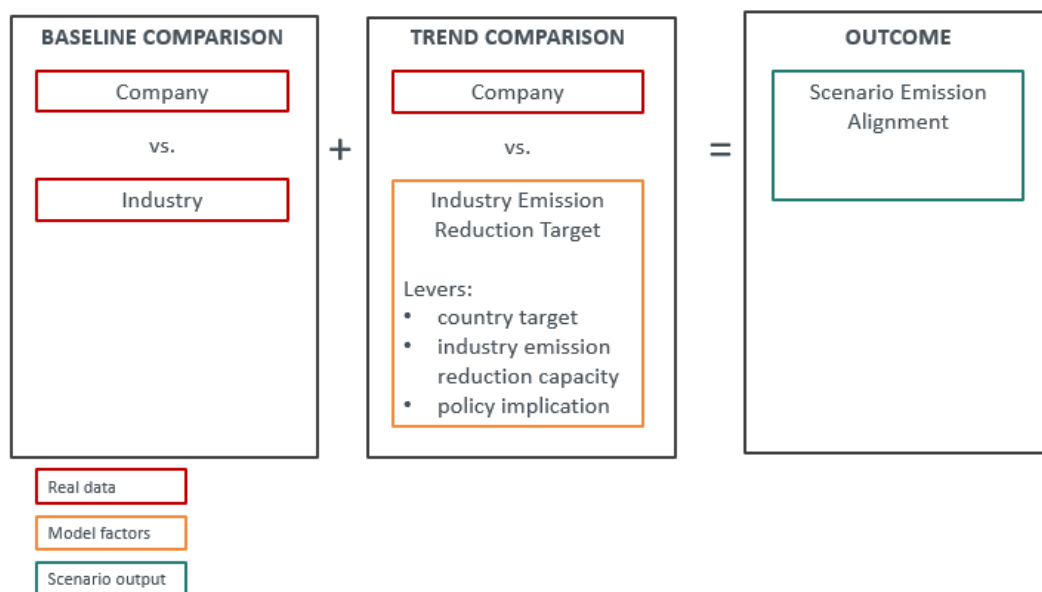
1. Company level carbon emissions intensity data;
2. Country wide carbon emissions reduction targets; and
3. Industry level emission reduction biases.

These factors have been used to calculate the degree of alignment between a company's carbon emission profile and the policy scenario, with Figure 3 highlighting the core levers of the model, and further descriptions below.

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<sup>7</sup> The Climate Institute, 2016, Beyond the limits, Australia in a 1.5-2°C world, August 2018:  
<http://www.environment.gov.au/climate-change/publications/factsheet-australias-2030-climate-change-target>

FIGURE 3. SCHEMATIC OF CLIMATE SCENARIO MODEL LOGIC



## MODEL MECHANICS

The model starts by comparing a company's current (as of August 2018) Scope 1 emission intensity to its Industry average (i.e. **Baseline comparison**). This is then combined with a trend factor, which looks at a company's three-year-average Scope 1 emission trend compared to the Industry Emission Reduction Target (i.e. **Trend comparison**). The Industry Emission Reduction Target is the main lever within the model, influenced by the country emission reduction target, the capacity for industries to reduce their emissions, and assumed policy mechanisms. A similar process is then repeated for a company's Scope 2 emissions, but only ranks companies against industry averages. These factors are then combined to yield an overall **Scenario Emission Alignment** score, with high values indicating the company is well aligned and/or expected to exceed the industry emission expectations, and low values indicating the company is misaligned and/or expected to underperform against industry emission expectations.

*Our current model investigates first order alignment to targets. It does not look at secondary or tertiary, despite certain sectors (e.g. Financials) exposed to secondary impacts, i.e. exposure to misaligned companies or industries.*

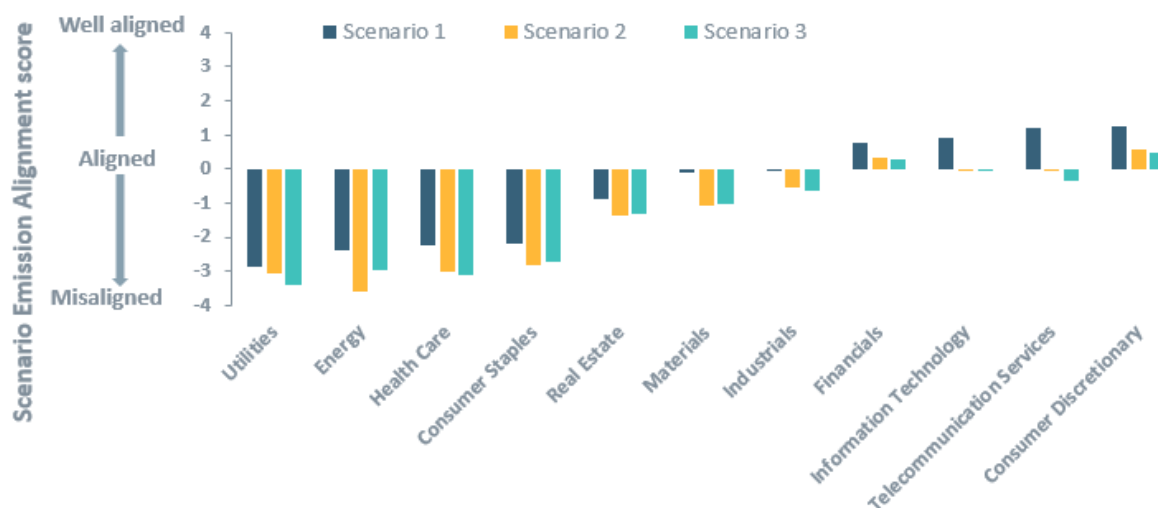
It's important to note that the model extends beyond the summation of baseline and trend comparison factors. For example, a company's trend factor will be penalized to a greater or lesser extent depending on the company's starting emissions. A hypothetical company may be reducing at a rate on par with industry expectations, but its starting emissions are significantly above the industry average. Its trend therefore needs to be even greater than the industry reduction target to realign with the country and industry expectations. Hence, its Industry Emission Reduction Target is strengthened and the company's trend alignment is weakened.

For further details on the model please refer to Appendix A.

## RESULTS

To determine which industries and companies might be least able to withstand the transition to a carbon constrained market we have looked at the index weighted sector level emission alignment of the MSCI AU200 Index as well as company level risk profiles. The index weighted sector average Scenario Emission Alignment results for the eleven GICS<sup>®8</sup> Sectors across all scenarios are shown below.

**FIGURE 4 – INDEX WEIGHTED SECTOR AVERAGE SCENARIO EMISSION ALIGNMENT AS OF AUGUST 2018**



Source: MSCI ESG Research, August 2018

The most noticeable feature of this plot is the variability of misalignment and subsequent climate regulatory risks across both sectors and scenarios. There are clear leaders and laggards. Sectors with the poorest alignment to all scenarios i.e. those facing the most risk of future carbon related regulatory liabilities, are Utilities, Energy, Health Care and Consumer

<sup>8</sup> GICS, the global industry classification standard, developed jointly by MSCI Inc. and S&P Global.



Staples. Alternatively, the sectors with the most opportunity across all scenarios with the greatest chance to benefit from this transition, are the Consumer Discretionary, Telecommunication Services, Information Technology and Financials sectors. In fact, across all scenarios, Consumer Discretionary is the only sector which appears aligned with its sector level emission reduction requirements, highlighting the sector's carbon transition resilience.

From a scenario sensitivity perspective, the Telecommunication Services and Materials sectors show the highest levels of variability. For example, under Scenario 1, the Materials sector is almost in line with its carbon reduction requirements, however under Scenario 2 and 3, it is significantly misaligned and is likely to face higher risks of carbon related regulatory liabilities. Alternatively, the Utilities sector is misaligned with all scenarios, with minimal scenario emission variability. This analysis provides insight into sector level carbon policy resilience, useful in the setting of climate risk capacity limits.

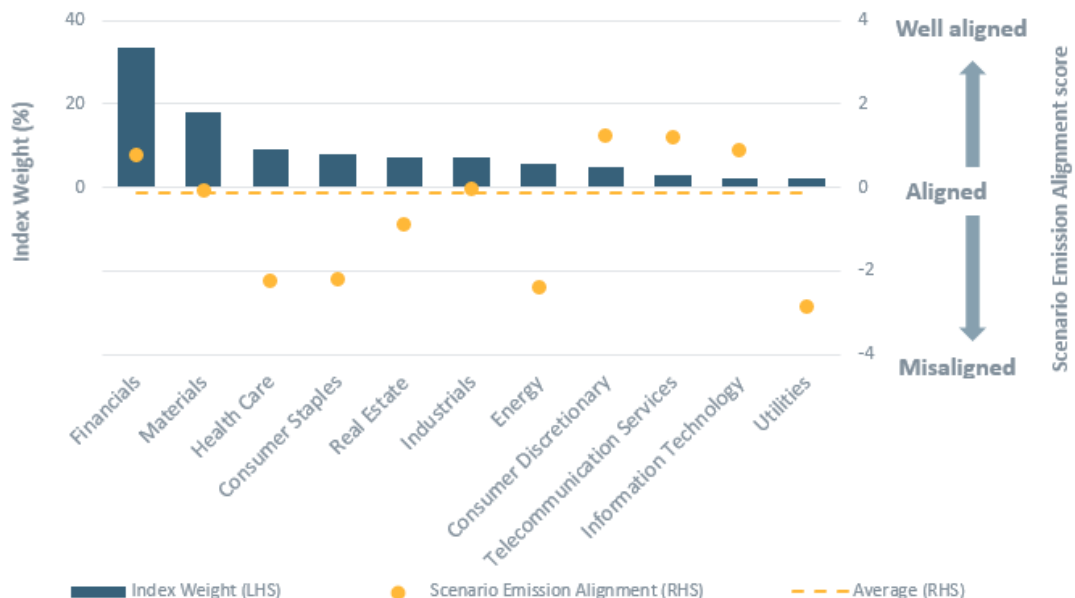
## SCENARIO 1 – CURRENT AUSTRALIAN TARGET FOR ALL SECTORS

### EQUAL REDUCTIONS, UNEQUAL RELIEF

With a carbon reduction target applied equally across all sectors without sector carbon reduction capacity factors, companies with a greater assumed technical capacity to reduce their GHG emissions compared to others will presumably capitalize on their technical capacity, resulting in higher levels of alignment to the scenario's emission reduction requirement. The opposite applies to those in sectors with less capacity to reduce.

Under this scenario, with approximately 40% of the index constituents, by weight, misaligned with the emission reduction policy conditions, a significant portion of the MSCI AU200 Index would not meet the carbon reduction requirements of the scenario, ultimately leading to elevated risks of carbon related penalties, such as the required purchasing of carbon credits or regulatory fines. Health Care, Consumer Staples, Energy and Utilities are the worst performing sectors, weighing on the overall index weighted average.

FIGURE 5 – SCENARIO 1 SECTOR LEVEL RESULTS

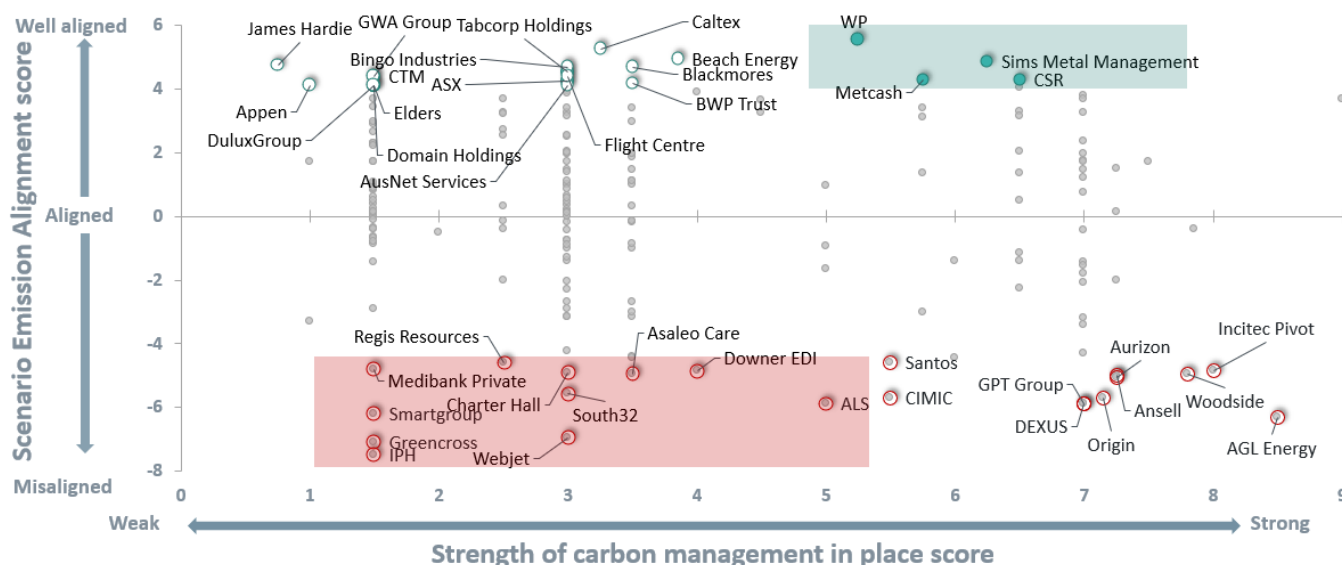


Source: MSCI ESG Research, August 2018

From an individual company perspective, the figure below shows the “Scenario Emission Alignment” against the “Strength of carbon management in place” for constituents in the index. The “Strength of carbon management” is an average of MSCI’s Carbon Target and Mitigation scores, used as a proxy for a company’s forward-looking carbon risk management.

The chart below shows the Scenario 1 Alignment Score on the Y-axis and the Strength of Carbon Management score (an average of the strength of carbon reduction targets and carbon mitigation) on the X-axis.

**FIGURE 6 – SCENARIO 1 COMPANY LEVEL RESULTS AS OF AUGUST 2018**



Source: MSCI ESG Research, August 2018

All companies in the MSCI AU200 Index are shown here (each represented by a grey dot). The chart labels are companies in the top and bottom 10% of the index, by weight, when ordered by level of alignment with the scenario. Companies with the lowest Scenario Emission Alignment and weakest Carbon Management are shown by the red rectangle, and those with the highest Scenario Emission Alignment and strongest Carbon Management by the green rectangle. For each scenario, these two groups of companies are highlighted to warrant further investigation.

In order to reduce overall portfolio risk from future carbon penalties under this scenario, and align to the scenario's regulatory requirements, one approach could be to exclude the least aligned companies, resulting in the exclusion of 6% of the index, by weight. For the full list of these companies, please see Appendix B.

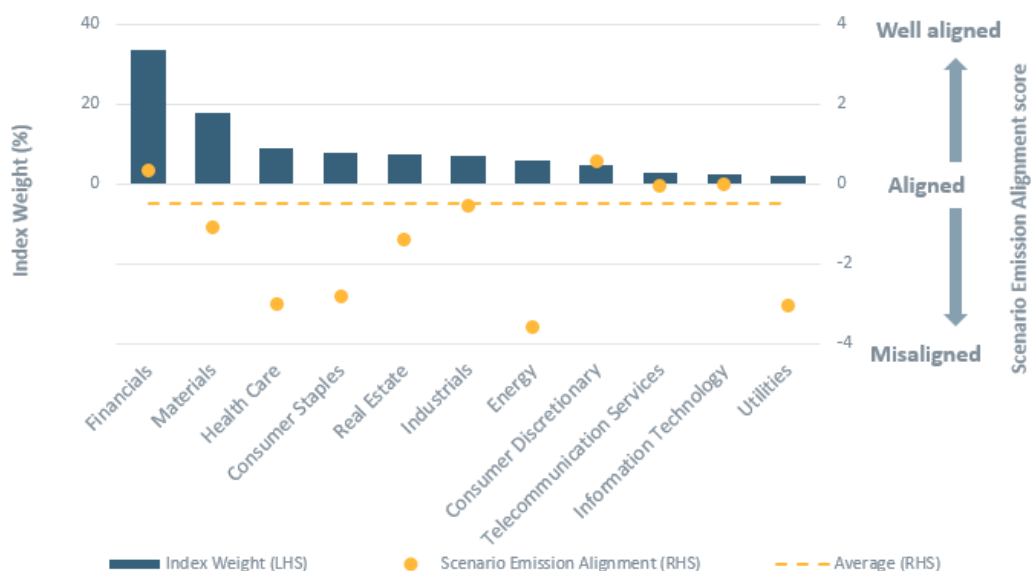
## SCENARIO 2 – UTILITIES GRANTED RELIEF

### SECTOR BASED REGULATION OVERWHELMS RELIEF TO POWER SECTOR

Under this scenario, the Utilities sector would experience a lighter burden for emissions reduction, requiring other sectors to further decrease their emissions. This reduces the overall MSCI AU200 Index constituent alignment compared to Scenario 1. Furthermore, companies making up 52% of the index are now misaligned to the scenario, highlighting the increased transition risk faced by MSCI AU200 Index companies.

As shown in Figure 7, only the Financials, Consumer Discretionary, Telecommunication Services, and Information Technology sectors are aligned with the scenario's emission requirements, with several other sectors showing poorer alignment compared to Scenario 1.

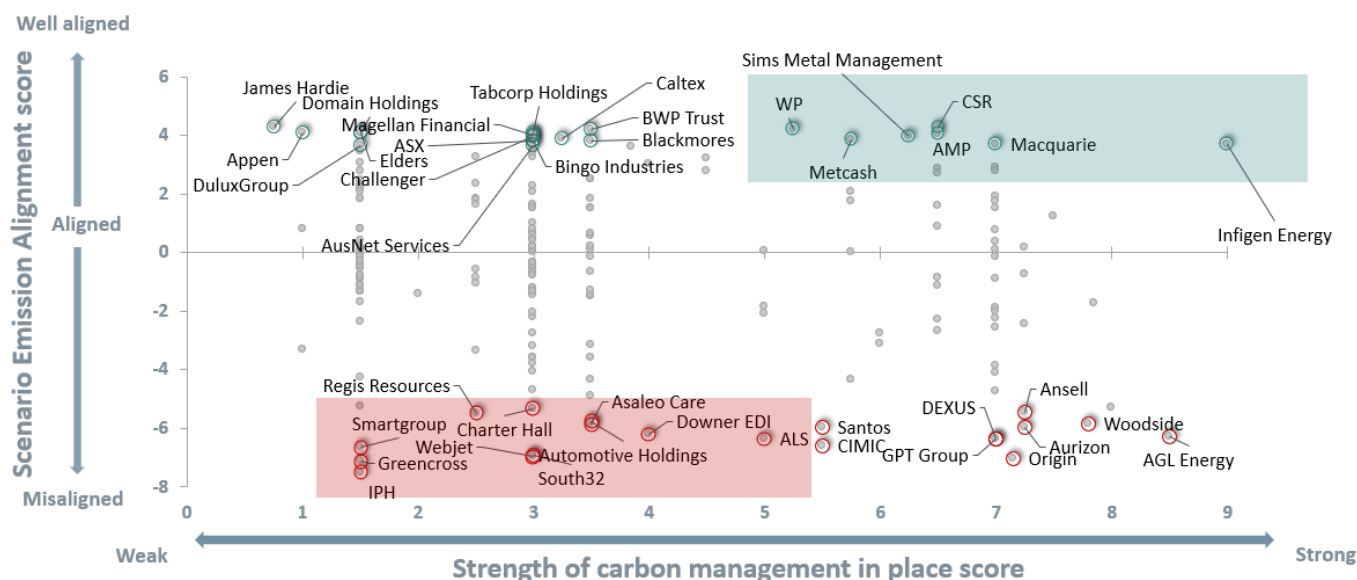
**FIGURE 7 – SCENARIO 2 SECTOR LEVEL RESULTS**



Source: MSCI ESG Research, August 2018

Since the Utilities sector was granted regulatory relief under this scenario, companies in the remaining sectors would likely be required to work harder to contribute to the overall carbon emissions reduction required. The most, and least, at-risk companies can be found in Figure 6 below, again highlighted by red and green rectangles.

FIGURE 8 – SCENARIO 2 COMPANY LEVEL RESULTS AS OF AUGUST 2018



Source: MSCI ESG Research, August 2018

In a similar approach to that done in Scenario 1, 14% of the index, by weight, could be excluded to align the portfolio to the regulatory conditions under Scenario 2. For the list of companies, please see Appendix B.

## SCENARIO 3 – WARMING LIMITED TO 2°C

### STRINGENT YET EQUITABLE REGULATION

Scenario 3 is designed to reflect carbon reduction requirements in keeping with a 2-degree world, as well as having the sector carbon reduction biases included. The country wide emissions reduction target is now double that used in Scenario 1.

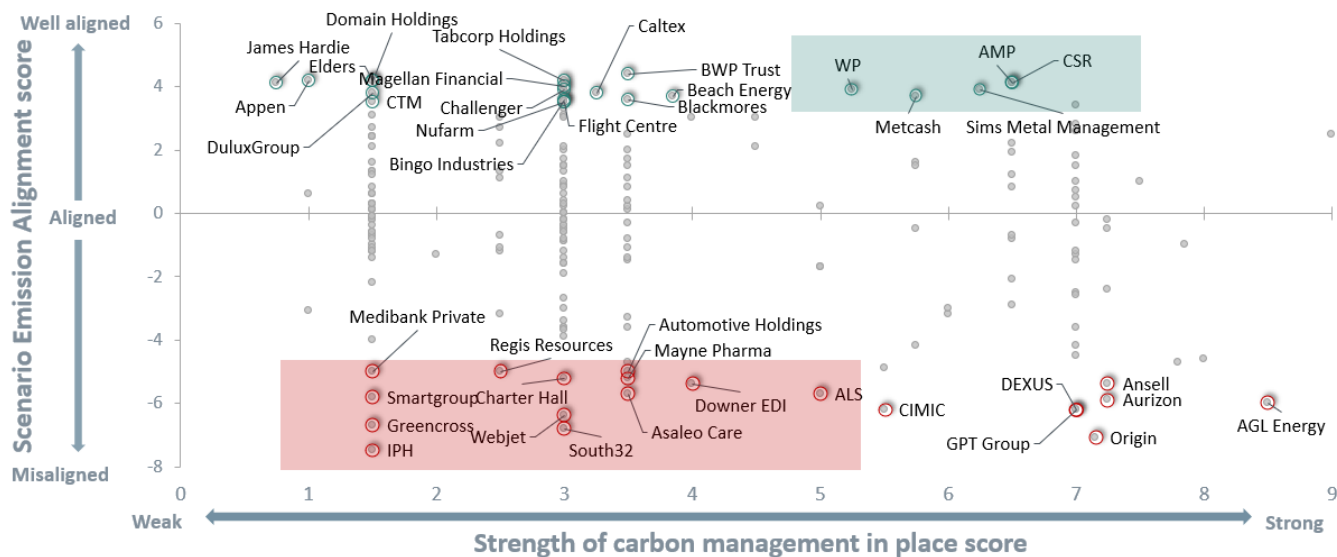
FIGURE 9 – SCENARIO 3 SECTOR LEVEL RESULTS



Source: MSCI ESG Research, August 2018

The index weighted Scenario Emission Alignment is similar to the performance of Scenario 2, with 52% of the MSCI AU200 Index, by weight, unable to meet the carbon reduction requirements of this scenario. This highlights that the constituents of the MSCI AU200 Index are unprepared collectively to meet the carbon reduction requirements under Australia policy aligned with a 2°C warming world. The most, and least, at-risk companies from Scenario 3 can be found in Figure 8 below, again highlighted by red and green rectangles.

FIGURE 10 – SCENARIO 3 COMPANY LEVEL RESULTS AS OF AUGUST 2018



Source: MSCI ESG Research, August 2018

In a similar approach to that done in Scenarios 1 and 2, 13% of the index, by weight, could be excluded to align the portfolio to the regulatory conditions under Scenario 2. For the list of companies, please see Appendix B.

With the MSCI AU200 Index having a similar emission misalignment and carbon related risk profile in Scenarios 2 and 3, it raises a potentially important question for policy makers, and investors:

*Which policies will provide a better outcome for the country? A lower emission reduction target with relief given to Utilities and extra pressure applied to the remaining sectors, or a harder emission reduction target with equal pressure placed on all sectors based on technical capacity to reduce?*

## CONCLUSION

This report highlights potential climate related risks facing companies. It demonstrates the various degrees of alignment under different scenarios, using the MSCI AU200 Index constituents as a case study. Three carbon emission scenarios for the Australian market were produced, which incorporated country level targets, sector level biases, and policy related factors.

Across all three scenarios, between 40% and 52% of the MSCI AU200 Index, by weight, showed misalignment with emission reduction requirements, highlighting that a large portion of the Australian listed equities are currently unable to meet these requirements and could face increased carbon related penalties. Health Care, Consumer Staples, Energy and Utilities were the most at-risk sectors, on average, however there was much variability within each sector, warranting a closer investigation. Consumer Discretionary, Telecommunication Services, Information Technology and Financials sectors all faced the least risk, and potentially present the greatest number of opportunities.

Each company was assessed for its level of Scenario Emission Alignment, as well as its Carbon Management practices, enabling the identification of those companies most, and least, at risk of incurring potential carbon related regulatory penalties, such as the required purchasing of carbon credits or regulatory fines. From this analysis, the following companies were deemed most at risk across all three scenarios: **Regis Resources, Smartgroup Corporation, Greencross, IPH, Charter Hall Group, Webject, South32, Asaleo Care, Downer EDI, and ALS.**

From the perspective of a hypothetical portfolio replicating the MSCI AU200 Index, to align with each scenario's emission reduction requirements, 6% of the index weighted laggards in Scenario 1 would be excluded, 14% of the index weighted laggards in Scenario 2, and 13% of the index weighted laggards in Scenario 3.

## APPENDIX A – SCENARIO MODEL DETAILS

### COUNTRY TARGET

A country's emission intensity reduction target. For Scenarios 1 and 2 we have used Australia's NDC pledge, i.e. a 26% absolute emission reduction or 7%/M USD (GDP)/year. For Scenario 3, we have used 52%, which is a 2 Degree aligned scenario.

### INDUSTRY EMISSION REDUCTION TARGET

Based on each industry's technical capacity to reduce carbon emissions, industry level emission factors have been created. The logic is aligned with the Science Based Target (SBT) assumptions driven by the International Energy Agency (IEA) Energy Transition Perspectives (ETP) model, which show that certain industries are able to reduce their emissions significantly more easily than others.

### INDUSTRY BENCHMARK

To achieve an appropriate baseline score, this paper used the carbon data from constituents of the MSCI ACWI index.

### POLICY

Depending on the direction from the Australian government, policy could be broad and flat, or industry/sector specific. E.g. if it is assumed that each sector within the Australian market will face the same emission reduction obligation, industry emission factors will favor those industries with a greater capacity to reduce. Alternatively, if the government takes a more targeted approach and regulates one sector more heavily than another based on technological and economic capacities, then an industry bias will penalize those with a greater capacity to reduce.

### DATA

Company emission data has been sourced using the MSCI Carbon Metrics carbon data set, and includes:

- 3-year average scope 1 emission intensity data (company and industry baseline)
- 3-year average scope 1 change in emission intensity data (trend)
- 3-year average scope 2 emission intensity data (company and industry baseline)
- 3-year average scope 2 change in emission intensity data (trend)



## APPENDIX B – INDEX CONSTITUENTS THAT ARE THE LEAST ALIGNED WITH EMISSIONS LIMITS UNDER EACH SCENARIO

The following tables show the companies that are the least aligned to regulatory requirements of each scenario. Excluding them from a hypothetical portfolio replicating the MSCI AU200 Index would bring the aggregate emissions associated with the portfolio in line with the future carbon requirements of each scenario.

**TABLE 1 – COMPANIES WHOSE EXCLUSION WOULD BRING THE INDEX LEVEL EMISSIONS IN LINE WITH REQUIREMENTS UNDER SCENARIO 1**

| Company         | Sector                 | Sub-Industry                       |
|-----------------|------------------------|------------------------------------|
| SOUTH32         | Materials              | Diversified Metals & Mining        |
| ORIGIN ENERGY   | Energy                 | Integrated Oil & Gas               |
| CIMIC GROUP     | Industrials            | Construction & Engineering         |
| DEXUS           | Real Estate            | Office REITs                       |
| THE GPT GROUP   | Real Estate            | Diversified REITs                  |
| ALS LIMITED     | Industrials            | Research & Consulting Services     |
| Smartgroup Corp | Industrials            | Diversified Support Services       |
| AGL ENERGY      | Utilities              | Multi-Utilities                    |
| WEBJET          | Consumer Discretionary | Internet & Direct Marketing Retail |
| Greencross      | Consumer Discretionary | Specialty Stores                   |
| IPH Ltd         | Industrials            | Research & Consulting Services     |

**TABLE 2 – COMPANIES WHOSE EXCLUSION WOULD BRING THE INDEX LEVEL EMISSIONS IN LINE WITH REQUIREMENTS UNDER SCENARIO 2**

| Company            | Sector                 | Sub-Industry                 |
|--------------------|------------------------|------------------------------|
| BWX Ltd            | Consumer Staples       | Personal Products            |
| NEXTDC             | Information Technology | Internet Software & Services |
| RIO TINTO          | Materials              | Diversified Metals & Mining  |
| QUBE HOLDINGS      | Industrials            | Marine Ports & Services      |
| WESFARMERS         | Consumer Staples       | Hypermarkets & Super Centers |
| MAYNE PHARMA GROUP | Health Care            | Pharmaceuticals              |
| MEDIBANK PRIVATE   | Financials             | Life & Health Insurance      |
| INCITEC PIVOT      | Materials              | Diversified Chemicals        |
| CHARTER HALL GROUP | Real Estate            | Diversified REITs            |
| ANSELL LIMITED     | Health Care            | Health Care Supplies         |
| REGIS RESOURCES    | Materials              | Gold                         |

| Company                   | Sector                 | Sub-Industry                       |
|---------------------------|------------------------|------------------------------------|
| AUTOMOTIVE HOLDINGS GROUP | Consumer Discretionary | Automotive Retail                  |
| WOODSIDE PETROLEUM        | Energy                 | Oil & Gas Exploration & Production |
| Asaleo Care               | Consumer Staples       | Personal Products                  |
| SANTOS                    | Energy                 | Oil & Gas Exploration & Production |
| DOWNER EDI                | Industrials            | Diversified Support Services       |
| AGL ENERGY                | Utilities              | Multi-Utilities                    |
| ALS LIMITED               | Industrials            | Research & Consulting Services     |
| DEXUS                     | Real Estate            | Office REITs                       |
| THE GPT GROUP             | Real Estate            | Diversified REITs                  |
| CIMIC GROUP               | Industrials            | Construction & Engineering         |
| Smartgroup Corporation    | Industrials            | Diversified Support Services       |
| SOUTH32                   | Materials              | Diversified Metals & Mining        |
| WEBJET                    | Consumer Discretionary | Internet & Direct Marketing Retail |
| ORIGIN ENERGY             | Energy                 | Integrated Oil & Gas               |
| Greencross                | Consumer Discretionary | Specialty Stores                   |
| IPH                       | Industrials            | Research & Consulting Services     |

**TABLE 3 – COMPANIES WHOSE EXCLUSION WOULD BRING THE INDEX LEVEL EMISSIONS IN LINE with REQUIREMENTS UNDER SCENARIO 3**

| Company                 | Sector                 | Sub-Industry                       |
|-------------------------|------------------------|------------------------------------|
| RIO TINTO LIMITED       | Materials              | Diversified Metals & Mining        |
| WESFARMERS LIMITED      | Consumer Staples       | Hypermarkets & Super Centers       |
| INCITEC PIVOT LIMITED   | Materials              | Diversified Chemicals              |
| WOODSIDE PETROLEUM LTD. | Energy                 | Oil & Gas Exploration & Production |
| NEXTDC LIMITED          | Information Technology | Internet Software & Services       |

| Company                           | Sector                 | Sub-Industry                       |
|-----------------------------------|------------------------|------------------------------------|
| SANTOS LIMITED                    | Energy                 | Oil & Gas Exploration & Production |
| AUTOMOTIVE HOLDINGS GROUP LIMITED | Consumer Discretionary | Automotive Retail                  |
| MEDIBANK PRIVATE LIMITED          | Financials             | Life & Health Insurance            |
| REGIS RESOURCES LIMITED           | Materials              | Gold                               |
| CHARTER HALL GROUP                | Real Estate            | Diversified REITs                  |
| MAYNE PHARMA GROUP LIMITED        | Health Care            | Pharmaceuticals                    |
| DOWNER EDI LIMITED                | Industrials            | Diversified Support Services       |
| ANSELL LIMITED                    | Health Care            | Health Care Supplies               |
| ALS LIMITED                       | Industrials            | Research & Consulting Services     |
| Asaleo Care Ltd                   | Consumer Staples       | Personal Products                  |
| Smartgroup Corporation Ltd        | Industrials            | Diversified Support Services       |
| AGL ENERGY LIMITED                | Utilities              | Multi-Utilities                    |
| DEXUS                             | Real Estate            | Office REITs                       |
| THE GPT GROUP                     | Real Estate            | Diversified REITs                  |
| CIMIC GROUP LIMITED               | Industrials            | Construction & Engineering         |
| WEBJET LIMITED                    | Consumer Discretionary | Internet & Direct Marketing Retail |
| Greencross Ltd                    | Consumer Discretionary | Specialty Stores                   |
| SOUTH32 LIMITED                   | Materials              | Diversified Metals & Mining        |
| ORIGIN ENERGY LIMITED             | Energy                 | Integrated Oil & Gas               |
| IPH Ltd                           | Industrials            | Research & Consulting Services     |

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