



Environmental  
Defenders Office

# Unearthing the Truth

Assessing Climate Related  
Claims and Net Zero Plans  
in the Mining Industry



# About EDO

Environmental Defenders Office Ltd (EDO) is a community legal centre specialising in public interest environmental law. We help people who want to protect the environment through law. Our reputation is built on:

**Successful environmental outcomes using the law.** With over 30 years' experience in environmental law, EDO has a proven track record in achieving positive environmental outcomes for the community.

**Broad environmental expertise.** EDO is the acknowledged expert when it comes to the law and how it applies to the environment. We help the community to solve environmental issues by providing legal and scientific advice, community legal education and proposals for better laws.

**Independent and accessible services.** As a non-government and not-for-profit legal centre, our services are provided without fear or favour. Anyone can contact us to get free initial legal advice about an environmental problem, with many of our services targeted at rural and regional communities.

[www.edo.org.au](http://www.edo.org.au)

## Acknowledgement of Country


EDO recognises and pays respect to the First Nations Peoples of the lands, seas and rivers of Australia. We pay our respects to the First Nations Elders past, present and emerging, and aspire to learn from traditional knowledges and customs that exist from and within First Laws so that together, we can protect our environment and First Nations' cultural heritage through both First and Western laws. We recognise that First Nations' Countries were never ceded and express our remorse for the injustices and inequities that have been and continue to be endured by the First Nations of Australia and the Torres Strait Islands since the beginning of colonisation.





# Contents

<b>Scope of the report</b>	<b>4</b>
<b>Key themes and trends</b>	<b>5</b>
<b>Background</b>	<b>6</b>
<b>Net zero commitments</b>	<b>7</b>
Summary of audit findings	<b>8</b>
Targets vs ambitions, aspirations, aims or goals	<b>9</b>
Scope 3 emissions and different accounting approaches	<b>10</b>
Reliance on carbon offsets	<b>11</b>
Reliance on CCU / CCUS	<b>12</b>
New fossil fuel projects and expansions	<b>14</b>
Scenario shopping	<b>16</b>
Use of different terminology to define boundaries for GHG reporting	<b>17</b>
Reliance on fossil gas	<b>18</b>
Reliance on hydrogen	<b>19</b>
Lobbying and advocacy	<b>20</b>
Uncertainty	<b>21</b>
<b>Physical risk to the business</b>	<b>22</b>
<b>Potential greenwashing &amp; case studies</b>	<b>24</b>
<b>Conclusion</b>	<b>25</b>
<b>Appendix A</b>	<b>26</b>
<b>Appendix B</b>	<b>27</b>
<b>References</b>	<b>28</b>



Non-state actors— industry, financial institutions, cities and regions —play a critical role in getting the world to Net Zero no later than 2050. They will either help scale the ambition and action we need to ensure a sustainable planet or else they strongly increase the likelihood of failure. The planet cannot afford delays, excuses, or more greenwashing.<sup>1</sup>

## Scope of the report

This report reviews the Net Zero commitments and climate related claims of the major players in Australia's mining industry which is comprised of three key sectors: oil and gas, coal and minerals.

By assessing their Net Zero commitments, its aim is to drive better understanding of climate claims and unpack some common claims to give consumers an informed choice as to the climate related impacts of the products they choose and the companies they invest in.

Climate related claims should incorporate consideration of the risks posed by a changing climate. While reporting on climate related risk is still evolving, directors of publicly listed companies must report on material risks to the business in its operating and financial review (**OFR**) component in its annual report. The Australian Government is introducing mandatory climate related financial disclosure requirements. Currently, there is international recognition of the Taskforce on Climate-related Financial Disclosure (**TCFD**) guidance which most companies use to report on potential climate related risks to the business.

Where a company has not reported on its climate-related physical risk it is arguable that there is potential for a claim of misleading and deceptive conduct under the relevant legislation. It is arguable that where a company should reasonably be aware of potential climate-related physical risk and does not include it in its annual report or prospectus, it is misleading the consumers who are relying on the information to make informed decisions.

Climate claims, Net Zero commitments and associated advertising which are misleading have the potential to delay action on climate change as consumers are unaware of the true environmental impacts of products. Australia's regulatory bodies are increasingly focused on corporate greenwashing to ensure consumers are afforded an informed choice and promote fair and transparent markets.<sup>2</sup>

For more detail on Greenhouse Gas Emission types, including Scope 1, 2 and 3, and what constitutes Greenwashing, see [Appendix A](#).



## Key themes and trends

The audit has identified the following key themes and trends in Net Zero commitments and climate related claims across the three mining sectors:

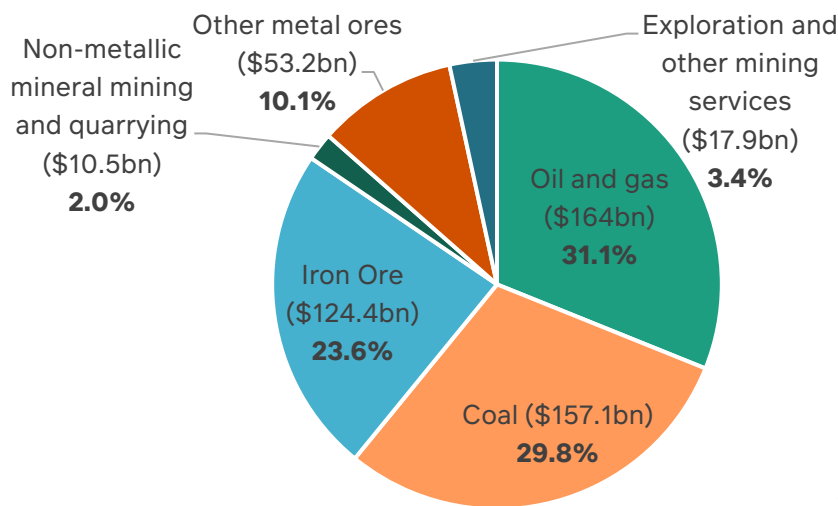
- Most commitments **do not include Scope 3 emissions**, with companies relying on their customers to reduce Scope 3 emissions rather than taking direct action;
- Many Net Zero commitments **rely heavily on both nature-based and technological offsets**, such as Carbon Capture and Use or Storage, without clarification or quantification, rather than absolute reduction of emissions to meet goals or targets. This is compounded by the questionable credibility of these forms of offsets.
- There is **continued expansion and development of new projects**, particularly in the coal, and oil and gas sectors together with reliance on fossil fuels, including fossil gas, blue and grey hydrogen which is inconsistent with transition away from fossil fuels to meet Net Zero commitments.
- There is a **lack of science based short- and medium-term targets**.
- While Net Zero target commitments are best practice, some companies are representing that they have a form of net zero commitment while **continuing to operate on a business-as-usual basis**, relying on uncertainty of federal or state legislative requirements or global ability to reach net zero, to justify inaction.
- There are a **variety of terms used to describe net zero commitments**, together with a variety of methods for defining and reporting an organisation's greenhouse gas emission boundaries which creates confusion.
- There is **cherry-picking of different emission scenarios** which results in inconsistent approaches and an inability to compare commitments.
- There is a **lack of consideration or disclosure of energy companies' exposure to climate-related physical risk**.



# Background

Australia's mining sector generates a significant contribution to Australia's economy. For the purpose of this report, we have looked at Australia's mining industry in three distinct sectors: coal mining, oil and gas, and minerals, using the top listed mining companies in these sectors, as well as larger international producers.

## Mining sector revenue for 2023 products and services



Source: IBIS World

### Coal mining sector

Globally, coal fired power plants produce a fifth of greenhouse gas emissions, more than any other single source.<sup>3</sup> In 2021, Australia was the sixth largest coal producer in the world.<sup>4</sup> The Australian coal market is segmented by application into electricity, iron and steel and other applications.<sup>5</sup> Currently in Australia, coal resources are used to generate two-thirds of domestic electricity.<sup>6</sup>

The coal sector companies audited for the purpose of this report include Centennial, Yancoal, Whitehaven Coal, New Hope and Hancock Prospecting. BHP and South32 are primarily minerals mining companies however they also mine metallurgical coal and have been examined in the minerals section.

### Oil and gas sector

It is estimated that the oil and gas sector accounts for around half of the world's energy-related greenhouse gas emissions.<sup>7</sup> The companies audited for the purpose of this report include Shell, Chevron Australia and BP. We have excluded Santos and Woodside as they are already the subject of proceedings that challenge their net zero plans (see case study below).

### Minerals sector

The minerals sector accounts for 9.5 per cent of national Scope 1 and 2 emissions, with downstream emissions higher depending on the commodity.<sup>8</sup>



# Net Zero Commitments

The Net Zero Commitment should be of sufficient scope and ambition, setting out concrete ways to reach net zero in line with the IPCC or IEA net zero GHG emissions modelled pathways that limit warming to 1.5 degrees with no or limited overshoot. At a minimum it should not be aspirational, a goal or ambition and should:

1. Include **all emissions**, particularly **Scope 3**
2. Prioritise deep reductions for rapid decarbonisation, **not relying on offsets** or include expansions
3. Include **all GHG gases**
4. Include **separate targets** for all material non-CO2 gases such as **methane**
5. Be assessed over **short-term** (2025) and **medium-term** (2030 – with a 50% reduction) and **long-term** (2050)
6. Rely on **credible sector pathways** to Net Zero (such as IPCC or IEA)
7. Include specific targets aimed at **ending the use of and/or support for fossil fuels**
8. Cannot allow for companies to undertake deforestation or other environmentally destructive activities
9. Cannot allow for companies to lobby to undermine ambitious government climate policies either directly or through associations or bodies

**Source:** UN High Level Expert Working Group on the Net Zero Emissions Commitments of Non-State Entities<sup>9</sup>

This report audits 12 of the major players in Australia’s mining industry in relation to whether they purport to make a Net Zero commitment, and whether their commitment satisfies each of the nine elements listed above.

The UNHLEG findings are mirrored in the findings from the companies audited in this report. While many of the companies audited claim to make Net Zero commitments, an analysis of the substance of the claims shows that they are not credible.

**The lack of a credible Net Zero Commitment undermines public trust. Consumers may be misled by bold claims that have no foundation. Without a credible Net Zero commitment, companies cannot show how they will successfully deliver on their claims.**

# Summary of audit findings on Net Zero commitments

Company	Do they purport to make a Net Zero Commitment?	Do the stated targets include all emissions (Scope 1, 2 and 3)?	Do they avoid relying on offsets?	Do they include all GHG gases (i.e.CO2e)?	Do they include separate targets for non-CO2 gases i.e. methane?	Are there stated targets for 2025; 50% reduction targets for 2030; and 2050 targets across all Scopes?	Do they rely on credible pathways? <sup>10</sup>	Are there targets aimed at ending use of fossil fuels (including fossil gas and blue/grey hydrogen)?	Do they commit to avoid deforestation and other environmentally destructive activities?	Do they lobby against climate policies? <sup>11</sup>
Shell	✓	✗	✗	✓	— 12	✗	✓	✗	✗	✗
Chevron Australia	—	✓	✗	✓	✓	✗	✓	✗	✗	✗ 13
BP Australia	—	✓	✗	✓	— 14	✗	✗ 15	✗	✗	✗ 16
New Hope	✗	✗	✗	✓	✗	✗	— 17	✗	✗	✗
Centennial Coal	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗
Yancoal	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗
Whitehaven	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗
Glencore	—	✓	✗	✓	✗	✗	✗	✗	✗	✗
BHP	—	✗	✗	✓	✗	✗	— 18	✗	✗	✗
South32	—	✓	✗	✓	✗	✗	✗	✗	✗	✗
Newcrest <sup>19</sup>	—	✗	✗	✓	✗	✗	✓	✗	✗	✗
Fortescue	✓	✓	— 20	✓	✗	— 21	✓	✓	✗	— 22
Rio Tinto	—	✗	✗	✓	✗	✗	✓	✗	✗	✗





## Targets vs ambitions, aspirations, aims or goals

The use of the terms ambition, aspiration, aim or goal indicate a desire or hope rather than an ambitious, clearly identified and measurable plan to attain Net Zero by 2050.

Of the ten companies which address Net Zero, four have targets, three have a goal, two have an aspiration, and one has an aim.

Of those four that have targets, only one, Fortescue, meets all but two, the deforestation and other environmentally destructive activity criterion and is a member of several industry associations that have engaged in oppositional advocacy on Australian climate policy in 2021-23,<sup>23</sup> of the credibility criteria identified above. By the very nature of this industry, all will fail the deforestation and other environmentally destructive activity criteria.

The Net Zero claims that are aspirational, a goal, aim, or ambition are not of sufficient scope and to meet the identified credibility criteria and may therefore be classified as greenwashing and have the potential to mislead consumers.



### Case study – Shell

Shell claims that it supports the more ambitious goal of the UN Paris Agreement to limit a rise in global temperatures to 1.5 degrees. It has a target of becoming a Net Zero emissions energy business by 2050. It claims it has short-, medium- and long-term targets to reduce carbon intensity, measured using its net carbon intensity metric. However, Shell's Climate and Energy Transition Lobbying Report 2022 states "Shell's operating plans cannot reflect its 2050 net-zero emissions target and 2035 NCI target as these targets are currently outside its planning period."<sup>24</sup> This suggests Shell's assertion of its Net Zero target is misleading given it has no plans to make the target operational.



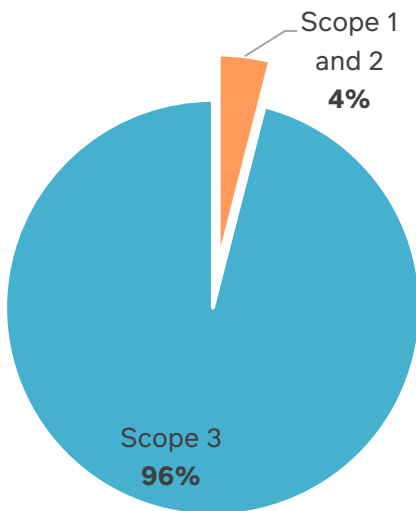


## Scope 3 emissions and different accounting approaches

Reducing Scope 3 emissions is an enormous challenge for the mining industry as it requires the oil and gas and coal companies, to prepare for the decline and exit from their core activities.<sup>25</sup>

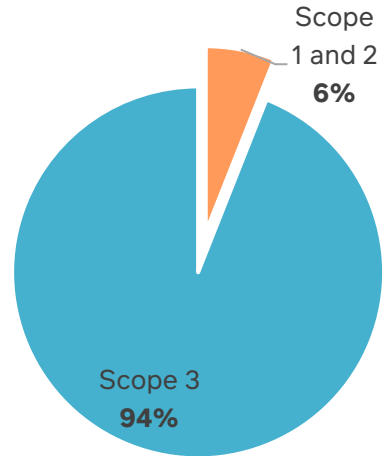
Approximately 28% of global emissions would be considered Scope 3 (indirect) emissions, from the mining sector, including the combustion of coal.<sup>26</sup> Scope 3 emissions generally account for 80 – 95% of total carbon emissions from oil and gas companies and with targets only referring to the reduction of scope 1 and 2 emissions, the “net-zero” label obscures the truth from the public.<sup>27</sup>

### BP's reported emissions in 2021



Source: BHP Climate Transition Action Plan<sup>28</sup>

### Rio Tinto's reported emissions in 2022



Source: Scope 1, 2 and 3 Emissions Calculations Methodology 2022<sup>29</sup>

The lack of certainty around what the Scope 3 emissions are, the variety of methods used for collecting and reporting the data (including estimates), and the discretion employed when identifying relevant categories of Scope 3 to include in the reporting make it extremely difficult to measure and compare a company's environmental performance.

What is of most concern is that very few of the audited companies address the reduction of Scope 3 emissions in their Net Zero commitment. Given the relatively small percentage of emissions covered by Scope 1 and 2 emissions in the Net Zero commitments, consumers may be misled into believing companies are taking far greater action than they really are.



## Reliance on carbon offsets rather than actual emissions reductions

Across the sector there is excessive reliance on carbon offsetting through removal and avoidance offsets.

Removal offsetting is the removal and sequestration of an equivalent quantity of greenhouse gas emissions already in the atmosphere for at least as long as the underlying emissions are expected to remain in the atmosphere.<sup>31</sup> Avoidance offsetting includes actions taken to avoid emitting prospective greenhouse gas emissions, based on a theoretical counterfactual, the emissions that would have occurred had the avoidance action not been taken, the verification of which is highly subjective.<sup>32</sup>

Offsetting is achieved in a several ways; through the acquisition and retirement of carbon credits, predominantly Australian Carbon Credit Units (**ACCUs**) to offset actual emissions; through the direct investment in Nature Based Solutions (**NBS**) which avoid or reduce emissions by protecting or enhancing biodiversity; through technology solutions such as Carbon Capture and Storage or Use (**CCS/U**) which avoids greenhouse gas emissions. An excessive reliance on offsets undermines Net Zero commitments as it replaces concrete action to reduce absolute emissions which is the priority this decade.

There is concern about the veracity of the ACCUs, with claims that up to 80% of the carbon credits issued are flawed or devoid of integrity, achieving little in the way of abatement and additionality.<sup>33</sup> Often low-integrity credits are being used to offset emissions which allows real emission increases, rather than representing genuine and additional abatement.<sup>34</sup>

A recent investigation into a large supplier of carbon offsets found that more than 90% of the rainforest offset credits do not represent genuine offsets and were likely to be 'phantom credits'.<sup>35</sup>

**Reliance on credits or offsets undermines decarbonisation plans as it replaces concrete action to physically reduce absolute emissions which is the priority this decade.<sup>30</sup>**

The Science Based Targets initiative's (**SBTi**) Corporate Net Zero Standard says that the use of carbon credits must not be counted as emission reductions toward the progress of companies' near-term or long-term science-based targets, and carbon credits may only be considered as an option for neutralising residual emissions or to finance additional climate mitigation beyond their science-based emission reduction targets.<sup>36</sup>



## Reliance on CCU / CCUS

Carbon capture and storage (CCS) is a 50-year-old technology with variable results in capturing and storing carbon dioxide.<sup>37</sup>

**A recent IEEFA publication found:<sup>38</sup>**

**“Carbon capture has proven to be technically difficult to implement, saving only fractions of the emissions initially promised. Chevron’s Gorgon CCS plant in Western Australia is one of the biggest carbon capture projects in the world and has seriously underperformed its targets.”**

Leakage of CO<sub>2</sub>, either gradual or in a catastrophic leakage, is the greatest environmental risk associated with CCS. This could negate any perceived environmental benefits of capturing and storing CO<sub>2</sub> emissions and may have harmful effects on human health.<sup>39</sup> Seismic events could be triggered by pressure built up by injected CO<sub>2</sub> and fresh groundwater resources polluted and acidified by CO<sub>2</sub> leaks.<sup>40</sup>

A recent report, **The Carbon Capture Crux – Lessons Learned**, looked at 13 large-scale CCS and CCUS projects. Seven of the 13 underperformed, two failed and one was mothballed.<sup>41</sup> It was found that successful CCUS exceptions mainly existed in the natural gas processing sector serving the fossil fuel industry, leading to further emissions, highlighting that using carbon capture as a greenlight to extend the life of fossil fuels power plants has a significant financial and technical risk.<sup>42</sup>

There is heavy reliance on this unproven technology within the mining industry as an emission reduction strategy, with twelve of the companies audited are relying on CCS/CCUS in their transition plans.

There are a limited number of commercial scale CCS projects and a limited amount of public data.<sup>45</sup> CCS systems capture far less CO<sub>2</sub> generated by the hydrogen production units than predicted, they do not capture emissions from the power produced to run the hydrogen production units and they do not account for methane leaks upstream during extraction, processing and transportation.<sup>46</sup> CO<sub>2</sub> leaks downstream before injection are also not captured.<sup>47</sup>

The technology has been struggling in terms of technical viability and economic feasibility for decades and there is track record of failure for CCS/CCUS projects around the world.<sup>48</sup>

The heavy reliance on CCS and CCUS by twelve of the companies audited again raises concerns with the credibility of the Net Zero plans and raises the question of whether CCS/CCUS is greenwashing to extend the life of fossil fuel assets.<sup>49</sup>



## Case study – Centennial Coal

Centennial Coal is relying on the use of CCS for methane extracted from the coal seam to generate electricity in its 8MW gas power station in lieu of emitting it into the atmosphere. It claims that this will reduce greenhouse gas emissions and add to its decarbonisation momentum.

Centennial acknowledges that for the 2021 period its scope 1 and 2 emissions decreased resulting from lower production across operations, lower fugitive emissions and the amount of gas abated more than halved during the year as a result of the decreased volume of methane gas combusted.

This highlights the issues with CCS and the concern that it is being relied on to meet Net Zero commitments, in the absence of durable changes to operations to reduce emissions.



## New projects and expansions in coal and oil and gas

The UN and the IEA, together with a number of other agencies and institutions, have repeatedly said that new coal, oil and gas projects are not consistent with the concept of net zero by 2050.<sup>50</sup>

Despite this, every one of the companies audited has plans for new projects, project expansions or exploration. Moreover, several of the companies rely on the IEA scenarios to justify the new projects, noting that the projected decline in existing customer markets is offset by the expansion of new markets such as Southeast Asia.<sup>51</sup>

The reliance on, and expansion and development of coal, oil and gas projects is clearly inconsistent with the aim to reach Net Zero emissions by 2050. This, coupled with the longstanding limitations to technology required to remove the carbon emissions from the atmosphere resulting from the projects means it is uncertain whether Net Zero targets can be met and calls into question the credibility of the forward looking Net Zero claims.



### Case study – Whitehaven

Whitehaven state that “the use of fossil fuels continues to increase, driven by population growth and urbanisation.” Accordingly, Whitehaven is of the view that the energy transition must occur in an orderly way so as not to disenfranchise developing economies or deny access to energy for those still living without access to electricity or in a state of profound energy insecurity. Whitehaven relies on the UN Development Goals to support its position. In further justifying its continued coal production Whitehaven relies on the IEA’s STEPS projection that declining demand for coal in developed countries is to be replaced by increased demand for coal in developing countries.

**The UNHLEG Report<sup>82</sup> states:**

**Non-state actors cannot claim to be Net Zero while continuing to build or invest in new fossil fuel supply.**

## Summary of new coal/gas/oil projects & expansions in Australia

Company	New projects / exploration	Planned expansions
<b>Shell<sup>55</sup></b>	<ul style="list-style-type: none"> <li>Crux gas field</li> <li>Gorgon Project and Jansz-lo gas field (JV)</li> </ul>	<ul style="list-style-type: none"> <li>Surat Basin and Bowen Basin (JV)</li> <li>North West Shelf extension (JV)</li> </ul>
<b>Chevron Australia<sup>56</sup></b>	<ul style="list-style-type: none"> <li>Gorgon Project and Jansz-lo gas field (JV)</li> <li>Northern Carnarvon Basin</li> </ul>	<ul style="list-style-type: none"> <li>North West Shelf extension (JV)</li> </ul>
<b>BP Australia<sup>57</sup></b>	<ul style="list-style-type: none"> <li>Carnarvon Basin (JV)</li> <li>Browse development (JV)</li> </ul>	<ul style="list-style-type: none"> <li>North West Shelf extension (JV)</li> </ul>
<b>New Hope<sup>58</sup></b>	<ul style="list-style-type: none"> <li>West Muswellbrook Project</li> </ul>	<ul style="list-style-type: none"> <li>New Acland Stage 3</li> </ul>
<b>Centennial Coal<sup>60</sup></b>	<ul style="list-style-type: none"> <li>Inglenook Project</li> </ul>	<ul style="list-style-type: none"> <li>Angus Place West</li> </ul>
<b>Yancoal<sup>61</sup></b>	<ul style="list-style-type: none"> <li>Moolarben, MTW and HVO</li> <li>Ashton-Ravensworth<sup>63</sup></li> </ul>	<ul style="list-style-type: none"> <li>Middlemount Coal Mine – Southern Open Cut Extension Project<sup>64</sup></li> <li>Hunter Valley Operations Continuation Project (JV)<sup>65</sup></li> </ul>
<b>Whitehaven<sup>66</sup></b>	<ul style="list-style-type: none"> <li>Blackwater South coal mine<sup>67</sup></li> <li>Winchester South<sup>68</sup></li> </ul>	<ul style="list-style-type: none"> <li>Vickery extension</li> <li>Narrabri Underground expansion</li> <li>Werris Creek Mine expansion</li> </ul>

Company	New projects / exploration	Planned expansions
<b>Glencore<sup>70</sup></b>	<ul style="list-style-type: none"> <li>Valeria mine (under review)</li> <li>Wandoan Coal Project</li> </ul>	<ul style="list-style-type: none"> <li>Mangoola Coal expansion</li> <li>Hunter Valley Operations Continuation Project (JV)<sup>71</sup></li> <li>Ulan Coal Continued Operations Project<sup>72</sup></li> </ul>
<b>BHP</b>	<ul style="list-style-type: none"> <li>Saraji East Mining Lease Project<sup>73</sup></li> </ul>	<ul style="list-style-type: none"> <li>Peak Downs Mine Continuation Project (JV)<sup>74</sup></li> <li>Mt Arthur expansion<sup>75</sup></li> <li>Caval Ridge Mine Horse Pit Extension<sup>76</sup></li> </ul>
<b>South32<sup>77</sup></b>	<ul style="list-style-type: none"> <li>Seismic surveys conducted</li> </ul>	<ul style="list-style-type: none"> <li>Appin Mine</li> <li>Southern Lease Mining Project<sup>78</sup></li> </ul>
<b>Newcrest<sup>79</sup></b>	<ul style="list-style-type: none"> <li>Havieron</li> </ul>	
<b>Fortescue<sup>80</sup></b>	<ul style="list-style-type: none"> <li>Exploration activities in the Western Hub, Solomon Hub and Eastern Hamersley</li> </ul>	
<b>Rio Tinto<sup>81</sup></b>		<ul style="list-style-type: none"> <li>Western Range iron ore project in the Pilbara WA (JV)</li> <li>Gudai-Darri iron ore mine</li> </ul>



## Scenario shopping

Emissions scenarios are used to assist in climate change analysis for the assessment of impacts, adaptation and mitigation.<sup>83</sup>

The most widely recognised emissions scenarios are the Intergovernmental Panel on Climate Change (**IPCC**) which sets out the Representative Concentration Pathways (**RCPPs**), four pathways that describe different levels of greenhouse gases that might occur in the future.<sup>84</sup>

Additionally, the International Energy Agency (**IEA**) has developed the Net Zero Emissions by 2050 Scenario (**NZE**) which it describes as a “normative scenario that shows a pathway for the global energy sector to achieve Net Zero CO2 emissions by 2050.”<sup>85</sup>

The audits have revealed that there appears to be a practice of “scenario shopping” to justify approaches to emissions reduction or give credibility to statements made in Climate or ESG reports. Further, where the recognised IPCC and IEA scenarios are deemed inappropriate, companies have developed their own.

Scenario shopping results in myriad of approaches taken by companies to justify their approach to emission reduction goals, ambitions, aims, aspirations or targets. It also results in a lack of consistency or certainty in actual emission reductions. Further, it has the potential to mislead consumers about the attainability of actual emissions reductions claimed by the relevant company.

## Case studies

### Glencore<sup>86</sup>

‘Scenarios are not forecasts of future demand and therefore the scenarios developed by the IPCC and IEA are among several inputs into our climate strategy and are not in-and-of themselves determinative of our strategy. For instance, if the world is unable to deliver sufficient renewable energy and CCS capacity within the relevant timeframe, we foresee a potential role for unabated thermal coal for electricity generation beyond 2040. Therefore, and in support of our strategy of a managed decline of our global coal portfolio, we are developing our own approach to abatement beyond 2040, which may include using offsets, as well as CCS. We acknowledge that this does not directly align with the IEA NZE phase out of unabated thermal coal for electricity generation. If and while there is demand for coal, and it is economic to do so, we plan to continue to operate our mines to the end of their economic life and in accordance with our climate commitments, which include not exceeding our 150 million tonnes per annum consolidated production cap.’

### Shell<sup>87</sup>

Shell states that there is no established standard for aligning an energy supplier’s decarbonisation targets with the temperature limit goal of the Paris Agreement. In the absence of a broadly accepted standard, Shell has developed its own approach for demonstrating Paris alignment by setting carbon intensity targets with a pathway derived from the IPCC SR1.5 scenario.

### Chevron<sup>88</sup>

‘We believe the likelihood of the IEA’s NZE 2050 scenario is remote. It is not reflective of any realistic current projections, especially in terms of global cooperation with regard to the adoption of effective global policies that would transform the global energy mix so dramatically by 2050 ... Therefore, we do not rely on the NZE 2050 scenario for our business planning.’





## Use of different terminology to define boundaries for GHG reporting

While seemingly innocuous, the difference in the terminology can be significant.

Emission intensity is the volume of emissions produced against another relevant unit, such as emissions per unit of output or dollar generated.<sup>89</sup> When relying on emission intensity, if production or dollars generated grows then so do emissions.

Absolute emissions reduction is the reduction of the physical amount of greenhouse gases emitted into the atmosphere over time.<sup>90</sup> Net emissions contemplate the balance between greenhouse gas emissions produced and greenhouse gas emissions taken out of the atmosphere.<sup>91</sup> Operational emissions are those emissions from sites operated by the relevant company. Where there are joint ventures, those emissions may be allocated between the respective companies.

Equity emissions are those emissions from operations and assets attributable to a company based on its share of equity of the operation. It is argued that this is perhaps the simplest and most straightforward accounting method.<sup>92</sup> Under the control approach, a company accounts for the emissions from operations over which it has control or operates. This does not include emissions from operations it has a financial stake in but does not control.

The inconsistency of terminology makes it difficult to understand whether emissions are being reduced to meet Net Zero targets. It also makes it difficult for consumers to compare the environmental performance of different companies.

The UNHLEG Report<sup>93</sup> states:

Non-state actors cannot focus on reducing the intensity of their emissions rather than their absolute emissions or tackling only a part of their emissions rather than their full value chain (scopes 1, 2 and 3).

### Case studies

BHP defines Net Zero to include the use of carbon offsets as required.<sup>94</sup> Whitehaven's emissions are reported in operational and intensity emissions per Run of Mine coal. Newcrest reports its Scope 1 and 2 emissions in intensity per tonne of ore milled.

As outlined above, there is no consistency in the reporting of emissions. The audited companies use a variety of approaches to account for and define their emission boundaries. Reporting refers to emissions intensity, carbon intensity, absolute emissions, operated (or operational) and non-operated (or non-operational) emissions (both in equity share and gross), net emissions, net equity, equity emissions or actual emissions intensity and real zero. Some companies use a variety of approaches within their emissions reporting.

The wide variety of ways used to define emission boundaries, report and account for emissions makes it extremely difficult for consumers to understand and compare the true position of environmental performance of these companies. The use of a variety of approaches within their emissions reporting can lead to a distortion of the true position and can be potentially misleading.



## Reliance on fossil gas

Fossil gas is mostly comprised of methane, significant quantities of which are released into the atmosphere at every point along the gas supply chain.

In addition to greenhouse gas emissions associated with extraction and production of gas, the combustion of fossil gas to produce energy releases significant quantities of greenhouse gases. When accounting for fugitive emissions during extraction, processing and transport, gas has significant greenhouse gas emissions.<sup>97</sup>

According to a report by Climate Analytics, data from the National Energy Market demonstrates that average greenhouse gas emissions per unit of gas generation in Australia is 61% that of coal.<sup>98</sup>

South32 are relying on the conversion of its Alumina coal-fired boiler to natural gas as part of its transition plan.<sup>99</sup>

Chevron Australia's Managing Director Mark Hatfield is quoted as saying:

“The gas we produce is used in the electricity that powers homes and businesses, and supports key industries like mining, minerals processing and manufacturing, which is why we are pleased to have the confidence to increase domestic gas capacity from the Wheatstone Project on an ongoing basis.”<sup>100</sup>

The reliance on natural gas by the companies the subject of the audit undermines the credibility of their Net Zero commitments.



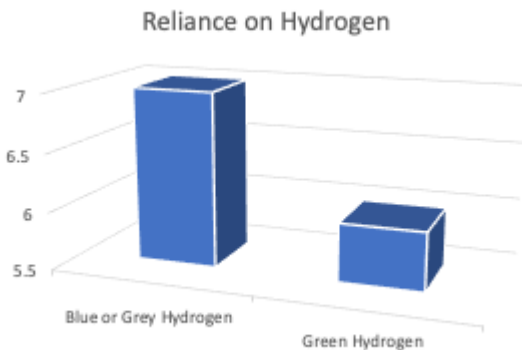


## Reliance on hydrogen

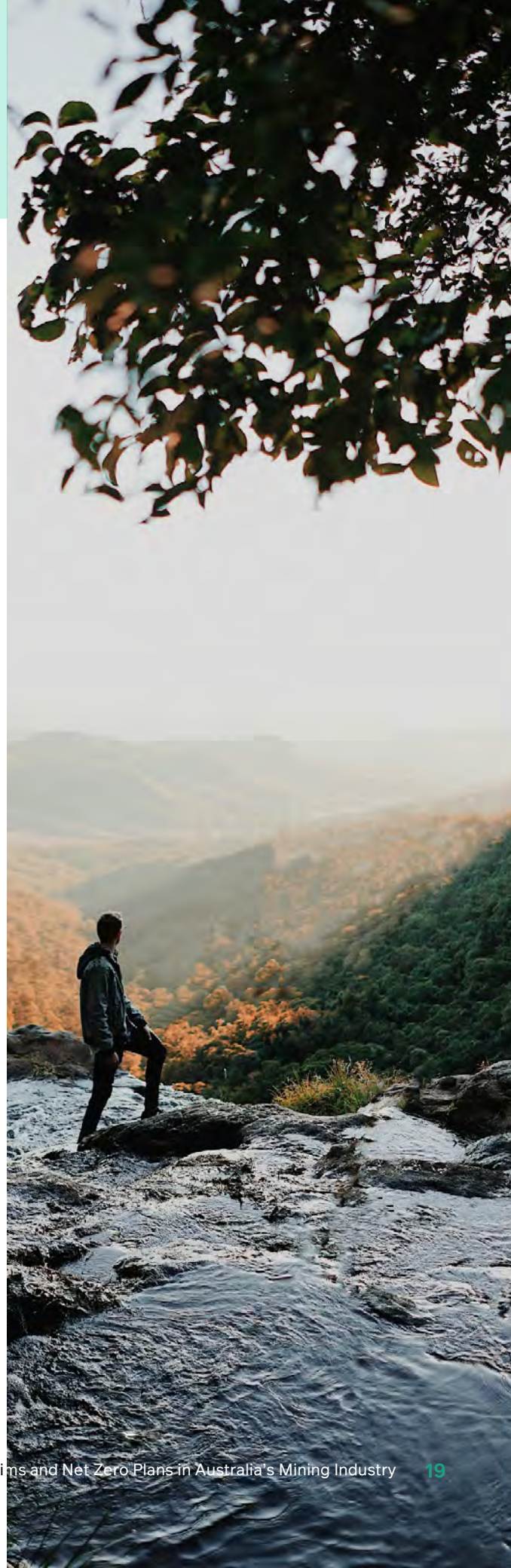
Green hydrogen produces no greenhouse gas emissions, as it is made by using clean energy to split water into hydrogen and oxygen.<sup>101</sup> While green hydrogen may be clean,<sup>102</sup> there is significant uncertainty about when and to what extent it may be commercially viable.<sup>103</sup>

Blue hydrogen is produced mainly from fossil gas, using a process called steam reforming. While the main product is hydrogen, carbon dioxide is also produced.<sup>104</sup> Blue hydrogen relies on the use of carbon capture and storage to trap and store the carbon dioxide that is produced.<sup>105</sup> Approximately 10-20% of the generated carbon cannot be captured.<sup>106</sup>

Grey hydrogen is created from fossil gas, or methane, using steam methane reformation without capturing the greenhouse gases made in the process. The process is the same as blue hydrogen without the use of carbon capture and storage.<sup>107</sup>



This is concerning as blue and grey hydrogen rely on CCS to capture greenhouse gas emissions generated during hydrogen production. The issues with CCS and CCUS are discussed above. Relying on blue and grey hydrogen for transition plans raises concerns as to their credibility and the ability of the companies to meet their Net Zero commitments.





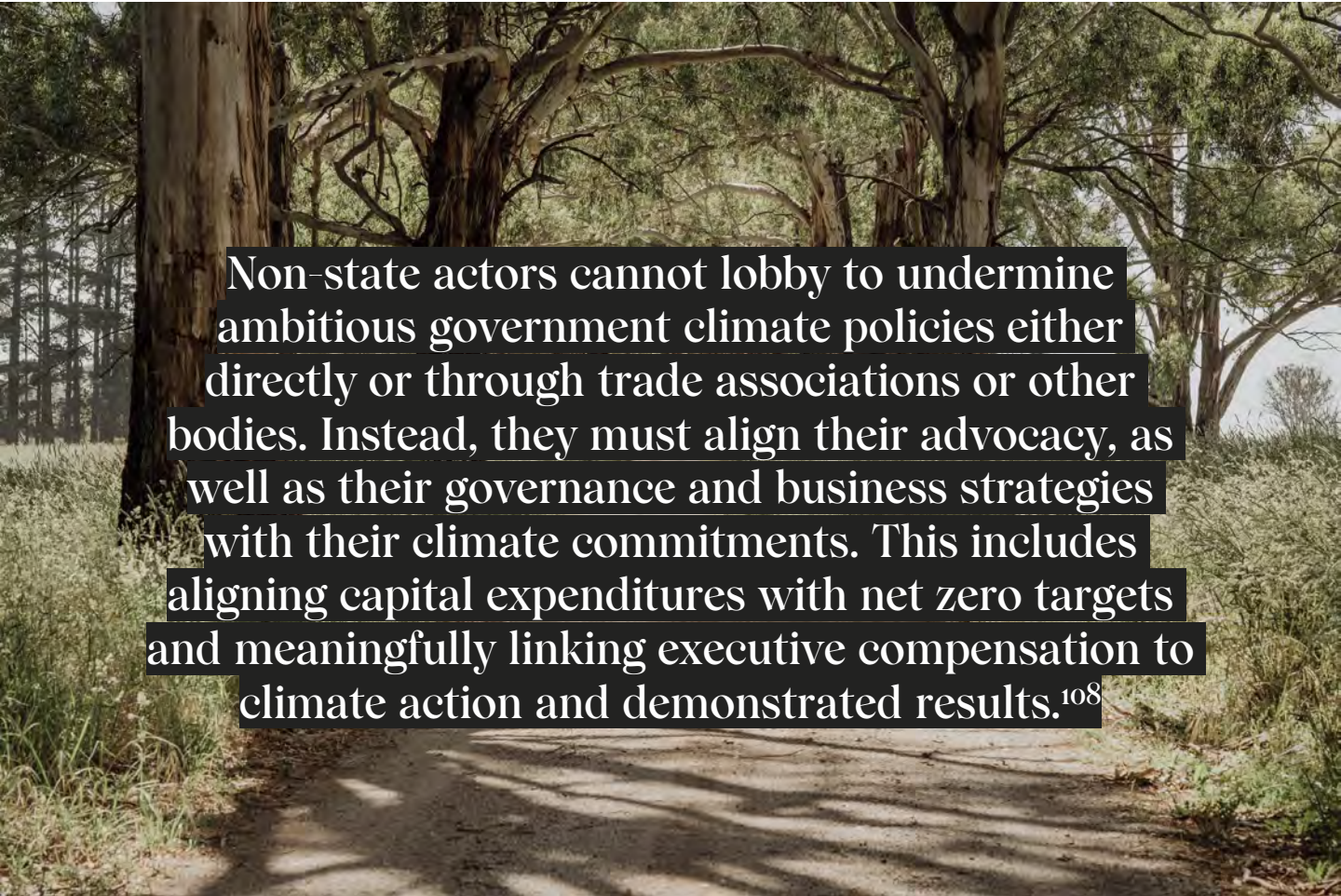
## Lobbying and advocacy

BHP and Rio Tinto appear to have ignored or not identified substantial evidence of detailed and ongoing lobbying activities from groups of which they are members, that runs counter to Paris aligned climate policy.<sup>109</sup>

In a recent hearing before the Select Committee on the Cost of Living, representatives from Shell, and others, provided evidence stressing the need for the development of new fossil gas supplies to alleviate the prevailing cost of living crisis.<sup>110</sup>

The CEO of the peak industry body, the Australian Petroleum Production and Exploration Association, was also present. At the hearing, the companies and industry body stressed the importance of increasing its products to alleviate the cost of living for Australians.<sup>111</sup>

The public facing claims must align with the lobbying and advocacy that the companies either directly or indirectly participate in. Based on the above summary, it cannot be said that, overall, this is being achieved.



**Non-state actors cannot lobby to undermine ambitious government climate policies either directly or through trade associations or other bodies. Instead, they must align their advocacy, as well as their governance and business strategies with their climate commitments. This includes aligning capital expenditures with net zero targets and meaningfully linking executive compensation to climate action and demonstrated results.<sup>108</sup>**



## Uncertainty

### Case studies

#### Whitehaven<sup>112</sup>

Whitehaven notes that “there is no coordinated global agreement seeking to achieve Net Zero emissions by 2050” and that “the Net Zero commitments of some countries are not a commitment to no emissions.”<sup>113</sup> Whitehaven recognises that Australia will eventually introduce legislative and regulatory mechanisms that would require it to reduce operational emissions and before establishing a target, it will analyse a range of internal and external factors and impacts of the new Safeguard Mechanism regulation.

#### South32<sup>114</sup>

South32 states that while it is committed to the goals of the Paris Agreement, current global signposts continue to point towards a probable trajectory of at least 2 degrees of warming which forms its base case for global transition to a low carbon world.<sup>115</sup>

#### Glencore<sup>116</sup>

While Glencore is committed to managing a decline of its coal business to meet its targets, it has not committed to doing so in line with a particular scenario or pathway due to the uncertainty inherent in global efforts to progress toward the energy transition. Glencore states that if the world is unable to deliver sufficient renewable energy and CCS capacity within the relevant timeframe, there is a potential for unabated thermal coal for electricity generation beyond 2040. Glencore refers to the “uncertainty inherent in global efforts to progress toward the energy transition” as the basis for developing its own approach to abatement beyond 2040.

Most of the audited companies refer to the lack of certainty around regulation, reporting requirements and emissions reduction requirements or the global trajectory to justify their inaction.

While the audited companies have largely made Net Zero commitments, there is significant reliance on global uncertainty, and policy uncertainty within Australia to justify inaction to make Net Zero commitments or to act on their purported commitments. This inaction contradicts the commitments made, which could therefore be considered greenwashing.

**Rather than rapid decarbonisation, all but one of the companies are relying on CCS/CCUS or nature-based offsets. All companies have either expansions or new project approvals or are seeking new approvals. All companies will undertake deforestation or other environmentally destructive activities by virtue of the fact they are mining companies. An analysis of the criteria above against the reported practices of the companies brings into question the credibility of all Net Zero commitments.**

# > Physical risk to the business














In the Commonwealth Treasury's consultation paper on climate-related financial disclosure, it observed that:

*Climate change is recognised internationally as a material risk to the global financial system – a risk which needs to be managed by capital markets, regulators and corporations. This includes both the physical risks of climate change and the transition risks associated with policy, regulatory and technological change brought on by efforts to mitigate climate change.<sup>117</sup>*

Physical risk resulting from climate change can present a material risk to a business. It includes both longer-term changes in climate (chronic risk) as well as changes to the frequency and magnitude of extreme weather events (acute risk), which cause direct damage to assets or property, changes to income and costs, and changes to the cost and availability of insurance.<sup>118</sup>

Climate-related physical risks have financial implications for companies including reduced revenue from decreased production capacity due to interruptions in the supply chain or access to operations being cut, increased operating costs because of inadequate water supply and reduced revenue and higher costs from negative impacts on the workforce.

This table is a summary of those identified companies which have included physical risk to the business in their reporting or prospectuses.

Company	Do they identify physical risks to the business from climate change?	
<b>Shell</b>		119
<b>Chevron Australia</b>		120
<b>BP Australia</b>		121
<b>New Hope</b>		122
<b>Centennial Coal</b>		123
<b>Yancoal</b>		124
<b>Whitehaven</b>		125
<b>Glencore</b>		126
<b>BHP</b>		127
<b>South32</b>		128
<b>Newcrest</b>		129
<b>Fortescue</b>		130
<b>Rio Tinto</b>		131

The most frequently identified risks include extreme weather with increased frequency and severity, extreme heat, more intense rainfall events with resulting flooding, extreme drought and water scarcity, rising sea levels and more frequent storm surges, more frequent cyclones and more severe and frequent fires.

ASIC considers that disclosing and managing climate-related risk is a “key director responsibility,”<sup>134</sup> and that “directors and officers of listed companies need to understand and continually reassess existing and emerging risks that may be applicable to the company’s business, including physical and transitional climate risk.”<sup>135</sup> Further work needs to be done to ensure consumers and investors are aware of the potential climate-related risks to the companies they are investing in.

## Case studies

### Glencore

Glencore outlines the potential impacts on the group to include loss of life, significant environmental damage, or social impacts on livelihoods arising from such an event may have significant negative impacts on reputation. Suspension of production arising from an event for an extended period could have a significant impact. Production may be reduced or may have to cease or require greater infrastructure spending for the inclusion of new design standards.<sup>132</sup>

### Shell

Shell notes that it has performed a limited analysis addressing a range of typical climate features for a select group of assets as it is an emerging area of risk assessment.<sup>133</sup>



# Potential greenwashing in environmental statements, claims and use of terms

There is growing awareness of the issues associated with potential greenwashing.<sup>136</sup>

To determine whether the identified companies may have made claims that could be considered greenwashing, a sweep of their websites, social media, prospectus, product disclosure statements and market statements was undertaken. Case studies have been used to discuss examples found during the sweep.

## **Case study – Glencore**

Glencore’s website declares that it is ‘Supporting the transition to a low-carbon economy.’<sup>137</sup>

Glencore publicly claims ‘We are committed to responsibly managing the decline of our coal portfolio in line with our Scope 1, 2 and 3 emissions reduction targets, a 15% reduction by the end of 2026 and a 50% reduction by the end of 2035 against a 2019 baseline, with a longer-term ambition of achieving net zero emissions by the end of 2050.’<sup>138</sup>

Glencore operates 17 coal mines in Australia, making it Australia’s largest coal producer and biggest contributor to emissions from coal mining. Glencore is currently assessing a number of projects to enable existing operations to continue and to develop new coal resources, expanding its coal production.<sup>139</sup>

The expansion of its mining operations in contrary to its net zero claims and may therefore amount to harmful greenwashing.

## **Case study – New Hope**

New Hope’s website claims: ‘ We strive to operate responsibly and to transparently disclose our sustainability impacts and metrics that underpin our social licence to operate.’

New Hope claims ‘During the transition to a net zero carbon economy, we will be a responsible operator of our business and assets by developing opportunities to reduce carbon emissions for our ongoing operations where reduction outcomes are within our control, economically viable, and responsive to evolving policy, regulation and stakeholder expectations.’<sup>140</sup>

New Hope operates four large coal mines in Australia. New Hope’s objective is to ‘increase Australian production through existing resource development, new resource exploration and acquisitions.’<sup>141</sup> Its current mining operations are ‘complemented by investment in an extensive exploration program.’<sup>142</sup>

New Hope’s exploration and expansion plans are contrary to its claims of operating responsibly, potentially amounting to greenwashing.



## > Conclusion

While the companies in the mining industry acknowledge their role in the transition to Net Zero, significantly more needs to be done to reduce Scope 3 emissions. Given the sector's contribution to greenhouse gas emission, there needs to be clear, transparent reporting of actual emissions that can be compared across the sectors to enable consumers to compare environmental performance. There needs to be accountability for the large contributions to greenhouse gas emissions these companies have and, in particular, their Scope 3 emissions. These companies cannot rely on global uncertainty to justify inaction, nor can they rely on consumers of their products to abate Scope 3 emissions.

The Clean Energy Finance Corporation points out:<sup>143</sup>

“The energy transition presents a fantastic opportunity for proactive mining companies to establish competitive advantage. By decarbonising their operations, Australian mining producers can align financial profitability with sustainability to position themselves as market leaders.”



As the IEA states:<sup>144</sup>

The gap between *rhetoric* and *action* needs to close if we are to have a fighting chance of reaching Net Zero by 2050 and limiting the rise in global temperatures to 1.5 degrees.

# > Appendix A

## What is a credible Net Zero plan?

Achieving “Net Zero” is the process in which greenhouse gas emissions are cut as close to zero as possible and any remaining emissions are re-absorbed from the atmosphere to ensure that anthropogenic emissions produced do not exceed emissions taken out of the atmosphere.<sup>145</sup> The Net Zero by 2050 target was set with an aim of limiting global warming to below 1.5°C and then maintaining that temperature so as to avoid wide-scale, irreversible environmental harm. As of 2022, Net Zero pledges cover over 91% of the global economy, an increase from 68% in 2021.<sup>146</sup>

A recent report by the United Nations High Level Expert Group on the Net Zero Commitments of Non-State Entities (**UNHLEG Report**) was developed with the specific aim of preventing the concept of “Net Zero” from being undermined by false claims, ambiguity and greenwashing.<sup>147</sup> It outlines specific recommendations for providing a credible Net Zero plan, sometimes referred to as a transition plan. The report suggests that Net Zero claims should address the full lifecycle of a product or process, that is scope 1, 2 and 3 emissions. It also recommends that companies should have short term science-based targets to support the long-term pledges. Plans should also show how the company intends to transition away from fossil fuels and should align their external policy and engagement efforts with their goals.

We have used this report to assess the credibility of Net Zero claims within the mining industry, and to highlight where they may be potentially misleading under the Australian Consumer Law or the *Corporations Act*.<sup>148</sup>

## Scope 1, 2 and 3 emissions

The Australian Government Clean Energy Regulator defines Scope 1, 2 and 3 emissions as follows:<sup>149</sup>

- **Scope 1:** Emissions released into the atmosphere as a direct result of an activity or series of activities at a facility level. They are sometimes referred to as direct emissions.
- **Scope 2:** Emissions released to the atmosphere from the indirect consumption of an energy commodity. These are sometimes referred to as ‘indirect emissions’ which come from the use of electricity produced by the burning of fossil fuels in another facility.
- **Scope 3:** These are indirect emissions, other than Scope 2, that are generated in the wider economy. They result from the activities of a facility but from sources not owned or controlled by that facility’s business.

# > Appendix B

## What is greenwashing?

The increased awareness of the impacts of greenhouse gas emissions on climate change is leading to a global transition to a Net Zero economy. Consumers are increasingly interested in purchasing sustainable or environmentally friendly products which will assist in the reduction of greenhouse gas emissions.

Companies, in an endeavour to increase their market share in this space, are publishing environmental and sustainability claims in relation to their business and products. Claims may be product specific, where they appear on websites, advertisements or social media; company-wide claims, appearing on websites or in reporting documents or corporate social responsibility documents; or claims using logos and symbols (such as certification trademarks) which can appear on websites or advertising.

Concerns arise where the claims made by businesses may be false, misleading, or have no reasonable basis. This is often known as 'greenwashing'.<sup>150</sup> Misleading climate claims, or greenwashing, is subject to the laws of misleading or deceptive conduct.<sup>151</sup>

## Greenwashing and environmental claims

The ACCC, in its draft guidance, has identified eight principles to help companies comply with their obligations under the Australian Consumer Law in relation to environmental and sustainability claims.<sup>152</sup> These include: make accurate and truthful claims; have evidence to back up the claims; don't leave out or hide important information; explain any conditions or qualifications on the claims;

avoid broad and unqualified claims; use clear and easy-to-understand language; visual elements should not give the wrong impression; and be direct and open about your sustainability transition.<sup>153</sup>

One of ASIC's priorities for 2023 includes enforcement action on greenwashing.<sup>154</sup> ASIC are increasingly taking regulatory action on company's misleading statements to promote fair and transparent markets.<sup>154</sup> ASIC wants to ensure that retail investors and financial consumers are well informed and not misled about the 'green credentials' of investments and listed companies.<sup>156</sup> ASIC is focusing on Net Zero statements and targets and claims of decarbonisation that do not appear to have a reasonable basis or are factually incorrect.<sup>157</sup> Further, the use of terms such as 'carbon neutral', 'clean' or 'green' have been reviewed to ensure there is a reasonable basis for the claim. These statements, targets, claims and terms were used across prospectuses, websites, product disclosure statements, and market announcements.<sup>158</sup>

In recognition of the increased use of environmental claims in advertising, the Australian Association of National Advertisers and Ad Standards have adopted the Environmental Claims Code (**the Code**). The Code assists advertisers to fulfil their obligation to be truthful in their claims and not mislead or deceive consumers about the environmental benefits of their products and services. The Code sets out the three key elements advertising must meet as a truthful, factual presentation; a genuine benefit to the environment; and must be able to be substantiated and verifiable.<sup>159</sup>

# References

1. UN High-Level Legal Expert Group on the Net Zero Emissions Commitments of Non-State Entities, *Integrity Matters: Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions* (Report) <[https://www.un.org/sites/un2.un.org/files/high-level\\_expert\\_group\\_n7b.pdf](https://www.un.org/sites/un2.un.org/files/high-level_expert_group_n7b.pdf)>.
2. For more detail on Greenhouse Gas Emission types, including Scope 1, 2 and 3, and what constitutes Greenwashing, see **Appendix A**.
3. IEA, 'It's Critical to Tackle Coal Emissions', *IEA Commentaries* (Commentary, 2021) <<https://www.iea.org/commentaries/it-s-critical-to-tackle-coal-emissions>>.
4. Mordor Intelligence, *Australia Coal Market Size and Share Analysis – Growth Trends and Forecasts (2023-2028)* (Report) <<https://www.mordorintelligence.com/industry-reports/australia-coal-market>>.
5. Ibid.
6. Geoscience Australia, 'Australian Energy Facts', *Australia Government Geoscience Australia* (Web Page, 2023) <<https://www.ga.gov.au/education/minerals-energy/australian-energy-facts>>.
7. Sustainable Finance at Oxford Smith School of Enterprise and the Environment, *Assessing the Credibility of Climate Transition Plans in the Oil and Gas Sector* (Discussion Paper, 2023) <[https://sustainablefinance.ox.ac.uk/wp-content/uploads/2023/07/SSEE-Discussion-Paper-Oil-Gas\\_final\\_AR.pdf](https://sustainablefinance.ox.ac.uk/wp-content/uploads/2023/07/SSEE-Discussion-Paper-Oil-Gas_final_AR.pdf)>.
8. Clean Energy Finance Corporation, 'Going Green for Growth: The Business Case for Reducing Emissions in Australian Mines' (Media Release, 2022) <<https://www.cefc.com.au/media/media-release/going-green-for-growth-the-business-case-for-reducing-emissions-in-australian-mines/>>.
9. UN High-Level Legal Expert Group on the Net Zero Emissions Commitments of Non-State Entities, *Integrity Matters: Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions* (Report) <[https://www.un.org/sites/un2.un.org/files/high-level\\_expert\\_group\\_n7b.pdf](https://www.un.org/sites/un2.un.org/files/high-level_expert_group_n7b.pdf)>.
10. Where available, information taken from: 'Are you Paris compliant? Find out how companies are tracking on their CO2 emissions', *Are You Paris Compliant?* (Website) <<https://www.areyoupariscompliant.com/>>
11. Based on results from: LobbyMap, 'LobbyMap Scores', *LobbyMap* (Webpage) <<https://lobbymap.org/LobbyMapScores>>.
12. Shell is part of the Oil and Gas Climate Initiative which has set a goal to reduce their aggregated average methane intensity from upstream oil and gas operations to below 0.25% by 2025. This is a collective emissions cut of 350,000 tonnes annually: BP, 'OGCI Sets Methane Target,' *News and Insights* (Webpage, 24 September 2018) <<https://www.bp.com/en/global/corporate/news-and-insights/reimagining-energy/ogci-sets-methane-target.html>>.
13. This is largely the international company however Chevron Australia is a member of industry associations engaged in obstructive climate policy advocacy.
14. BP is part of the Oil and Gas Climate Initiative which has set a goal to reduce their aggregated average methane intensity from upstream oil and gas operations to below 0.25% by 2025. This is a collective emissions cut of 350,000 tonnes annually: BP, 'OGCI Sets Methane Target,' *News and Insights* (Webpage, 24 September 2018) <<https://www.bp.com/en/global/corporate/news-and-insights/reimagining-energy/ogci-sets-methane-target.html>>.
15. BP, *BP Annual Report and Form 20-F 2022* (Annual Report, 2022) 8 <<https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/investors/bp-annual-report-and-form-20f-2022.pdf>>.
16. The company is highly engaged with climate-related policies; however, the company appears to support a continued role for fossil fuels in the energy mix.
17. Rely on Wood Mackenzie's Accelerated Energy Transition 1.5 Degree Scenario: New Hope Group, *New Hope Group Annual Report 2023* (Annual Report, 2023) 31 <<https://newhopegroup.com.au/wp-content/uploads/2023/10/New-Hope-Group-Annual-Report-2023.pdf>>.
18. The Annual Report states that the scenarios being relied on align with the Paris Agreement goals to stay within 1.5 degree carbon budget. BHP has relied on Central Energy view, Lower Carbon view, 1.5 degree scenario and Deep Green: BHP, *BHP Climate Transition Action Plan 2021* (Document, September 14, 2021) 24 <[https://www.bhp.com/-/media/documents/investors/annual-reports/2021/210914\\_bhpclimatetransitionactionplan2021.pdf](https://www.bhp.com/-/media/documents/investors/annual-reports/2021/210914_bhpclimatetransitionactionplan2021.pdf)>.

# References

19. Information has been collected from Newcrest's reports prior to the shareholder approval on 13 October 2023, of Newmont Corp's acquisition.
20. Have been relying on Nature Based offsets but state that they will not purchase or rely on any from FY24.
21. Fortescue intends to eliminate Scope 1 and 2 emissions from terrestrial iron ore operations. Separate Targets to eliminate Scope 1 and 2 emissions across Australian Iron Ore operations by 2030, Scope 3 emissions by 2040: Fortescue Metals Group, *FY23 Climate Change Report* (Report, 2023)  
<[https://cdn.fortescue.com/docs/default-source/announcements-and-reports/2597653.pdf?sfvrsn=79eaba4e\\_8](https://cdn.fortescue.com/docs/default-source/announcements-and-reports/2597653.pdf?sfvrsn=79eaba4e_8)>.
22. Fortescue is actively engaged on climate policy adopting a positive position on the energy transition. However, it maintains memberships with oppositional industry associations.
23. LobbyMap, 'Fortescue Metals Group', *LobbyMap* (Web Page)  
<<https://lobbymap.org/company/FORTESCUE-METALS-GROUP-334c1781e46efa7a98043326b8c4240f>>.
24. Shell, *Shell's Climate and Energy Transition Lobbying Report 2022* (Report, 2022) 66  
<<https://reports.shell.com/climate-and-energy-transition-lobbying-report/2022/>>.
25. A Rose et al., *Assessing the Credibility of Climate Transition Plans in the Oil and Gas Sector* (Discussion Paper, 2023)  
<[https://sustainablefinance.ox.ac.uk/wp-content/uploads/2023/07/SSEE-Discussion-Paper-Oil-Gas\\_final\\_AR.pdf](https://sustainablefinance.ox.ac.uk/wp-content/uploads/2023/07/SSEE-Discussion-Paper-Oil-Gas_final_AR.pdf)>
26. McKinsey & Company, 'Climate Risk and Decarbonization: What Every Mining CEO Needs to Know', *McKinsey Sustainability* (Web Page, 28 January, 2020)  
<<https://www.mckinsey.com/capabilities/sustainability/our-insights/climate-risk-and-decarbonization-what-every-mining-ceo-needs-to-know>>
27. Wood Mackenzie, 'Few Oil and Gas Companies Commit to Scope 3 Net Zero Emissions as Significant Challenges Remain', *Press Releases* (Web Page, 28 October 2022)  
<<https://www.woodmac.com/press-releases/few-oil-and-gas-companies-commit-to-scope-3-net-zero-emissions-as-significant-challenges-remain/>>. (cont.)
27. (cont.) World Benchmarking Alliance, *Climate and Energy Benchmark in the Oil and Gas Sector: 2023 Insights Report* (Report, June 2023)  
<[https://assets.worldbenchmarkingalliance.org/app/uploads/2023/06/2023-Insights-report\\_Climate-and-Energy-Benchmark-in-the-oil-and-gas-sector.pdf](https://assets.worldbenchmarkingalliance.org/app/uploads/2023/06/2023-Insights-report_Climate-and-Energy-Benchmark-in-the-oil-and-gas-sector.pdf)>. NOTE: It is difficult to estimate for the coal companies what portion of total emissions scope 3 emissions contributes as they have not generally reported on these emissions.
28. BHP, *Climate Transition Action Plan 2021* (Report, September 14, 2021) 7 <[https://www.bhp.com/-/media/documents/investors/annualreports/2021/210914\\_bhpcimatetransitionactionplan2021.pdf?sc\\_lang=en&hash=EB11097F5500602D2928F09D4EF081DB](https://www.bhp.com/-/media/documents/investors/annualreports/2021/210914_bhpcimatetransitionactionplan2021.pdf?sc_lang=en&hash=EB11097F5500602D2928F09D4EF081DB)>.
29. Rio elected to report on category 10 – processing of sold products. Emissions are calculated using a combination of internal emissions modelling, regional and industry level emissions factors and internal production and shipment data: Rio Tinto, *Scope 1, 2 and 3 Emissions Calculation Methodology 2022* (Report, 2022) 5  
<<https://www.riotinto.com/en/sustainability/climate-change>>.
30. UN High-Level Legal Expert Group on the Net Zero Emissions Commitments of Non-State Entities, *Integrity Matters: Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions* (Report) 88  
<[https://www.un.org/sites/un2.un.org/files/high-level\\_expert\\_group\\_n7b.pdf](https://www.un.org/sites/un2.un.org/files/high-level_expert_group_n7b.pdf)>.
31. R Kaplan, K Rammana, and M Roston, 'Accounting for Carbon Offsets', *Harvard Business Review* (online, July 2023)  
<<https://hbr.org/2023/07/accounting-for-carbon-offsets>>.
32. Ibid.
33. J Greber, 'former watchdog goes public with carbon credit fraud claims', *The Australian Financial Review* (online, 23 March 2022)  
<<https://www.afr.com/policy/energy-and-climate/former-watchdog-goes-public-with-carbon-credit-fraud-claims-20220323-p5a77o>>; A Macintosh, 'Australia's Carbon Market: A Fraud on the Environment', *Australian National University* (Web Page, 24 March 2022)  
<<https://www.anu.edu.au/news/all-news/australias-carbon-market-a-fraud-on-the-environment>>.

# References

34. Ibid. This report finds that for every ACCU generated to offset one tonne of CO<sub>2</sub> equivalent emissions from liquefied natural gas production in Australia, approximately 8.4tCO<sub>2</sub>e lifecycle emissions are emitted globally, demonstrating the real-world impact of enabling fossil fuel companies to offset their emissions and continue, or even expand, production, rather than reduce their emissions over time: Climate Analytics, *Why Offsets Are Not a Viable Alternative to Cutting Emissions* (Report, February 2023). <[https://climateanalytics.org/media/why\\_offsets\\_are\\_not\\_a\\_viable\\_alternative\\_to\\_cutting\\_emissions.pdf](https://climateanalytics.org/media/why_offsets_are_not_a_viable_alternative_to_cutting_emissions.pdf)>
35. R Kaplan, K Rammana, and M Roston, 'Accounting for Carbon Offsets', *Harvard Business Review* (online, July 2023) <<https://hbr.org/2023/07/accounting-for-carbon-offsets>>.
36. Science Based Targets initiative, *SBTi CRITERIA AND RECOMMENDATIONS FOR NEAR-TERM TARGETS* (Report Version 5.1, April 2023) <<https://sciencebasedtargets.org/resources/files/SBTi-criteria.pdf>>.
37. Institute for Energy Economics and Financial Analysis (IEEFA), *The Carbon Capture Crux* (Report, September 2022) <<https://ieefa.org/resources/carbon-capture-crux-lessons-learned>>.
38. B Robertson and M Mousavian, *Santos's 2022 Climate Change Report Shows Emissions Climbed Steeply and Understates True Impact* (Web Page, 11 April 2022) <<https://ieefa.org/resources/santoss-2022-climate-change-report-shows-emissions-climbed-steeply-and-understates-true>>.
39. Australian House of Representatives Standing Committee on Industry and Innovation, *Geosequestration: The Role of Australian Governments* (Report Chapter 5) <[https://www.aph.gov.au/parliamentary\\_business/committees/house\\_of\\_representatives\\_committees?url=scin/geosequestration/prelims.htm](https://www.aph.gov.au/parliamentary_business/committees/house_of_representatives_committees?url=scin/geosequestration/prelims.htm)>.
40. Ibid.
41. Institute for Energy Economics and Financial Analysis (IEEFA), *The Carbon Capture Crux* (Report, September 2022) <<https://ieefa.org/resources/carbon-capture-crux-lessons-learned>>.
42. Ibid.
43. Centennial Coal, *Centennial 2021 Sustainability Report* (Report, November 2022) 1 <<https://www.centennialcoal.com.au/wp-content/uploads/2022/11/Centennial-2021-Sustainability-Report.pdf>>.
44. Ibid 15.
45. Institute for Energy Economics and Financial Analysis (IEEFA), *Blue Hydrogen: Technology Challenges, Weak Commercial Prospects, and Not Green* (Report, February 2022) <<https://ieefa.org/resources/blue-hydrogen-technology-challenges-weak-commercial-prospects-and-not-green>>.
46. Ibid.
47. Ibid.
48. Institute for Energy Economics and Financial Analysis (IEEFA), *Santos 2022 Climate Change Report: A Reality Check* (Report, April 2022) 14 <<https://ieefa.org/wp-content/uploads/2022/04/Santos-2022-Climate-Change-Report-A-Reality-Check-April-2022.pdf>>.
49. Ibid; International Energy Agency (IEA), *The Path to Limiting Global Warming to 1.5°C Has Narrowed, but Clean Energy Growth is Keeping it Open* (Web Page, 26 September 2023) <<https://www.iea.org/news/the-path-to-limiting-global-warming-to-1-5-c-has-narrowed-but-clean-energy-growth-is-keeping-it-open>>; United Nations, 'Secretary-General Calls on States to Tackle Climate Change 'Time Bomb' through New Solidarity Pact, Acceleration Agenda, at Launch of Intergovernmental Panel Report' (Press Release, Document Number SG/SM/21730, 23 March 2023) <<https://press.un.org/en/2023/sqsm21730.doc.htm>>.
50. B Robertson and M Mousavian, *Santos's 2022 Climate Change Report shows emissions climbed steeply and understates true impact* (Web Page, 11 April 2022) <<https://ieefa.org/resources/santoss-2022-climate-change-report-shows-emissions-climbed-steeply-and-understates-true>>.
51. See for example Whitehaven's Sustainability Report 2022: Whitehaven Coal, *Whitehaven Coal Sustainability Report 2022* (Report, September 2022) 19 <<https://whitehavencoal.com.au/wp-content/uploads/2022/09/Whitehaven-Coal-Sustainability-Report-2022.pdf>>.
52. Ibid 30.
53. Ibid.

# References

54. Ibid 17.
55. Shell Australia, *Projects and Locations* (Web Page) <<https://www.shell.com.au/about-us/projects-and-locations.html>>.
56. Chevron Australia, *Gorgon Project* (Web Page) <<https://australia.chevron.com/our-businesses/gorgon-project>>; Chevron Australia, *Chevron Australia has the largest portfolio of exploration acreage in the carnarvon basin* (Web Page) <<https://australia.chevron.com/our-businesses/exploration>>.
57. BP Australia, *Developing* (Web Page) <[https://www.bp.com/en\\_au/australia/home/who-we-are/developing.html](https://www.bp.com/en_au/australia/home/who-we-are/developing.html)>; BP, *BP Annual Report and Form 20-F 2022* (Report, 2022) <[https://www.bp.com/en\\_au/australia/home/media/reports.html](https://www.bp.com/en_au/australia/home/media/reports.html)>.
58. New Hope Group, *Operations* (Web Page) <<https://newhopegroup.com.au/operations/>>.
59. New Hope Group, *West Muswellbrook Project* (Web Page) <<https://newhopegroup.com.au/west-muswellbrook-project/>>.
60. Centennial Coal, *Operations* (Web Page) <<https://www.centennialcoal.com.au/operations/>>.
61. Yancoal, *All Mine Sites* (Web Page) <<https://www.yancoal.com.au/page/en/assets/min>>.
62. Yancoal, *Half Year Account Half-Year Financial Report for the half-year ended 30 June 2023* (Report, 16 August 2023) 20 <<https://www.yancoal.com.au/page/en/investors/financial-reports/>>.
63. Australian Government, *Ashton Coal Operations Ravensworth Underground Mine* (Web Page) <<https://epbcpublicportal.awe.gov.au/all-referrals/project-referral-summary/?id=fd4d10d0-b6ba-ec11-983f-00224818ab04>>; Ashton Coal, *About* (Web Page) <<https://www.ashtoncoal.com.au/page/about/>>.
64. Australian Government, *Middlemount Coal Mine - Southern Open Cut Extension Project, QLD* (Web Page) <<https://epbcpublicportal.awe.gov.au/all-referrals/project-referral-summary/?id=f431c2e2-ad87-eb11-80c2-00505684c137>>.
65. Glencore, *Hunter Valley Operations* (Web Page) <<https://www.glencore.com.au/operations-and-projects/coal/current-operations/hunter-valley-operations>> (cont.)
65. (cont.) Hunter Valley Operations, *Continuation Project* (Web Page) <<https://www.hvo.com.au/continuation-project/>>.
66. Whitehaven Coal, *Our Assets* (Web Page) <<https://whitehavencoal.com.au/our-business/our-assets/>>.
67. Market Forces, *Whitehaven shareholders revolt over reckless growth plans* (Web Page, 27 October 2023). <<https://www.marketforces.org.au/whitehaven-coal-annual-general-meeting-oct-2023/>>.
68. Whitehaven Coal, *Our Assets* (Web Page). <<https://whitehavencoal.com.au/our-business/our-assets/>>.
69. Ibid.
70. Glencore, *Coal Projects* (Web Page) <<https://www.glencore.com.au/operations-and-projects/coal/projects>>.
71. Glencore, *Hunter Valley Operations* (Web Page) <<https://www.glencore.com.au/operations-and-projects/coal/current-operations/hunter-valley-operations>>.
72. Glencore, *Current Operations* (Web Page) <<https://www.glencore.com.au/operations-and-projects/coal/current-operations>>.
73. Queensland Government, *Proposed Saraji East Mining Lease Project* (Web Page) <<https://www.qld.gov.au/environment/management/environmental/eis-process/projects/current-projects/saraji-east-mining-lease-project>>.
74. Australian Government, *Peak Downs Mine Continuation Project* (Web Page) <<https://epbcpublicportal.awe.gov.au/all-referrals/project-referral-summary/?id=fc600315-522f-ed11-9db1-002248159144%20>>.
75. BHP, *Planning Approval Process for Mt Arthur Coal Commences* (Web Page, 30 March 2021) <<https://www.bhp.com/news/articles/2021/03/planning-approval-process-for-mt-arthur-coal-commences>>.
76. Australian Government, *Caval Ridge Mine Horse Pit Extension, Bowen Basin* (Web Page) <<https://epbcpublicportal.awe.gov.au/all-referrals/project-referral-summary/?id=1257513b-3e06-ec11-80cb-00505684c563>>.
77. South32 Community, *Illawarra Metallurgical Coal* (Web Page) <<https://www.community.south32.net/illawarra-metallurgical-coal>>.

# References

78. South32, *Southern Lease Mining Project* (Web Page) <<https://www.south32.net/what-we-do/our-locations/australia/gemco/southern-lease-mining-project>>.
79. Newcrest Mining, *Havieron* (Web Page) <<https://www.newcrest.com/our-assets/havieron>>.
80. Fortescue Metals Group, *Exploration* (Web Page) <<https://fortescue.com/what-we-do/our-operations/exploration>>; Fortescue, *FY23 Annual Report* (Report, 2023) 25 <<https://fortescue.com/investors/announcements-and-reports>>.
81. Rio Tinto, *Iron Ore Western Australia* (Web Page) <<https://www.riotinto.com/en/operations/australia/iron-ore-western-australia#:~:text=Western%20Range&text=Construction%20is%20expected%20to%20begin,our%20existing%20Paraburdoo%20mining%20hub>>; Rio Tinto, *Rio Tinto to increase gudai-darri iron ore mine capacity* (Web Page, 18 October 2023) <<https://www.riotinto.com/en/news/releases/2023/rio-tinto-to-increase-gudai-darri-iron-ore-mine-capacity>>.
82. UN High-Level Legal Expert Group on the Net Zero Emissions Commitments of Non-State Entities, *Integrity Matters: Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions* (Report) 7 <<https://www.un.org/sites/un2.un.org/files/high-level-expert-group-update7.pdf>>.
83. Intergovernmental Panel on Climate Change (IPCC), *TAR Climate Change 2001: Impacts, Adaptation, and Vulnerability, 3. Developing and Applying Scenarios* (Report, 2001) <<https://www.ipcc.ch/report/ar3/wg2/chapter-3-developing-and-applying-scenarios/>>; Intergovernmental Panel on Climate Change (IPCC), *Special Report on Emissions Scenarios* (Report, 2000) 3 <<https://www.ipcc.ch/site/assets/uploads/2018/03/sres-en.pdf>>.
84. Intergovernmental Panel on Climate Change (IPCC), *Future Climate Changes, Risks and Impacts* (Web Page) <[https://ar5-syr.ipcc.ch/topic\\_futurechanges.php](https://ar5-syr.ipcc.ch/topic_futurechanges.php)>.
85. This scenario meets the UN Sustainable Development Goals and is consistent with limiting the global temperature rise to 1.5 degrees with no or limited temperature overshoot (with a 50% probability), in line with reductions assessed in the IPCC Sixth Assessment Report. (cont.)
85. (cont.) International Energy Agency (IEA), *Net Zero Emissions by 2050 Scenario (NZE)* (Web Page) <<https://www.iea.org/reports/global-energy-and-climate-model/net-zero-emissions-by-2050-scenario-nze>>.
86. Glencore, *Annual Report 2022* (Report) 25 <<https://www.glencore.com/publications>>.
87. Shell has chosen a scenario with earlier action and low-overshoot. It then calculated carbon intensity for each of the remaining scenarios by total final energy consumption, with electricity represented as a fossil fuel equivalent. It set a starting point by indexing the resulting carbon intensities to a common value of 100 in 2016 to remove the impact of differences between Shell's historical net carbon intensity and the intensities calculated from the IPCC scenarios. The pathway was constructed using a range of carbon intensity reductions over time. Outlying values at the top and bottom were removed to establish the final pathway. Shell, *Annual Report and Accounts* (Report, 2022) 99 <<https://www.shell.com/about-us/annual-publications/annual-reports-download-centre.html>>.
88. Chevron, *Climate Change Resilience Report* (Report, 2021) 33 <<https://www.chevron.com/-/media/chevron/sustainability/documents/2021-climate-change-resilience-report.pdf>>.
89. Business Council of Alberta, *Emissions Intensity and Absolute Emissions: What They Are and Why It Matters* (Web Page, 17 June 2021) <<https://businesscouncilab.com/insights-category/analysis/emissions-intensity-and-absolute-emissions-what-they-are-and-why-it-matters/>>.
90. Ibid.
91. Climate Council, *What Does Net Zero Emissions Mean?* (Web Page, 14 April 2023) <<https://www.climatecouncil.org.au/resources/what-does-net-zero-emissions-mean/>>.
92. GRESB, *How to Define Boundaries for GHG Reporting* (Web Page, 19 August 2021) <<https://www.gresb.com/nl-en/how-to-define-boundaries-for-ghg-reporting/>>.
93. UN High-Level Legal Expert Group on the Net Zero Emissions Commitments of Non-State Entities, *Integrity Matters: Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions* (Report) 7 <<https://www.un.org/sites/un2.un.org/files/high-level-expert-group-update7.pdf>>.



# References

94. BHP, *Climate Change* (Web Page) <<https://www.bhp.com/sustainability/climate-change>>
95. Whitehaven Coal, *Sustainability Report 2022* 41 (Report, September 2022) <<https://whitehavencoal.com.au/whitehaven-coal-sustainability-report-2022/>>.
96. Newcrest Mining Limited, *Sustainability Report 2022* (Report, November 2022) 46 <[https://www.newcrest.com/investor-centre/results-reports?report\\_type=8](https://www.newcrest.com/investor-centre/results-reports?report_type=8)>.
97. Michael Mazengarb, 'Gaslighting Australia: How the Gas Industry Is Driving Up Emissions', *Renew Economy* (online, 2 June 2020) <<https://reneweconomy.com.au/gaslighting-australia-how-gas-industry-is-driving-up-emissions-18543/>>.
98. Bill Hare, *Factchecking the APPEA* (Briefing, 8 June 2022) 2-3.
99. South32 Limited, *Annual Report 2023* (Report, 2023) 17 <<https://www.south32.net/investors/annual-reporting-suite>>.
100. Chevron Australia, *Wheatstone Project Boosts WA Domgas Supply* (Web Page, 2023) <<https://australia.chevron.com/news/2023/wheatstone-project-boosts-wa-domgas-supply>>.
101. World Economic Forum, *Grey, blue, green – why are there so many colours of hydrogen?* (Web Page, July 2021) <<https://www.weforum.org/agenda/2021/07/clean-energy-green-hydrogen/>>.
102. Ibid.
103. Climate Council, *The Challenges in Pursuit of a Green Hydrogen Economy* (Web Page, 8 October 2021) <<https://climatecouncil.com/articles/the-challenges-in-pursuit-of-a-green-hydrogen-economy/>>.
104. National Grid, *Hydrogen Colour Spectrum*, National Grid (Web Page) <<https://www.nationalgrid.com/stories/energy-explained/hydrogen-colour-spectrum>>.
105. Ibid.
106. World Economic Forum, *Grey, blue, green – why are there so many colours of hydrogen?* (Web Page, July 2021) <<https://www.weforum.org/agenda/2021/07/clean-energy-green-hydrogen/>>.
107. National Grid, *Hydrogen Colour Spectrum*, National Grid (Web Page) <<https://www.nationalgrid.com/stories/energy-explained/hydrogen-colour-spectrum>>.
108. UN High-Level Legal Expert Group on the Net Zero Emissions Commitments of Non-State Entities, *Integrity Matters: Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions* (Report) 7 <<https://www.un.org/sites/un2.un.org/files/high-level-expert-group-update7.pdf>>.
109. LobbyMap, *BHP and Rio Tinto: Their Industry Groups and Climate Lobbying* (Web Page, May 2020) <<https://lobbymap.org/report/-a308b014a206c78c330a5620d22fb117>>.
110. LobbyMap, *Fossil Fuel Climate Lobbying Update 12* (Web Page, September 2023) <[https://influencemap.org/briefing/Fossil-Fuel-Climate-Lobbying-Update-12-23557#briefing\\_section-23582](https://influencemap.org/briefing/Fossil-Fuel-Climate-Lobbying-Update-12-23557#briefing_section-23582)>.
111. Ibid.
112. Whitehaven Coal, *Whitehaven Coal Sustainability Report 2022* (Report, September 2022) 45 <<https://whitehavencoal.com.au/wp-content/uploads/2022/09/Whitehaven-Coal-Sustainability-Report-2022.pdf>>.
113. Ibid 30.
114. South32 Limited, *Annual Report 2023* (Report, 2023) 111 <<https://www.south32.net/investors/annual-reporting-suite>>.
115. Ibid.
116. Glencore, *Annual Report 2022* (Report) 25 <<https://www.glencore.com/publications>>.
117. Australian Government Treasury, *Climate-related financial disclosure* (Consultation paper, December 2022) <[https://treasury.gov.au/sites/default/files/2022-12/c2022-314397\\_0.pdf](https://treasury.gov.au/sites/default/files/2022-12/c2022-314397_0.pdf)>.
118. Australian Prudential Regulation Authority (APRA), *Prudential Practice Guide CPG 229 Climate Change Financial Risks* (Report, November 2021) <<https://www.apra.gov.au/draft-prudential-practice-guide-on-climate-change-financial-risks>>.
119. Shell claims to consider GHG emissions and climate change material risks. Accordingly, it monitors the risks related to commercial, regulatory, societal (including litigation) and physical risks. (cont.)

# References

119. Physical effects of climate change identified include: increases in temperature and sea levels and fluctuations in water levels. There are broad considerations in relation to rising concerns about climate change and the effects of the energy transition on the business: Shell, *Strategic Report - Risk Factors* (Web Page, 2022) <<https://reports.shell.com/annual-report/2022/strategic-report/risk-factors.html?tabc=1e4>>. There is an exceptionally detailed outline of the climate risk management strategy without much detail on what the actual physical risks are: Shell, *Our Journey to Achieving Net Zero - Climate Risk Management* (Web Page, 2022) <<https://reports.shell.com/annual-report/2022/strategic-report/our-journey-to-achieving-net-zero/climate-risk-management.html>>. Note 4 – climate change and energy transition again describe how Shell considers climate related impacts however little detail is provided as what physical risks Shell identifies: Shell, *Consolidated Financial Statements - Notes: Climate Change and Energy Transition* (Web Page, 2022) <<https://reports.shell.com/annual-report/2022/consolidated-financial-statements/notes/climate-change-and-energy-transition.html>>. Potential acute climate related physical risks are identified as flooding and droughts, wildfires and more severe tropical storms, while chronic risks include rising temperatures and rising sea levels. Shell notes that it has performed a **limited analysis** addressing a range of typical climate features for a select group of assets as it is **an emerging area of risk assessment**.
120. References made in the climate change resilience report however not an in-depth analysis: Chevron Corporation, *Climate Change Resilience Report* (Report, 2023) <<https://www.chevron.com/-/media/chevron/sustainability/documents/climate-change-resilience-report.pdf>>.
121. In its 2022 Annual Report BP Australia briefly refers to physical risks at pages 53, 57. Risks such as extreme weather, flooding, extreme precipitation, temperatures and sea level rise, water scarcity: BP, *Annual Report and Form 20-F 2022* (Report, 2022) <<https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/investors/bp-annual-report-and-form-20f-2022.pdf>>.
119. Referred to without analysis in the Annual Report: New Hope Group, *Annual Report 2023* (Report, 2023) 60 <<https://newhopegroup.com.au/wp-content/uploads/2023/10/New-Hope-Group-Annual-Report-2023.pdf>>.
120. While Centennial support the TCFD recommendations, it is preparing to report under the framework in 2023. An internal TCFD working group will be established comprising key internal stakeholders. Reference is made to identifying and assessing climate-related risk being embedded in the enterprise-wide risk management framework, with most significant risks reviewed annually. In 2021 Centennial and Banpu assessed climate risk and opportunities using TCFD and identified change in precipitation patterns and change in frequency and severity of natural disasters: Centennial Coal, *Centennial 2021 Sustainability Report* (Report, November 2022) 13 <<https://www.centennialcoal.com.au/wp-content/uploads/2022/11/Centennial-2021-Sustainability-Report.pdf>>.
121. Physical Risks are identified in the 2022 Annual Report to include (but are not limited to) extreme weather events, fires, access to water, power supply, damage to assets and indirect impacts from supply chain disruption: Yancoal, *Annual Report 2022* (Report, 2022) 146 <<https://www.yancoal.com.au/content/Document/Yancoal%202022%20Annual%20Report.pdf>>.
122. Yancoal discuss the impacts of the weather patterns on production, business cost and mine site environmental compliance issues Yancoal, *Annual Report 2022* (Report, 2022) 4 <<https://www.yancoal.com.au/content/Document/Yancoal%202022%20Annual%20Report.pdf>>.
123. While Centennial support the TCFD recommendations, it is preparing to report under the framework in 2023. An internal TCFD working group will be established comprising key internal stakeholders. Reference is made to identifying and assessing climate-related risk being embedded in the enterprise-wide risk management framework, with most significant risks reviewed annually. In 2021 Centennial and Banpu assessed climate risk and opportunities using TCFD and identified change in precipitation patterns and change in frequency and severity of natural disasters: Centennial Coal, *Centennial 2021 Sustainability Report* (Report, November 2022) 13 <<https://www.centennialcoal.com.au/wp-content/uploads/2022/11/Centennial-2021-Sustainability-Report.pdf>>.

# References

124. Physical Risks are identified in the 2022 Annual Report to include (but are not limited to) extreme weather events, fires, access to water, power supply, damage to assets and indirect impacts from supply chain disruption: Yancoal, *Annual Report 2022* (Report, 2022) 146 <<https://www.yancoal.com.au/content/Document/Yancoal%202022%20Annual%20Report.pdf>>. Yancoal discuss the impacts of the weather patterns on production, business cost and mine site environmental compliance issues Yancoal, *Annual Report 2022* (Report, 2022) 4 <<https://www.yancoal.com.au/content/Document/Yancoal%202022%20Annual%20Report.pdf>>.
125. Whitehaven claim to be one of the first companies to report in accordance with the TCFD. Physical climate risks are acknowledged in both its 2022 Annual Report and 2022 Sustainability Report. Identified risks include increased severity and frequency of weather events such as cyclones, hurricanes, droughts or floods, sustained higher temperatures, sea level rise and chronic heat waves: Whitehaven Coal, *Whitehaven Coal Sustainability Report 2022* (Report, September 2022) 33 <<https://whitehavencoal.com.au/wp-content/uploads/2022/09/Whitehaven-Coal-Sustainability-Report-2022.pdf>>. Whitehaven rely on IEA's Stated Policies Scenario (STEPS) and Sustainable Development Scenario (SDS) for modelling resilience. Whitehaven refers throughout its Annual Report to flood impacts and winds and swell on the productivity of its business to FY22: Whitehaven, *Annual Report 2022* (Report, 2022) <<https://whitehavencoal.com.au/investors/results-centre/>>.
126. Glencore support the TCFD and accordingly include climate related physical risk reporting in its Annual Report. Glencore identifies: extreme weather events and water-related risks such as flooding or water scarcity. Potential impacts on the group include: loss of life, significant environmental damage, or social impacts on livelihoods arising from such an event may have significant negative impacts on reputation. Suspension of production arising from an event for an extended period could have a significant impact. Production may be reduced or may have to cease or require greater infrastructure spending for the inclusion of new design standards: Glencore, *Annual Report 2022* (Report, 2022) 101 <<https://www.glencore.com/publications>>. (cont.)
126. (cont.) Physical impacts are mentioned briefly in the Climate Change Report 2021: Glencore, *Climate Change Report 2021* (Report, 2021) 11 <<https://www.glencore.com/publications>>.
127. BHP's sustainability page notes that its operations are exposed to physical climate related risk which may be exacerbated by climate change. Asset-level impact evaluations have identified flooding of mine and/or key production infrastructure due to extreme precipitation; disruption and/or damage to port and coastal infrastructure and operations due to higher sea levels, cyclones, storm surge and changes in marine ecosystems; disruption and/or damage to electrical infrastructure due to extreme temperatures; disruption and/or damage to water supply infrastructure due to extreme precipitation or flooding; workforce health and safety incidents due to extreme events such as heat. Impacts on value chain such as the delivery and storage of critical production inputs and supplies and ability to get products to market: BHP Group Limited, *Physical Climate-related Risk and Adaptation* (Web Page) <<https://www.bhp.com/sustainability/climate-change/physical-climate-related-risk-and-adaptation>>.
128. Refer to climate related physical risk and nature-related risk. High level themes identified relate to land and terrain, physical assets and infrastructure, water and transport routes. No real analysis: South32 Limited, *Climate Change Action Plan 2022* (Report, 2022) 74 <<https://www.south32.net/sustainability/climate-change>>.
129. Continued to develop the work plan to assess and validate physical climate change risks, including disclosures aligned to TCFD, as reported in: Newcrest, *Sustainability Report 2021* (Report, November 2021) <[https://www.newcrest.com/investor-centre/results-reports?report\\_type=8](https://www.newcrest.com/investor-centre/results-reports?report_type=8)>. Climate related physical risks identified as changing rainfall patterns, affecting both average rainfall and seasonality factors could impact water availability, warming temperatures that lead to more extreme heat days and heat stress could affect health and safety concerns and change energy demands, changes to the intensity and frequency of extreme events such as tropical cyclones and storm surges which could affect safety, production and logistics. (cont.)

# References

129. (cont.) Newcrest, *Sustainability Report 2022* (Report, November 2022) 46  
<[https://www.newcrest.com/investor-centre/results-reports?report\\_type=8](https://www.newcrest.com/investor-centre/results-reports?report_type=8)>; Newcrest Mining Limited, *Annual Report 2022* (Report, November 2022)  
<[https://www.newcrest.com/sites/default/files/2022-11/221004\\_Annual%20Report%202022\\_0.pdf](https://www.newcrest.com/sites/default/files/2022-11/221004_Annual%20Report%202022_0.pdf)>.  
Intrinsic physical risks were identified for Newcrest's operating sites: Cadia – water scarcity, flood, extreme heat, heat stress, wildfire and wind; Telfer – water scarcity, flood, extreme heat, heat stress, wildfire, wind and cyclones; Red Chris – water scarcity, flood, wildfire, wind and extreme cold; and Lihir – water scarcity, flood, extreme heat, heat stress, wind and sea level rise:  
Newcrest Mining Limited, *Annual Report 2022* (Report, November 2022) 80  
<[https://www.newcrest.com/sites/default/files/2022-11/221004\\_Annual%20Report%202022\\_0.pdf](https://www.newcrest.com/sites/default/files/2022-11/221004_Annual%20Report%202022_0.pdf)>.
130. Fortescue's Pilbara operations will be directly impacted by an increase in the intensity of extreme heat, rain, drought and water scarcity. Extreme heat can lead to heat stress and exposure to dangerous heat-humidity levels, while reduced aquifer recharge and water availability could impact ore beneficiation and dust suppression. Additionally, cyclones, flooding events, sea level rise and storm surge events could affect Fortescue's value chain. These events could also damage ports, make critical transport routes inaccessible and cause power outages. Risk was assessed on a number of emission scenarios, 1.5oC, 2oC to 3oC and over 4oC by 2100:  
Fortescue Metals Group, *FY23 Climate Change Report* (Report, 2023) 31-32  
<<https://fortescue.com/investors/announcements-and-reports>>.
131. Rio Tinto has established a framework to quantify physical climate risk for assets and product groups. The physical climate risk and resilience assessments consider a plausible high-emissions future equivalent to +4oC by 2100: Rio Tinto Group, *Climate Change Report 2022* 30 (Report)  
<<https://www.riotinto.com/en/invest/reports/climate-change-report>>. Testing of each site and closure plans are considered. Changes in tropical cyclone activity, extreme precipitation, flooding, extreme heat and sea level rise have been identified are potential to have impacts on damage to critical coastal infrastructure, inability and or interruption of exporting product, increased vulnerability of people and communities. (cont.)
131. (cont.) Projected changes in winter precipitation and increased temperatures could result in more frequent floodgate operations causing damage to critical dam infrastructure while decreased rain in summer together with increase in temperatures could increase forest fires, limiting access to hydropower plants causing power shortages. Lower precipitation and higher temperatures could also lead to lower water levels causing lower water flows through hydropower plants reducing output and production loss. Modelling for tailings dams is carried out on a site-by-site basis to identify and quantify credible failure modes and for analysis of physical risk, short term is defined as 2030, medium term as 2050 and long term as 2100: Rio Tinto Group, *Climate Change Report 2022* 6, 28-31 (Report)  
<<https://www.riotinto.com/en/invest/reports/climate-change-report>>.
132. Glencore, *Annual Report 2022* (Report) 101  
<<https://www.glencore.com/publications>>.
133. Shell, *Annual Report and Accounts* (Report, 2022) 88 <<https://www.shell.com/about-us/annual-publications/annual-reports-download-centre.html>>.
134. Australian Securities and Investments Commission (ASIC), *Managing climate risk for directors* (Web Page, 1 February 2021)  
<<https://asic.gov.au/about-asic/news-centre/articles/managing-climate-risk-for-directors/>>.
135. Australian Securities and Investments Commission (ASIC), *Corporate governance update: climate change risk and disclosure* (Web Page, 14 October 2021) <<https://asic.gov.au/about-asic/news-centre/speeches/corporate-governance-update-climate-change-risk-and-disclosure/>>.
136. For example: Australian Competition and Consumer Commission (ACCC), *Environmental and sustainability claims: Draft guidance for business* (Report, July 2023)  
<[https://www.accc.gov.au/system/files/Environmental%20and%20sustainability%20claims%20-%20draft%20guidance%20for%20business\\_web.pdf](https://www.accc.gov.au/system/files/Environmental%20and%20sustainability%20claims%20-%20draft%20guidance%20for%20business_web.pdf)>; Australian Competition and Consumer Commission (ACCC), *Greenwashing by businesses in Australia: Findings of the ACCC's internet sweep of environmental claims* (Report, March 2023)  
<<https://www.accc.gov.au/system/files/Greenwashing%20by%20businesses%20in%20Australia.pdf>>; Australian Securities and Investments Commission (ASIC), *ASIC's recent greenwashing interventions* (Report 763, May 2023)  
<<https://download.asic.gov.au/media/ao0lz0id/rep763-published-10-may-2023.pdf>>.

# References

137. Glencore, *Climate Change* (Web Page) <<https://www.glencore.com/sustainability/esg-az/climate-change>>.
138. Ibid. Glencore, *Annual Report 2022* (Report) 11 <<https://www.glencore.com/publications>>.
139. Glencore Australia, *Coal Projects* (Web Page) <<https://www.glencore.com.au/operations-and-projects/coal/projects>>.
140. New Hope Group, *Climate and Global Energy Transition Statement* (Report, October 2022) <<https://newhopegroup.com.au/sustainability/>>.
141. New Hope Group, *Operations* (Web Page) <<https://newhopegroup.com.au/operations/>>.
142. New Hope Group, *Operations* (Web Page) <<https://newhopegroup.com.au/operations/>>.
143. Clean Energy Finance Corporation (CEFC), *Going Green for Growth: The Business Case for Reducing Emissions in Australian Mines* (Media Release, 1 September 2022) <<https://www.cefc.com.au/media/media-release/going-green-for-growth-the-business-case-for-reducing-emissions-in-australian-mines/>>.
144. International Energy Agency (IEA), *Net Zero by 2050: A Roadmap for the Global Energy Sector* (Report, October 2021) 3 <<https://www.iea.org/reports/net-zero-by-2050>>.
145. United Nations High-Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities, *Integrity Matters: Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions* (Report, 2022) 19 <[https://www.un.org/sites/un2.un.org/files/high-level\\_expert\\_group\\_n7b.pdf](https://www.un.org/sites/un2.un.org/files/high-level_expert_group_n7b.pdf)>.
146. Frederic Hans et al., *Net Zero Stocktake 2022: Assessing the Status and Trends of Net Zero Target Setting Across Countries, Sub-National Governments and Companies* (Report, June 2022) 17 <<https://ca1-nzt.edcdn.com/Net-Zero-Tracker/Net-Zero-Stocktake-Report-2022.pdf?v=1655074300>>.
147. United Nations High-Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities, *Integrity Matters: Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions* (Report, 2022) 12 <[https://www.un.org/sites/un2.un.org/files/high-level\\_expert\\_group\\_n7b.pdf](https://www.un.org/sites/un2.un.org/files/high-level_expert_group_n7b.pdf)>.
148. The law regarding misleading and deceptive conduct in Australia is governed by sections 18 and 29 of the *Australian Consumer Law (ACL)*, schedule 2 to the *Competition and Consumer Act 2010* (Cth); section 1041H of the *Corporations Act 2001* (Cth) and section 12DA of the *Australian Securities and Investments Commission Act 2001* (Cth).
149. Clean Energy Regulator, *Greenhouse Gases and Energy* (Web Page, 14 April 2023) <<https://www.cleanenergyregulator.gov.au/NGER/About-the-National-Greenhouse-and-Energy-Reporting-scheme/Greenhouse-gases-and-energy>>.
150. Australian Competition and Consumer Commission (ACCC), *Greenwashing by businesses in Australia: Findings of the ACCC's internet sweep of environmental claims* (Report, March 2023) <<https://www.accc.gov.au/system/files/Greenwashing%20by%20businesses%20in%20Australia.pdf>>.
151. Australian Competition and Consumer Commission (the **ACCC**) deals with breaches of section 18 of the Australian Consumer Law; the Australian Securities and Investments Commission (**ASIC**) deals with breaches of 1041H of the Corporations Act 2001; Ad Standards deal with breaches of the Environmental Claims Code which is a standard adopted by the industry as a self-regulating standard.
152. Australian Competition and Consumer Commission (ACCC), *Environmental and sustainability claims: Draft guidance for business* (Report, July 2023) <[https://www.accc.gov.au/system/files/Environmental%20and%20sustainability%20claims%20-%20draft%20guidance%20for%20business\\_web.pdf](https://www.accc.gov.au/system/files/Environmental%20and%20sustainability%20claims%20-%20draft%20guidance%20for%20business_web.pdf)>.
153. Ibid.
154. Australian Securities and Investments Commission (ASIC), *ASIC announces enforcement priorities for 2023* (Media Release, 3 November 2022) <<https://asic.gov.au/about-asic/news-centre/find-a-media-release/2022-releases/22-302mr-asic-announces-enforcement-priorities-for-2023/>>.

# References

155. Australian Securities and Investments Commission (ASIC), *Update on ASIC's recent greenwashing actions* (Media Release, 10 May 2023) <<https://asic.gov.au/about-asic/news-centre/find-a-media-release/2023-releases/23-121mr-update-on-asic-s-recent-greenwashing-actions/>>.
156. Ibid.
157. Australian Securities and Investments Commission (ASIC), *ASIC's recent greenwashing interventions* (Report 763, May 2023) <<https://download.asic.gov.au/media/ao0lz0id/report763-published-10-may-2023.pdf>>.
158. Ibid.
159. Ad Standards, *Environmental Claims* (Web Page) <<https://adstandards.com.au/issues/environmental-claims>>.