



**BHP**

**Climate  
Transition  
Action Plan  
2021**

# Contents

<b>Executive summary</b>	<b>4</b>
<b>1. Pursuing net zero</b>	<b>7</b>
Our role and the opportunity to act	7
A suite of actions to drive results	10
<b>2. Our Scope 1 and Scope 2 emissions position and performance</b>	<b>10</b>
Scope 1 and Scope 2 emissions profile	10
FY2021 progress	11
Carbon offset strategy	12
<b>3. Scope 3 emissions position and performance</b>	<b>12</b>
Scope 3 emissions profile	13
Energy products	13
Procurement	14
Maritime	15
Steelmaking	15
Future facing commodities	18
<b>4. Assessing capital alignment with a 1.5°C world</b>	<b>19</b>
Green revenue	19
<b>5. Just transition</b>	<b>20</b>
<b>6. Climate policy engagement</b>	<b>21</b>
<b>7. Climate governance</b>	<b>22</b>
Board skills and experience	22
Executive remuneration	22
Stakeholder engagement	22
Management authority	22
<b>8. TCFD disclosure</b>	<b>22</b>
<b>Glossary</b>	<b>23</b>
<b>Reporting terms</b>	<b>24</b>
<b>Abbreviations key</b>	<b>25</b>



## The Climate Transition Action Plan 2021 is available at bhp.com

BHP Group Limited. ABN 49 004 028 077. Registered in Australia. Registered office: 171 Collins Street, Melbourne, Victoria 3000, Australia. BHP Group Plc. Registration number 3196209. Registered in England and Wales. Registered office: Nova South, 160 Victoria Street London SW1E 5LB United Kingdom. Each of BHP Group Limited and BHP Group Plc is a member of the Group. BHP is a Dual Listed Company structure comprising BHP Group Limited and BHP Group Plc. The two entities continue to exist as separate companies but operate as a combined group known as BHP.

The headquarters of BHP Group Limited and the global headquarters of the combined Group are located in Melbourne, Australia. The headquarters of BHP Group Plc are located in London, United Kingdom. Both companies have identical Boards of Directors and are run by a unified management team. Throughout this publication, the Boards are referred to collectively as the Board. Shareholders in each company have equivalent economic and voting rights in the Group as a whole.

In this BHP Climate Transition Action Plan (Plan), the terms 'BHP', the 'Company', the 'Group', 'our business', 'organisation', 'we', 'us', 'our' and 'ourselves' refer to BHP Group Limited, BHP Group Plc and, except where the context otherwise requires, their respective subsidiaries as defined in note 13 'Related undertakings of the Group' in section 3.2 of the BHP Annual Report 2021 available at [bhp.com/annualreport](http://bhp.com/annualreport). Those terms do not include non-operated assets.

This Plan covers BHP's assets (including those under exploration, projects in development or execution phases, sites and closed operations) that have been wholly owned and/or operated by BHP and that have been owned as a joint venture<sup>1</sup> operated by BHP (referred to in this Plan as 'operated assets' or 'operations') during the period from 1 July 2020 to 30 June 2021. Our functions are also included.

BHP also holds interests in assets that are owned as a joint venture but not operated by BHP (referred to in this Plan as 'non-operated joint ventures' or 'non-operated assets'). Notwithstanding that this Plan may include production, financial, greenhouse gas emissions and other information from non-operated assets, non-operated assets are not included in the BHP Group and, as a result, statements regarding our operations, assets and values apply only to our operated assets unless stated otherwise.

### Forward looking statements

This Plan has been prepared for submission to a shareholder advisory vote at the 2021 Annual General Meetings of BHP. It has not been prepared as financial or investment advice or to provide any guidance in relation to the future performance of BHP.

This Plan contains forward looking statements, including, but not limited to: statements regarding trends in commodity prices and supply and demand for commodities; plans, strategies and objectives of management; assumed long-term scenarios; potential global responses to climate change; regulatory and policy developments; the development of certain technologies; the potential effect of possible future events on the value of the BHP portfolio and the plans, strategies and objectives of management.

Forward looking statements may be identified by the use of terminology, including, but not limited to, 'intend', 'aim', 'project', 'see', 'anticipate', 'expect', 'estimate', 'plan', 'objective', 'believe', 'expect', 'commit', 'may', 'should', 'need', 'must', 'will', 'would', 'continue', 'forecast', 'guidance', 'trend' or similar words. These statements discuss future expectations concerning the results of assets or financial conditions, or provide other forward looking information. In particular, such statements may include, but are not limited to, statements that relate to the purpose, goals, targets, plans and objectives of BHP, assumptions made in energy, and other forms of environmental transition scenarios, as well as statements about how we run our business, including our work with contractors and partners, and our work with suppliers and customers.

The forward looking statements in this Plan are based on management's current expectations and reflect judgements, assumptions, estimates and other the information available as at the date of this Plan and/or the date of the Group's planning processes or scenario analysis processes. There are inherent limitations with scenario analysis and it is difficult to predict which, if any, of the scenarios might eventuate. Scenarios do not constitute definitive outcomes for us. Scenario analysis relies on assumptions that may or may not be, or prove to be, correct and may or may not eventuate, and scenarios may be impacted by additional factors to the assumptions disclosed.

Additionally, forward looking statements do not represent guarantees or predictions of future performance, and involve known and unknown risks, uncertainties and other factors, many of which are beyond our control, and which may cause actual results to differ materially from those expressed in the statements contained in this Plan. BHP cautions against reliance on any forward looking statements or guidance.

For example, future revenues from our operations, projects or mines described in this Plan will be based, in part, upon the market price of the minerals, metals or petroleum produced, which may vary significantly from current levels. These variations, if materially adverse, may affect the timing or the feasibility of the development of a particular project, the expansion of certain facilities or mines, or the continuation of existing operations.

There are a number of other factors that may have an adverse effect on our results or operations, including those identified in the risk factors discussed in BHP's filings with the US Securities and Exchange Commission (the 'SEC') (including in Annual Reports on Form 20-F) which are available on the SEC's website at [www.sec.gov](http://www.sec.gov).

Except as required by applicable regulations or by law, BHP does not undertake any obligation to publicly update or review any forward looking statements, whether as a result of new information or future events. Forward looking statements speak only as of the date of this Plan or the date planning process assumptions or scenario analysis assumptions were adopted, as relevant. Past performance cannot be relied on as a guide to future performance.

### Emissions data

Due to the inherent uncertainty and limitations in measuring greenhouse gas (GHG) emissions under the calculation methodologies used in the preparation of such data, all GHG emissions data or references to GHG emissions volumes (including ratios or percentages) in this Plan are estimates. There may also be differences in the manner that third parties calculate or report GHG emissions data compared to BHP, which means that third party data may not be comparable to our data. For information on how we calculate our GHG emissions, see the BHP Scope 1, 2 and 3 GHG Emissions Calculation Methodology, available at [bhp.com/climate](http://bhp.com/climate).

### No offer of securities

Nothing in this Plan should be construed as either an offer or a solicitation of an offer to buy or sell BHP securities in any jurisdiction, or be treated or relied upon as a recommendation or advice by BHP.

### Reliance on third party information

The views expressed in this Plan contain information that has been derived from publicly available sources that have not been independently verified. No representation or warranty is made as to the accuracy, completeness or reliability of the information. This Plan should not be relied upon as a recommendation or forecast by BHP.

<sup>1</sup> References in this Plan to a 'joint venture' are used for convenience to collectively describe assets that are not wholly owned by BHP. Such references are not intended to characterise the legal relationship between the owners of the asset.

# Executive summary

The world faces a critical challenge to respond effectively to the risks of climate change. These risks are clear and pressing. Every segment of society – including business, government, investors, scientists and consumers – has a role to play. The world must prioritise action by focusing on sustained emissions reductions to enable global net zero<sup>2</sup> emissions.

BHP recognises the role we must play in helping the world achieve its decarbonisation ambitions. This Climate Transition Action Plan (Plan) provides an overview of our role and actions. It sets out our strategic approach to reduce greenhouse gas (GHG) emissions<sup>3</sup> to net zero<sup>4</sup> within our operations by 2050 and to work with customers and suppliers to support their own emissions reductions, consistent with the ambition of pursuing net zero in our value chain.

## Commitment and action

BHP has been taking action to address climate risks for decades. We first set emissions targets in 1996, have disclosed our emissions performance since 1998 and for more than 10 years have incorporated carbon price assessments in our operational and project planning. We were involved in one of the earliest trades under the European Union Emissions Trading Scheme in January 2005. In 2015, we were one of the first companies to disclose the potential impacts of a low carbon transition on demand for our products and our profitability<sup>5</sup>.

All of these steps were tied to our business strategy and understanding of long-term risks. This commercially-driven approach remains the defining feature of our climate planning.

We continue to make significant progress in our climate actions to date, including tackling reductions in our operational emissions<sup>6</sup> (where, for example, our iron ore production has the lowest emissions intensity in the sector<sup>7</sup>), supporting research into breakthrough low carbon solutions, investing in nature-based solutions including REDD and REDD+ projects<sup>8</sup>, and contributing to public policy debates on options to support economy-wide decarbonisation.

We have also extended our own emissions reduction commitments.<sup>9</sup> In 2020, we set a medium-term target to reduce our operational emissions by at least 30 per cent from FY2020 levels<sup>10</sup> by FY2030. Our long-term goal is to achieve net zero operational emissions by 2050. In 2020, we also set goals for 2030 of supporting the development of technologies and pathways capable of 30 per cent emissions intensity reduction in integrated steelmaking with widespread adoption expected post

2030, and supporting 40 per cent emissions intensity reduction of BHP-chartered shipping of our products.

## The challenge moving forward

For more than 130 years, BHP has been producing resources that have supported economic growth and made countless lives better, around the world. But the production of resources is not an end in itself; it is what these resources enable that makes the real difference: driving growth and development; underpinning materials for sanitation and healthcare; sustainable food production; developing industry; building vital infrastructure and allowing broad based wealth creation.

We recognise there is more to do. BHP's long-term success is dependent on a continued ability to attract people and capital and secure access to the resources the world needs, as well as providing continued value to those who rely on us. Our commodities are necessary for economic growth and for decarbonisation. Both outcomes are necessary if we are to achieve our purpose, 'To bring people and resources together to build a better world'.

Our portfolio is already well positioned to support the transition to a lower carbon world aligned with the Paris Agreement goals, while creating value for our shareholders and our broader stakeholders. We have an important role to play in supporting a transition to a high-growth, net zero emissions future: providing the essential building blocks for renewable energy and other decarbonisation infrastructure from our steelmaking materials (iron ore and metallurgical coal) and future facing commodities (including copper, nickel, and potash). To help enable a net zero emissions future, our commodities can play a vital part in accelerating the displacement of emissions intensive activities by lower emissions alternatives.

The scenario analysis in the BHP Climate Change Report 2020<sup>11</sup> indicates that our portfolio is resilient and, in fact, many of our commodities would further benefit from an accelerated decarbonisation pathway. In our 1.5°C scenario<sup>12</sup>, the world is expected to need almost twice as much steel in the next 30 years as it did in the last 30. To keep pace with the development of renewable technologies such as electric vehicles and solar energy, copper production will have to double over the next 30 years. Under our 1.5°C scenario, nickel production will have to increase nearly four-fold to power the next generation of battery technology. Finally, potash will be vital for more efficient agricultural practices, and to ease pressure on scarce arable

2 Net zero refers to a state in which the greenhouse gases (as defined in the Glossary) going into the atmosphere are balanced by removal out of the atmosphere. All further references to 'net zero' in this Plan for industry sectors, the global economy, transition or future, or similar, have this meaning. Refer to the Glossary at the end of this Plan for our definition of key terms.

3 All further references to 'emissions' in this Plan are to greenhouse gas (GHG) emissions.

4 Net zero includes the use of carbon offsets as required.

5 The BHP Climate Change: Portfolio Analysis 2015 report is available at [bhp.com](http://bhp.com)

6 'Operational emissions' in this Plan refers to the Scope 1 and Scope 2 emissions from our operated assets.

7 'Building a better world': BHP Climate change briefing presentation, 10 September 2020.

8 REDD and REDD+ are the United Nations programs for reducing emissions from deforestation and forest degradation.

9 These positions are expressed using terms that are defined in the Glossary, including the terms 'net zero', 'target' and 'goal'.

10 FY2020 baseline will be adjusted for any material acquisitions and divestments based on emissions at the time of the transaction. Carbon offsets will be used as required.

11 The BHP Climate Change Report 2020 is available at [bhp.com/climate](http://bhp.com/climate). There are inherent limitations with scenario analysis and it is difficult to predict which, if any, of the scenarios might eventuate. Scenarios do not constitute definitive outcomes for us. Scenario analysis relies on assumptions that may or may not be, or prove to be, correct and may or may not eventuate, and scenarios may be impacted by additional factors to the assumptions disclosed.

12 This scenario aligns with the Paris Agreement goals and requires steep global annual emissions reductions, sustained for decades, to stay within a 1.5°C carbon budget. Refer to the BHP Climate Change Report 2020 available at [bhp.com/climate](http://bhp.com/climate) for information about the assumptions, outputs and limitations of our 1.5°C Paris-aligned scenario.

land. Under any scenario, our industry will be critical to ensuring the rise of global living standards.

We also noted in our Climate Change Report 2020 the importance of producing these resources in a manner that delivers strong social value outcomes in our communities and through respectful relationships with local, regional and global stakeholders. Our view is driven by the belief that investors, communities and governments will rightly preference those companies that demonstrate economic efficiency, a long-term perspective and a willingness to act collectively to deliver value, including the achievement of the United Nations Sustainable Development Goals. The magnitude of the challenge to decarbonise and grow should demand nothing less.

However, despite a general alignment among stakeholders as to the urgency of, and the key changes required for, the transition, we remain concerned that collective action is not yet at a level required to achieve it. Current barriers to society achieving a net zero emissions future include the pace of technology development, new infrastructure, consumer behaviour change, policy settings and the investment required to fund the transition.

### Action across the value chain

All sectors of society and the economy will be impacted by, and must contribute to, the system-wide response to achieve net zero across the global value chain for the goods and services that support global living standards. BHP is no exception. Rapid decarbonisation is more feasible in some sectors versus others, and offsets will play an important role in balancing the system response to deliver net zero across the global economy. We recognise we have an important role to play in supporting emissions reductions in our own value chain as part of this system response.

Scope 1 emissions result from sources that are owned or controlled by BHP, for example, emissions from materials haulage, heat generation from combustion, etc. While exercising control over the source of these emissions, we are in some cases reliant on the development and availability of low emissions equipment in the marketplace. Scope 2 emissions are predominantly related to the generation of purchased electricity<sup>13</sup> consumed by our operations, and hence we are in some cases reliant on the development of options external to us, including renewable energy at scale. Scope 3 includes all other emissions outside of BHP's operated assets, resulting from the activities of our suppliers, logistics, customers and investments (such as non-operated joint ventures). Scope 3 emissions represent 96

per cent<sup>14</sup> of BHP's total reported emissions inventory (Scopes 1, 2 and 3). The most significant contributions to our reported Scope 3 inventory come from the emissions generated by steelmaking through the processing of iron ore and metallurgical coal.

In any net zero future, steel will play an essential role. It will be required for the infrastructure to support urban growth, industrial transformation, and the deployment of electric transport at global scale. The challenge for steelmaking is to produce this vital commodity to enable sustainable growth, while reducing the emissions footprint of the production process itself.

While Scope 3 emissions occur outside of our direct control, we seek opportunities to partner with others in the value chain to enable the reduction of these emissions consistent with aspirations for global net zero. In this Plan, we build on our 2020 commitments with an enhanced Scope 3 position that reflects the challenges and opportunities for our contribution (refer to the BHP's climate change goals and targets box<sup>15</sup> in section 1 'Pursuing net zero').

Overall, our aim is to position BHP to thrive in a low carbon world by minimising emissions from existing products while providing the commodities that the world needs to achieve a net zero future. To support this, we are working to align our portfolio and capital allocations and advocating for policy outcomes that enhance the global response to climate change.

### Transparency and accountability

The challenge the world faces is clear, but the solutions are complex - and urgent. For the world to meet its goals there must be transparency, clarity and a collective willingness to adjust and improve responses to achieve the most effective pathway to net zero. Governments must set clear commitments aligned with the Paris Agreement goals, underpinned by the long-term and equitable policy settings necessary to drive investment. Investors must allocate capital to activities that support decarbonisation and resilience building.

This Plan aims to show how we have evolved and adapted our approach, and our determination to contribute our part to global decarbonisation in line with our purpose.

We appreciate the engagement and insights of our investors and other stakeholders in the course of developing this Plan, which has been prepared with reference to the Climate Action 100+ Net-Zero Corporate Benchmark criteria, and builds upon and should be read with the BHP Climate Change Report 2020.

<sup>13</sup> Purchased electricity is defined as electricity that is purchased or otherwise brought into the organisational boundary of the reporting company. Scope 2 emissions physically occur at the facility where electricity is generated.

<sup>14</sup> Based on FY2021 data.

<sup>15</sup> These positions are expressed using terms that are defined in the Glossary, including the terms 'net zero', 'target' and 'goal'.

## Reducing operational emissions

Agreement for  
**50%**  
renewable electricity  
across our **Queensland  
Coal** mines



Agreement to build  
**Two solar farms**  
and a  
**battery storage  
system**

at **Nickel West's** Mt Keith and Leinster

Agreement for  
**Up to 50%**  
renewable electricity at  
**Nickel West** Kwinana  
refinery

Established a pipeline of decarbonisation projects at  
**all operated assets**  
with an estimated **US\$0.5-1 billion**  
spend over the next five years



Jointly launched the 'Charge on  
Innovation Challenge' to develop  
charging infrastructure for  
**battery-electric  
trucks**

## Value chain emissions



Committed to invest up to  
**US\$65 million**  
in partnerships focused on  
**steel decarbonisation**  
with three major steelmakers

Founding member of the  
**Global Centre  
for Maritime  
Decarbonisation**



Took part in the  
**first marine  
biofuel trial**  
involving an  
ocean-going vessel

Issued and awarded  
world's first LNG-fuelled  
Newcastlemax bulk  
carrier tender, with the  
aim of reducing emissions  
per voyage by

**over 30%**

## Transparency and accountability

Published the  
**BHP Climate  
Change Report  
2020**

Linked  
**10%**  
of executive remuneration  
under the Cash and Deferred  
Plan to performance on  
climate measures



# 1. Pursuing net zero

In this Plan, we describe our approach to operational and value chain emissions across the material segments in our emissions inventory. In FY2021, our total reported GHG emissions inventory was 418.7 million tonnes carbon dioxide equivalent (Mt CO<sub>2</sub>-e). This includes 16 Mt CO<sub>2</sub>-e of reported emissions from our operated assets (Scope 1 and Scope 2), and 402.5 Mt CO<sub>2</sub>-e of reported emissions from our value chain (Scope 3).

## Our role and the opportunity to act

Our ability to achieve emissions reductions across our operated assets and value chain varies depending on our capacity to affect outcomes. Our actions may be categorised according to the following framework:

- Leveraging our **control** in areas where the decisions we take can have direct impact on emissions
- Seeking opportunities to **partner** with suppliers, customers, and others to drive outcomes
- Using our **influence** to provide thought leadership to support decarbonisation

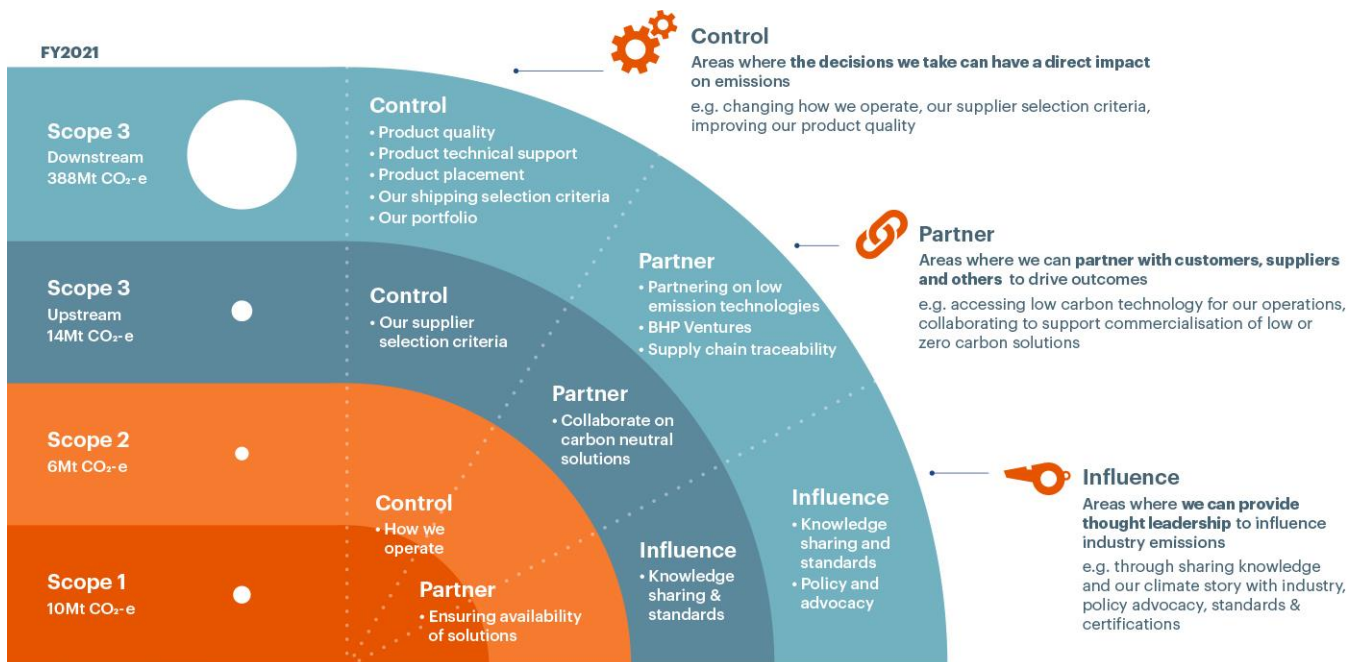
Figure 1 shows examples of actions and how they fall into this framework.

In section 2 '**Scope 1 and Scope 2 emissions position and performance**', we describe our FY2021 progress towards our operational emissions targets and long-term goal and ongoing actions. Section 3 '**Scope 3 emissions position and performance**' sets out our existing Scope 3 goals for 2030, and outlines our enhanced Scope 3 position.

For a summary of potential strategies to advance a pathway to net zero, and the role we can play, see Figure 2.

We have also summarised our existing goals and targets and our enhanced Scope 3 position in **BHP's climate change goals and targets box**, on the next page.

Figure 1: Control, Partner and Influence



---

## BHP's climate change goals and targets<sup>16</sup>

### Operational greenhouse gas (GHG) emissions (Scope 1 and Scope 2 from our operated assets)

Our commitments are:

- A short-term target to maintain operational GHG emissions at or below FY2017 levels<sup>17</sup> by FY2022, while we continue to grow our business
- A medium-term target to reduce operational GHG emissions by at least 30 per cent from FY2020 levels<sup>18</sup> by FY2030
- A long-term goal to achieve net zero<sup>19</sup> operational GHG emissions by 2050

### Value chain GHG emissions (Scope 3)

For value chain (Scope 3) emissions, we have previously announced our goals for 2030 are to:

- Support industry to develop technologies and pathways capable of 30 per cent emissions intensity reduction in integrated steelmaking, with widespread adoption expected post 2030
- Support 40 per cent emissions intensity reduction of BHP-chartered shipping of our products

In this Plan, we are building on these medium-term goals. Our position reflects the challenges and opportunities in line with our strategy for increasing long-term portfolio exposure towards future facing commodities. Our recent proposed portfolio changes<sup>20</sup> are aligned with our strategic approach to manage risk and maximise value. While these decisions were not made for the purpose of setting a future Scope 3 position, upon completion, the changes would lower our total Scope 3 emissions inventory (refer to 'Energy products' below in section 3).

As we shape our portfolio for the future, we are announcing our enhanced Scope 3 position.<sup>21</sup>

While we cannot ensure the outcome alone, for our reshaped portfolio,<sup>22</sup> we are pursuing the long-term goal of net zero<sup>23</sup> Scope 3 greenhouse gas (GHG) emissions by 2050 to support the transition that the world must make. To progress towards this goal:

- we are targeting net zero for the operational GHG emissions of our direct suppliers<sup>24</sup> and the emissions from maritime transport of our products; and
- recognising the particular challenge of a net zero pathway for customers' processing of our products,<sup>25</sup> which is dependent on the development and downstream deployment of solutions and supportive policy, we cannot set a target, but will continue to partner with customers and others to accelerate the transition to carbon neutral<sup>26</sup> steelmaking and other downstream processes. We will also support the value chain by pursuing carbon neutral production of our future facing commodities, such as copper, nickel and potash to provide the essential building blocks of a net zero transition.

We have therefore set these Scope 3 targets:<sup>27</sup>

- We will target net zero<sup>28</sup> by 2050 for the operational GHG emissions of our direct suppliers,<sup>29</sup> subject to the widespread availability of carbon neutral<sup>30</sup> goods and services to meet our requirements.
- We will target net zero<sup>31</sup> by 2050 for GHG emissions from all shipping<sup>32</sup> of our products,<sup>33</sup> subject to the widespread availability of carbon neutral<sup>34</sup> solutions including low/zero-emission technology on board suitable ships and low/zero-emission marine fuels.

---

16 These positions are expressed using terms that are defined in the Glossary, including the terms 'net zero', 'target' and 'goal'.

17 FY2017 baseline will be adjusted for any material acquisitions and divestments based on emissions at the time of the transaction. Carbon offsets will be used as required.

18 FY2020 baseline will be adjusted for any material acquisitions and divestments based on emissions at the time of the transaction. Carbon offsets will be used as required.

19 Net zero includes the use of carbon offsets as required.

20 On 17 August 2021, BHP announced it had entered into a merger commitment deed with Woodside to combine their respective oil and gas portfolios by an all-stock merger. Completion of the merger is subject to confirmatory due diligence, negotiation and execution of full form transaction documents, and satisfaction of conditions precedent including shareholder, regulatory and other approvals, and expected to occur in the second quarter of the 2022 calendar year, with an effective date of 1 July 2021. For more information, refer to the Joint Announcement 'Woodside and BHP to create a global energy company' by Woodside and BHP dated 17 August 2021, available at [bhp.com/investor-centre](http://bhp.com/investor-centre). On 28 June 2021, BHP announced its agreement with Glencore to divest its 33.3 per cent interest in Cerrejón, a non-operated energy coal joint venture in Colombia, with an effective economic date of 31 December 2020. Completion is subject to the satisfaction of customary competition and regulatory requirements and expected to occur in the first half of the 2022 calendar year.

21 This position is expressed using terms that are defined in the Glossary, including the terms 'net zero', 'target' and 'goal'.

22 Subject to completion of both of the divestment of our oil and gas business and the sale of our interest in Cerrejón.

23 Net zero includes the use of carbon offsets as required.

24 'Operational GHG emissions of our direct suppliers' means the Scope 1 and Scope 2 emissions of our direct suppliers included in BHP's Scope 3 reporting categories of purchased goods and services (including capital goods), fuel and energy related activities, business travel, and employee commuting.

25 In line with our reporting methodology for Scope 3 emissions, we define 'processing of our products' as emissions resulting from our customers' processing of our products comprising iron ore and metallurgical coal (steelmaking materials) and copper (assumed to be processed into copper wire for end use).

26 Carbon neutral includes all those greenhouse gas emissions as defined for BHP reporting purposes.

27 These targets are referable to a FY2020 baseline year, which will be adjusted for any material acquisitions and divestments based on emissions at the time of the transaction, and to reflect progressive refinement of the Scope 3 emissions reporting methodology. The targets' boundaries may in some cases differ from required reporting boundaries. Carbon offsets will be used as required.

28 Net zero includes the use of carbon offsets as required.

29 'Operational GHG emissions of our direct suppliers' means the Scope 1 and Scope 2 emissions of our direct suppliers included in BHP's Scope 3 reporting categories of purchased goods and services (including capital goods), fuel and energy related activities, business travel, and employee commuting.

30 Carbon neutral includes all those greenhouse gas emissions as defined for BHP reporting purposes.

31 Net zero includes the use of carbon offsets as required.

32 BHP-chartered and third party-chartered shipping.

33 Target excludes maritime transportation of products purchased by BHP.

34 Carbon neutral includes all those greenhouse gas emissions as defined for BHP reporting purposes.



**Figure 2: Overview of actions towards net zero and the role we play in each**

	1 Our operated assets	2 Procurement*	3 Maritime	4 Energy products**	5 Steelmaking	6 Future facing commodities***	7 Broader contribution
Mt CO <sub>2</sub> -e (FY2021)	16	10	7	76	301	5	N/A
Scope	S1+2	S3	S3	S3	S3	S3	N/A
Our actions so far	<ul style="list-style-type: none"> <li>C Purchasing renewable PPAs, carbon offsets</li> <li>C Study on Zero Emission Material Movement</li> <li>P Research on biofilters to reduce fugitive emissions</li> </ul>	<ul style="list-style-type: none"> <li>C Updating emissions reporting methodology in line with procurement taxonomy and spend</li> </ul>	<ul style="list-style-type: none"> <li>C World-first tender for lower emissions LNG-fuelled vessels</li> <li>P Exploring fuels (biofuel, ammonia, H<sub>2</sub>), tech (wind assistance)</li> <li>P S\$10m pledged for Singapore Global Centre for Maritime Decarbonisation</li> </ul>	<ul style="list-style-type: none"> <li>P Invest in CCUS, including US\$20m investment in CCUS Knowledge Centre and university R&amp;D</li> </ul>	<ul style="list-style-type: none"> <li>C Studying WAIO processing options</li> <li>C Ongoing technical marketing support to customers</li> <li>C Conducting steel decarbonisation investor roundtables</li> <li>P Approximately US\$65m in steel decarbonisation partnerships</li> <li>P Supporting steel decarbonisation research at the University of Newcastle</li> <li>I Joined Responsible Steel</li> </ul>	<ul style="list-style-type: none"> <li>P Piloting traceability solutions</li> <li>I Develop market placement for low emissions metals</li> <li>I Validating responsible production credentials</li> </ul>	<ul style="list-style-type: none"> <li>I Advocating for effective policy settings</li> <li>I Working with industry associations to build sector capability on climate change</li> <li>I Joined coalitions to advance climate action</li> </ul>
Current pipeline of actions	<ul style="list-style-type: none"> <li>C Further investment in renewables, PPAs</li> <li>C Studies on electrifying fleet, renewable fuels</li> <li>C Demand side energy usage optimisation</li> <li>P Green H<sub>2</sub> consortium with Anglo, FMG, Hatch</li> <li>P Fleet OEM collaboration</li> </ul>	<ul style="list-style-type: none"> <li>C Understand Tier 1 supplier carbon risks, roadmaps and targets</li> <li>C Add emissions profile to vendor selection criteria</li> <li>P Investigate abatement technologies in key categories</li> </ul>	<ul style="list-style-type: none"> <li>C Improving emissions data analytics</li> <li>C Enhancing our shipping selection criteria</li> <li>P On board energy efficiency technologies</li> <li>P Joined Getting to Zero maritime coalition</li> <li>I Advocating for appropriate increases to ambitions and regulations</li> </ul>	<ul style="list-style-type: none"> <li>P Investing in emerging technology through BHP Ventures</li> <li>P Green H<sub>2</sub> consortium with Anglo, FMG, Hatch</li> <li>P Investigate role of offsets</li> </ul>	<ul style="list-style-type: none"> <li>C Continuing investment in emerging technology through BHP Ventures e.g. closed carbon cycles for steel, green steel production</li> <li>P Originating carbon offsets to bundle with products for customers</li> <li>I Advocacy and policy engagement</li> </ul>	<ul style="list-style-type: none"> <li>P Life cycle assessment studies to provide customers more transparency and traceability</li> </ul>	<ul style="list-style-type: none"> <li>I Strengthening approach to advocacy on climate policy</li> <li>I Raising awareness within our operating jurisdictions of our decarbonisation plans and the economic opportunities available from the transition</li> </ul>
Further actions for review	<ul style="list-style-type: none"> <li>P Partner with industry to access green energy, alternative fuels, zero emissions fleet</li> <li>P Collaborate with government in public-private partnerships</li> </ul>	<ul style="list-style-type: none"> <li>C Develop internal systems to track procurement emissions</li> <li>P Work with others to standardise emission tracking system, data collection</li> <li>I Engage with suppliers to influence their emission ambitions</li> </ul>	<ul style="list-style-type: none"> <li>C Increase opex on low/zero-emission fuels and technologies when available</li> <li>P Work with vessel owners and customers on energy-efficiency</li> <li>P Expand investment in Singapore Global Centre for Maritime Decarbonisation</li> </ul>	<ul style="list-style-type: none"> <li>P Understand JV partner climate ambitions, collaborate on emissions</li> </ul>	<ul style="list-style-type: none"> <li>C Accelerate processing studies and investments</li> <li>C Optimise mine plans considering deep decarbonisation scenarios</li> <li>P Expand partnerships with customers to operationalise low carbon steel technology</li> <li>I More active role in advocacy, forums</li> </ul>	<ul style="list-style-type: none"> <li>P Support customer access to renewable energy and carbon abatement solutions</li> <li>P Invest in R&amp;D for new tech</li> <li>I Additional standards accreditation and traceability programs</li> </ul>	<ul style="list-style-type: none"> <li>I Play larger role in knowledge sharing for key low-emissions and zero-emissions technologies</li> </ul>
Legend	<p>Note: Total Scope 1, 2 and 3 reported emissions inventory in FY2021 is estimated at 419Mt CO<sub>2</sub>-e. A few non-material categories (representing less than 1% of total emissions inventory) that are included in our GHG Protocol accounting but are not outlined in this diagram include non-maritime logistics and investments. *Procurement includes Scope 3 emissions reporting categories of purchased goods and services (including capital goods), fuel and energy related activities, business travel, and employee commuting. **We define our energy products as oil, gas and energy coal. We account for metallurgical coal within steelmaking emissions. ***Future-facing commodities currently only includes our customers' processing of copper. Other products including nickel and potash are currently not included because of the difficulty in determining their exact end use, current production volumes still being relatively low or inconsequential, and/or downstream emissions being estimated to be immaterial. Details on our emissions reporting methodology are available at <a href="http://bhp.com/annualreport">bhp.com/annualreport</a>.</p>						
	<ul style="list-style-type: none"> <li>C Control</li> <li>P Partner</li> <li>I Influence</li> </ul>						

## A suite of actions to drive results

Recognising the complexity and multi-dimensional nature of the challenge to address emissions, we utilise a range of tools and levers as part of our approach.

### Investments and capital alignment

We are supporting our climate plan with targeted investment in areas such as operational emissions reduction, product optimisation, customer, supplier and technology partnerships and future low-carbon growth technology options.

- We have established a pipeline of **operational decarbonisation** projects across all our operated assets, for which potential capital spend is expected to be in the range of US\$100 million to US\$200 million per annum over the next five years. This estimate for operational decarbonisation expenditure has been included in existing capital guidance. Potential capital spend on operational decarbonisation to FY2030 may be in the range of US\$2 billion to US\$4 billion<sup>35</sup>.
- In FY2020, we announced a commitment of at least US\$400 million in emissions reduction initiatives across our operated assets (as described above) and value chain over the five-year life of the **Climate Investment Program**. We remain on track to exceed this commitment. In FY2021, we spent US\$29 million under this program, and committed to spend significantly more, including up to US\$65 million over coming years towards partnerships with our customers in the steel sector.
- Through **BHP Ventures**<sup>36</sup>, we target emerging companies with potentially game-changing offerings. We are seeking to drive innovation in solutions that support BHP, and our suppliers and customers as we all seek to decarbonise, while creating value for BHP and our shareholders.

Going forward, as our climate response is further integrated into business-as-usual planning, our spending on climate initiatives will be increasingly indistinguishable from normal business spending as we integrate climate metrics into our operating, capital and portfolio decision making. We are making capital decisions that recognise BHP's prioritisation of commodities that are positively leveraged to the emerging global decarbonisation mega-trend.

We intend to systematically integrate one or more Paris-aligned scenarios (including 1.5°C scenarios) into our strategy and capital prioritisation processes beginning in FY2022. This will enhance our current approach, in which our 1.5°C scenario is used to inform and test strategic portfolio decisions. For more information, see our discussion in section 4 '**Assessing capital alignment with a 1.5°C world**'.

### Offsets

We are furthering our approach to use of carbon offsets and supporting the market functionality required to enable their use. We believe carbon offsets are a necessary contributor to meeting the Paris Agreement goals, with offsets included in most credible pathways to a global net zero emissions position. BHP is a member of the Taskforce on Scaling Voluntary Carbon Markets (TSVCM), a private sector-led initiative sponsored by the International Institute of Finance. In January 2021, the TSVCM released a report<sup>37</sup> which states that a large-scale

voluntary carbon market is critical to reaching the Paris Agreement goals and estimates that voluntary carbon markets need to grow by more than 15-fold by 2030 in order to support the investment required to deliver a 1.5°C pathway.

We expect voluntary and/or regulatory carbon offsets will play a role for some of our customers as they seek to reduce their Scope 1 and Scope 2 emissions, contributing to decarbonisation in our value chain. We will continue to seek opportunities to invest in high-quality offset-generating projects that also deliver sustainability co-benefits. We are also considering supplying offsets to complement our customers' decarbonisation strategies, which may include structured 'low carbon' product offerings or a standalone supply of offsets. Refer to '**BHP's Carbon Offset strategy**' below in section 2 for more information.

### Advocacy and transparency

Management is held to account through both our rigorous process of Board oversight and a direct linkage of climate-related targets and goals to executive remuneration. We have also affirmed our commitment to advocate for efficient public policy settings in pursuit of global decarbonisation. We aim to continue to demonstrate leadership in responding to evolving approaches to climate change and climate-related disclosures.

## 2. Our Scope 1 and Scope 2 emissions position and performance

We remain committed to continuing reductions in GHG emissions in our operations. For our operational GHG emissions (Scope 1 and Scope 2 from our operated assets), we have set:<sup>38</sup>

- A short-term target to maintain operational GHG emissions at or below FY2017 levels<sup>39</sup> by FY2022, while we continue to grow our business
- A medium-term target to reduce operational GHG emissions by at least 30 per cent from FY2020 levels<sup>40</sup> by FY2030
- A long-term goal to achieve net zero<sup>41</sup> operational GHG emissions by 2050

This reflects our commitment to decarbonising BHP's operations and a recognition that we must play our part to accelerate the global pathway to decarbonisation.

### Scope 1 and Scope 2 emissions profile

The reported Scope 1 and Scope 2 emissions inventory of our operated assets totalled 16.2 Mt CO<sub>2</sub>-e in FY2021, about 2 per cent higher than our operational emissions in FY2020. The majority of these emissions resulted from the combined impact of electricity use (6.2 Mt, 38 per cent) and diesel use for material movement (6.4 Mt, 40 per cent); the remainder was associated with fugitive emissions from coal mining and petroleum (2.2 Mt, 13.5 per cent), emissions from the use of natural gas for power and heat generation (1.2 Mt, 7 per cent), and other less material sources (0.2 Mt, 1 per cent).<sup>42</sup> As a result of actions taken in FY2020 and FY2021, particularly securing the supply of renewable energy for some of our operated assets, our forecasted operational GHG emissions are currently tracking in line with our FY2022 and FY2030 targets.

35 Spend estimates remain uncertain and may change as studies continue to progress, technologies mature and new alternatives emerge.

36 Our internal venture capital unit.

37 Taskforce on Scaling Voluntary Carbon Markets [https://www.iif.com/Portals/1/Files/TSVCM\\_Report.pdf](https://www.iif.com/Portals/1/Files/TSVCM_Report.pdf).

38 These positions are expressed using terms that are defined in the Glossary, including the terms 'net zero', 'target' and 'goal'.

39 FY2017 baseline will be adjusted for any material acquisitions and divestments based on GHG emissions at the time of the transaction. Carbon offsets will be used as required.

40 FY2020 baseline will be adjusted for any material acquisitions and divestments based on GHG emissions at the time of the transaction. Carbon offsets will be used as required.

41 Net zero includes the use of carbon offsets as required.

42 For detailed reporting of emissions, refer to the BHP Annual Report 2021 available at [bhp.com/annualreport](http://bhp.com/annualreport).

## FY2021 progress

In FY2021, each of our operated assets developed decarbonisation plans out to FY2030, containing a pipeline of emissions reduction projects and initiatives that collectively support our medium-term target and long-term goal for operational emissions. We have progressed early-stage projects designed to reduce operational emissions at a number of our operated assets, entered several renewable power purchase agreements (PPAs) and started to tackle the technical challenge of reducing emissions from the use of diesel for trucks.

## Operational capital planning

We assess and rank each decarbonisation project across our operated assets through our Capital Allocation Framework, where our decarbonisation commitments rank alongside maintenance capital in the hierarchy of our capital allocation. Through our studies and investment governance process, we seek to optimise the risk and reward proposition for these projects to allocate capital and optimise decarbonisation at a portfolio level. We have developed an internal marginal abatement cost curve (Figure 3) designed to support the allocation of capital towards the most economically efficient and effective decarbonisation projects.

We include regional carbon price forecasts in our assessment of all projects in the Capital Allocation Framework. In recognition that explicit carbon pricing regimes in many instances do not fully reflect the implicit regulatory risk and value of carbon across our value chain, we are developing additional qualitative and quantitative metrics to better capture the future cost and value of emissions abatement to inform corporate strategy and core business decisions.

## Power initiatives

We have achieved significant milestones in progressing our plan to reduce future emissions associated with the use of electricity. We expect to increasingly see the impact from FY2022 onwards. Examples of actions taken in FY2021 include:

- Signing a renewable PPA, which is expected to supply up to 50 per cent of our electricity needs at the Nickel West Kwinana Refinery

- Working with TransAlta on plans to build two solar farms and a battery storage system to help power the Mt Keith and Leinster operations at Nickel West (announced July 2021)
- Securing renewable electricity via a PPA to supply approximately half of the electricity needs across Queensland Coal mines from low-emissions sources

This builds on our FY2020 progress at our Chilean copper operated assets, Escondida and Spence, which put in place renewable PPAs commencing from FY2022. We are on track to use 100 per cent renewable power supply at these assets by the mid-2020s.

## Technology partnerships

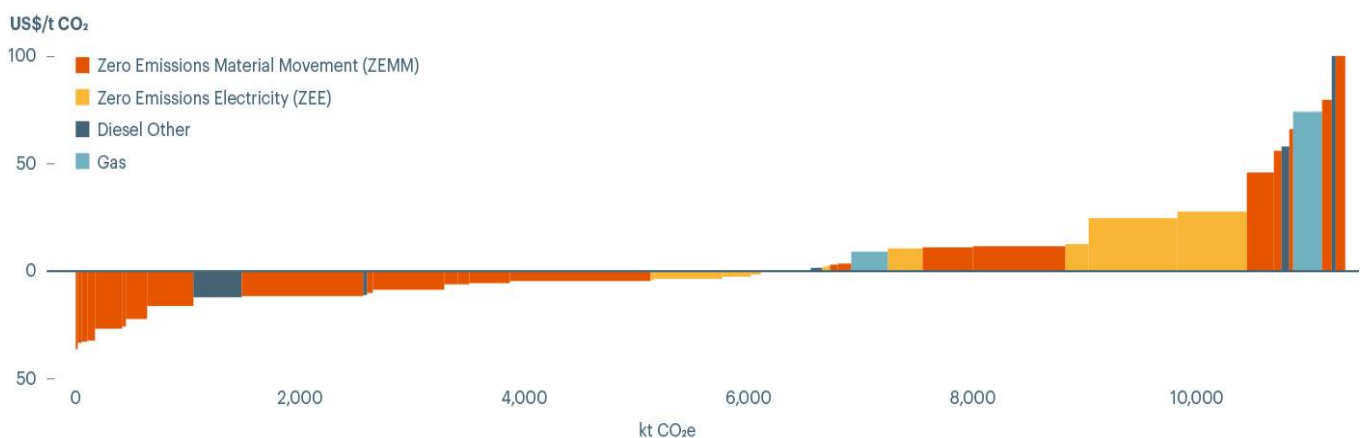
We continue to collaborate with industry peers and original equipment manufacturers (OEMs) to assess zero emissions material movement options and determine how they can be deployed at our operations in the future. In FY2021, we partnered with Rio Tinto and Vale to launch the 'Charge on Innovation Challenge', a mining truck electrification initiative, facilitated by Austmine. The initiative aims to develop innovative charging infrastructure in parallel with the development of battery-electric trucks.

We recognise the essential role of OEMs in the development of new products, bringing their expertise and know-how to help solve for the emissions challenge. Acting alone, we are not in a position to achieve the necessary emissions reductions. In August 2021, BHP became a founding member of Komatsu's GHG Alliance, which aims to develop commercially viable zero-GHG emissions haul trucks. We will provide engineering and technical resources to Komatsu, enabling our real-time access to technology in development and giving Komatsu the opportunity to draw on our mining expertise to accelerate its path to market.

In FY2022, we intend to look for further opportunities to collaborate with OEMs, source renewable electricity for our Australian operated assets and progress studies for diesel displacement at our operated assets.

For more information on our pathway to net zero operational emissions by 2050, see the BHP Climate Change Report 2020 available at [bhp.com/climate](http://bhp.com/climate).

**Figure 3: BHP operational emissions marginal abatement cost curve**



Note: Represents the net present (benefit)/cost per tonne of carbon abated based on discounted net cash flows associated with decarbonisation projects and is stated in BHP equity terms. Analysis should be considered indicative and remains subject to ongoing studies to confirm associated costs and benefits of individual projects. Source: Climate Change Investor Briefing, September 2020 available at [bhp.com](http://bhp.com)



## Carbon offset strategy

While we plan to prioritise emissions reductions within our operated assets to meet our medium-term target, we expect to have a requirement for offsets in order to deliver our net zero goal, particularly to address 'hard to abate' emissions such as fugitive methane from coal production. By including offsets as an element of our climate change strategy, we can also continue to support a range of projects that offer sustainability co-benefits, including support for local communities and biodiversity conservation.

Our offset strategy focuses on:

- Directly investing in offset-generating projects that deliver sustainability co-benefits and that can provide a long-term supply of offsets
- Working with others to support the move toward mature international and sub-national carbon market mechanisms
- Developing a clear approach to both the voluntary and regulatory use of offsets to meet emission reduction commitments, as well as for structured product offerings to our customer base

In FY2021, we retired 300,000 carbon offsets in the form of verified carbon units equivalent to the net increase in our FY2021 operational emissions from FY2020 of 0.3Mt CO<sub>2</sub>-e. The offsets were sourced from high quality projects such as the Cordillera Azul National Park REDD+ Project and the Kasigau Corridor REDD Project,<sup>43</sup> representing additional, permanent and otherwise unclaimed emission reductions from activities designed to avoid contributing to social or environmental harms. For more information on our approach to progressive offsetting, see the BHP Climate Change Report 2020 available at [bhp.com/climate](http://bhp.com/climate).

## 3. Scope 3 emissions position and performance

We recognise the importance of supporting efforts to reduce emissions in our value chain as a critical element in the pursuit of global net zero across the economy.

In 2020, we set Scope 3 emissions goals for 2030 for processing of our steelmaking products and maritime transportation of our products, supported by an action plan and aligned to a long-term vision to support the economy-wide transition necessary to meet the Paris Agreement goals by working with customers and suppliers to achieve sectoral decarbonisation. Those goals are to:

- Support industry to develop technologies and pathways capable of 30 per cent emissions intensity reduction in integrated steelmaking, with widespread adoption expected post 2030
- Support 40 per cent emissions intensity reduction of BHP-chartered shipping of our products

In this Plan, we are building on these medium-term goals. Our position reflects the challenges and opportunities in line with our strategy for increasing long-term portfolio exposure towards future facing commodities. Our recent proposed portfolio changes<sup>44</sup> are aligned with our strategic approach to manage risk and maximise value. While these decisions were not made for the purpose of setting a future Scope 3 position, upon completion, the changes would lower our total Scope 3 emissions inventory (refer to 'Energy products' below).

As we shape our portfolio for the future, we are announcing our enhanced Scope 3 position.<sup>45</sup>

While we cannot ensure the outcome alone, for our reshaped portfolio<sup>46</sup>, we are pursuing the long-term goal of net zero<sup>47</sup> Scope 3 greenhouse gas (GHG) emissions by 2050 to support the transition that the world must make. To progress towards this goal:

- we are targeting net zero for the operational GHG emissions of our direct suppliers<sup>48</sup> and the emissions from maritime transport of our products; and
- recognising the particular challenge of a net zero pathway for customers' processing of our products,<sup>49</sup> which is dependent on the development and downstream deployment of solutions and supportive policy, we cannot set a target, but will continue to partner with customers and others to accelerate the transition to carbon neutral<sup>50</sup> steelmaking and other downstream processes. We will also support the value chain by pursuing carbon neutral production of our future facing commodities, such as copper, nickel, and potash, to provide the essential building blocks of a net zero transition.

Each target is described with its assumptions and drivers in the relevant sub-section of this section 3 below.

43 REDD and REDD+ are United Nations programs for reducing emissions from deforestation and forest degradation.

44 On 17 August 2021, BHP announced it had entered into a merger commitment deed with Woodside to combine their respective oil and gas portfolios by an all-stock merger. Completion of the merger is subject to confirmatory due diligence, negotiation and execution of full form transaction documents, and satisfaction of conditions precedent including shareholder, regulatory and other approvals, and expected to occur in the second quarter of the 2022 calendar year, with an effective date of 1 July 2021. For more information, refer to the Joint Announcement 'Woodside and BHP to create a global energy company' by Woodside and BHP dated 17 August 2021, available at [bhp.com/investor-centre](http://bhp.com/investor-centre). On 28 June 2021, BHP announced its agreement with Glencore to divest its 33.3 per cent interest in Cerrejón, a non-operated energy coal joint venture in Colombia, with an effective economic date of 31 December 2020. Completion is subject to the satisfaction of customary competition and regulatory requirements and expected to occur in the first half of the 2022 calendar year.

45 This position is expressed using terms that are defined in the Glossary, including the terms 'net zero', 'target' and 'goal'.

46 Subject to completion of both of the divestment of our oil and gas business and the sale of our interest in Cerrejón.

47 Net zero includes the use of carbon offsets as required.

48 'Operational GHG emissions of our direct suppliers' means the Scope 1 and Scope 2 emissions of our direct suppliers included in BHP's Scope 3 reporting categories of purchased goods and services (including capital goods), fuel and energy related activities, business travel, and employee commuting.

49 In line with our reporting methodology for Scope 3 emissions, we define 'processing of our products' as emissions resulting from our customers' processing of our products comprising iron ore and metallurgical coal (steelmaking materials) and copper (assumed to be processed into copper wire for end use).

50 Carbon neutral includes all those greenhouse gas emissions as defined for BHP reporting purposes.

## Scope 3 emissions profile

BHP's total reported Scope 3 emissions inventory in FY2021 is estimated at 402.5 Mt CO<sub>2</sub>-e. The most significant contributions to Scope 3 emissions come from the downstream processing of our products, in particular from the processing of iron ore and metallurgical coal in steelmaking.

### Key Scope 3 emissions addressed in this transition plan<sup>#^</sup>

Million tonnes CO<sub>2</sub>-equivalent

	FY2021	FY2020
Procurement*	10.4	10.4
Maritime	7.4	7.5
Energy products**	76.4	96.8
Steelmaking, comprising:	300.5	292.9
Iron ore	260.7	252.8
Metallurgical coal	39.8	40.1
Future facing commodities***	5.0	5.2

# Source: BHP Annual Report 2021, available at [bhp.com/annualreport](http://bhp.com/annualreport)

<sup>^</sup> Some non-material categories (representing less than 1 per cent of our total reported Scope 3 emissions inventory) that are not listed in the categories above include investments and non-maritime upstream and downstream logistics. Energy investments are discussed in the 'Energy products' sub-section below.

\* Procurement includes Scope 3 emissions reporting categories of purchased goods and services (including capital goods), fuel and energy related activities, business travel, and employee commuting.

\*\* In line with our reporting methodology for Scope 3 emissions, we define our energy products as oil, gas and energy coal and we account for metallurgical coal within our customers' processing of sold products (within steelmaking emissions).

\*\*\* Future facing commodities currently only includes our customers' processing of copper. Other products including nickel and potash are currently not included because of the difficulty in determining their exact end use, current production volumes still being relatively low or inconsequential, and/or downstream emissions being estimated to be immaterial.

We calculate Scope 3 emissions using methodologies consistent with the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (Scope 3 Standard). This identifies five generally accepted principles: relevance, completeness, consistency, transparency, and accuracy. We have made key improvements to our reporting of steelmaking emissions this year, as described in the **Improving the accuracy and transparency of steelmaking emissions box** on this page. However, a degree of overlap in reporting boundaries still exists in other parts of Scope 3 emissions due to our involvement at multiple points in the life cycle of commodities we produce and consume. As result, some 'double counting' may be inherent due to our position in the value chain and may inflate the total Scope 3 figure reported.

As reporting improves in other parts of our value chain, we will seek to improve our own reporting, continuing to focus on accuracy and relevance. For further detail on how we calculate our emissions inventory see the BHP Scope 1, 2 and 3 GHG Emissions Calculation Methodology, available at [bhp.com/climate](http://bhp.com/climate).

As noted, our Scope 3 targets are referable to a FY2020 baseline year and, in some cases, their boundaries differ from the required reporting boundaries. We expect the significant degree of uncertainty that currently affects Scope 3 reporting, including 'double counting' and the inevitable inaccuracy of top-level estimates for emissions intensity for different categories, to improve over time as stakeholders work to refine Scope 3 emissions reporting. As the boundaries and methodology of accounting evolve, we will seek to recalculate the emissions baseline for our Scope 3 targets accordingly.

## Improving the accuracy and transparency of steelmaking emissions

In FY2021, we have addressed some of the key limitations associated with estimating Scope 3 emissions in our reported inventory. We have worked to eliminate 'double counting' of emissions from our customers' processing of iron ore and metallurgical coal in steelmaking, by allocating emissions between the two and reporting a single total Scope 3 estimation for emissions from steelmaking. We now include metallurgical coal together with iron ore under the 'processing of sold products' category to form a complete picture of steelmaking emissions. This approach to improving accuracy is consistent with the GHG Protocol's Scope 3 Standard.

We have also improved the accuracy of the emission factor used to estimate Scope 3 emissions by reflecting the blast furnace integrated steelmaking route into which the majority of our steelmaking raw materials portfolio is sold. The improved estimation also considers our iron ore product quality and its impact on the amount of ore required to produce steel. We will adjust the balance of intensity factors as transparency in the industry grows and our product quality and sales placement evolve.

## Energy products

We are in the process of several portfolio changes that propose to shape our business reflecting a range of criteria consistent with our long-term strategy to maximise shareholder value. Each decision around portfolio must be made on its merits, and consider a range of impacts on economic, social and environmental outcomes. Divestments also allow for a reallocation of capital towards other parts of the portfolio. Our proposed portfolio changes will further enable us to focus our investment on production of the future facing commodities that are the essential building blocks of a net zero transition.

Upon completion of these transactions, emissions associated with customers' use of our energy products will no longer be a significant portion of the overall reported emissions inventory in our reshaped, future facing portfolio.

In FY2021, customers' use of our energy products contributed an estimated total of 76.4 Mt CO<sub>2</sub>-e to the 'use of sold products' category of our reported Scope 3 emissions inventory. This consisted of energy coal (38.3 Mt CO<sub>2</sub>-e), natural gas (19.5 Mt CO<sub>2</sub>-e), crude oil and condensates (16.8 Mt CO<sub>2</sub>-e) and natural gas liquids (1.8 Mt CO<sub>2</sub>-e). Metallurgical coal is excluded from this category and counted in steelmaking emissions under the customers' processing of our products category.

## Oil and gas

On 17 August 2021, we announced our intent to separate our oil and gas business, including all our Petroleum operated assets and equity investments in non-operating oil and gas joint ventures, and combine it with Woodside's oil and gas portfolio by an all-stock merger. The merger is subject to confirmatory due diligence, negotiation and execution of full form transaction documents, and satisfaction of conditions precedent including shareholder, regulatory and other approvals, and expected to be completed in the second quarter of the 2022 calendar year with an effective date of 1 July 2021. For more information, refer to the Joint Announcement 'Woodside and BHP to create a global energy company' by Woodside and BHP dated 17 August 2021, available at [bhp.com/investor-centre](http://bhp.com/investor-centre).

The merged entity is expected to unlock synergies and increase choice for BHP's shareholders in the energy transition, while building on Woodside's and BHP's shared values and focus on sustainable operations, carbon management and ESG leadership. We believe that the combined business will be more resilient, agile, and likely to have the necessary cash flow and

balance sheet to facilitate investment in emerging opportunities such as hydrogen, ammonia and carbon capture, utilisation and storage (CCUS). The combined business should be better placed to fund investments that support the energy transition than two smaller, separate sets of assets.

In FY2021, the Petroleum business (our Petroleum operated assets and equity investments in non-operating oil and gas joint ventures) accounted for 38.1Mt CO<sub>2</sub>-e of our reported Scope 3 emissions inventory in the 'use of sold products' category, and 2.3Mt CO<sub>2</sub>-e in the downstream investments (i.e. our non-operated assets) category.

### Energy coal

In August 2020, we announced plans to divest our interests in assets, including Cerrejón, a non-operated energy coal joint venture in Colombia, and New South Wales Energy Coal (NSWEC), to focus our coal portfolio on higher-quality metallurgical coals used in steelmaking.

In June 2021, we announced the signing of an agreement to divest our 33.3 per cent interest in Cerrejón, with an effective economic date of 31 December 2020. Subject to the satisfaction of customary competition and regulatory requirements, this is expected to complete in the second half of FY2022. In FY2021, Cerrejón<sup>51</sup> accounted for 3.4 Mt CO<sub>2</sub>-e of our reported Scope 3 emissions inventory in the 'use of sold products' category, and 0.05 Mt CO<sub>2</sub>-e in the downstream investments (i.e. our non-operated assets) category.

The process for NSWEC is progressing, in line with the two-year timeframe we set last year. We remain open to all options and continue consultation with relevant stakeholders. In FY2021, NSWEC accounted for 34.9 Mt CO<sub>2</sub>-e of our reported Scope 3 emissions inventory in the 'use of sold products' category.

### Procurement

BHP's reported Scope 3 emissions inventory for procurement-related categories (purchased goods and services [including capital goods], fuel and energy related activities, business travel, and employee commuting) totalled 10.4 Mt CO<sub>2</sub>-e in FY2021. Reported emissions in these categories include emissions from production of equipment used in our operations; construction materials used in our capital projects; professional services; and the upstream emissions related to the production of fuels used in our operations.

- For purchased goods and services, our current calculation methodology is the 'spend-based' method, assigning industry average emission factors to the economic value of the goods and services.
- For fuel and energy related activities, industry-average Scope 3 emission factors for each fuel source and electricity are applied to the relevant consumption volumes from our operations to calculate an overall emissions estimate.
- Business travel is calculated based on distance, sourced from our corporate travel services providers and other internal spend data. Employee commuting is primarily related to business flights and Fly-in Fly-out (FIFO) charters and is also calculated based on spend.

Aligned with the GHG Protocol reporting standards, the majority of our emissions estimations for procurement categories

currently rely on the 'spend-based' method which covers 'cradle-to-gate'<sup>52</sup> emissions as the reporting boundary. However, the accounting of the above categories remains highly uncertain and category-level default factors based on spend do not accurately reflect the real intensity of goods and services procured. Our reported emissions inventory boundary based on this method will also differ from how we will track progress towards our Scope 3 target for procurement, which is focused on our ability to influence the Scope 1 and Scope 2 emissions of our direct suppliers.

**We will target net zero<sup>53</sup> by 2050 for the operational GHG emissions of our direct suppliers,<sup>54</sup> subject to the widespread availability of carbon neutral<sup>55</sup> goods and services to meet our requirements.**

In order to take targeted measures to support reduction and management of emissions from the highest emitting supplier categories, we will take further steps to improve the recording of the carbon footprint of our supplier value chain. In FY2022, we will review our procurement-related emissions methodology, seeking to incorporate accounting and intensity factors more tailored to a BHP-specific, rather than industry-wide, position. We have started to engage with our major strategic suppliers to understand their emissions, climate roadmap, targets and risks. In the short term, we plan to actively monitor and track our key suppliers' public commitments to decarbonisation. In coming years, we will systemise the integration of our climate target into our supplier selection criteria, onboarding of new suppliers, existing contract management practices and contract renewals.

Progressive improvement in the emissions intensity of inbound goods and services is expected, in line with country-level targets and corporate commitments. We will seek to partner in the development and commercialisation of carbon neutral goods and services targeting the needs of our business. We acknowledge the challenges that some of our suppliers may face in reducing hard-to-abate emissions, and we plan to work with them through knowledge sharing and research and development initiatives to support the pursuit of solutions.

51 Emissions for 2H2020 only; 1H2021 are not accounted or in FY2021 reporting as a result of the effective economic date for sale of BHP's interest in Cerrejón.

52 Cradle-to-gate includes all emissions that occur in the lifecycle of purchased products, up to the point of receipt by the reporting company (excluding emissions from sources that are owned or controlled by the reporting company).

53 Net zero includes the use of carbon offsets as required.

54 'Operational GHG emissions of our direct suppliers' means the Scope 1 and Scope 2 emissions of our direct suppliers included in BHP's Scope 3 reporting categories of purchased goods and services (including capital goods), fuel and energy related activities, business travel, and employee commuting.

55 Carbon neutral includes all those greenhouse gas emissions as defined for BHP reporting purposes.



## Maritime

Maritime transport of our products contributed 7.4 Mt CO<sub>2</sub>-e to our reported Scope 3 emissions inventory in FY2021. BHP is one of the largest dry bulk charterers in the world and maritime transport of our products makes up approximately 1 per cent of the international shipping emissions from the maritime industry. As a result, we recognise our role in supporting the maritime industry in meeting or exceeding the decarbonisation ambitions planned by the International Maritime Organisation (IMO), while plotting a trajectory towards net zero shipping of our products by 2050.

**We will target net zero<sup>56</sup> by 2050 for GHG emissions from all shipping<sup>57</sup> of our products,<sup>58</sup> subject to the widespread availability of carbon neutral<sup>59</sup> solutions including low/zero-emission technology on board suitable ships and low/zero-emission marine fuels.**

Actions we are planning include investing in the Global Centre for Maritime Decarbonisation, to be established in Singapore. We are seeking further opportunities to collaborate with ship owners and fuel suppliers on projects to test and adopt low/zero-emission fuels and energy-efficient technology on board ships. We commit to chartering and fuelling low/zero-emission vessels in line with the rate they become available on the market.

In the medium term, we will continue supporting 40 per cent emissions intensity reduction of BHP-chartered shipping of our products (our goal for 2030).

### Our FY2021 progress in maritime

BHP issued and awarded a world-first tender for lower-emissions LNG-fuelled bulk carrier vessels for iron ore transportation to Eastern Pacific Shipping and the LNG supply agreement to Shell. This will significantly reduce GHG emissions per voyage and virtually eliminate nitrogen oxides (NO<sub>x</sub>) and sulfur oxides (SO<sub>x</sub>)<sup>60</sup> emissions.

We signed a Memorandum of Cooperation to become one of the founding members of the Global Centre for Maritime Decarbonisation. The Centre will be set up in Singapore and act as a focal point for the global maritime industry's efforts in decarbonisation and innovation. We have initially pledged S\$10M to support the establishment of the Centre and fund research and development projects through the Centre.

BHP participated in the first marine biofuel trial involving an ocean-going vessel bunkering in Singapore in collaboration with Oldendorff and GoodFuels, and supported by the Maritime and Port Authority of Singapore. This trial sought to reduce GHG emissions by 80-90 per cent 'well-to-wake' compared with Heavy Fuel Oil/Very Low Sulphur Fuel Oil, with fuel produced from sustainable waste and residue streams. We recommitted to GHG rating vetting criteria of RightShip<sup>61</sup>, choosing only to allow vessels into our supply chain that have a better relative design efficiency compared to peer vessels.

While we continue to support our shipping partners in achieving the IMO's GHG strategy ambitions, including their 2030 emissions intensity targets, we believe that the IMO must set more ambitious longer-term goals for international shipping and we will use our position to advocate for these.

The use of offsets will be influenced by factors including remnant lifecycle emissions associated with the production, processing and transport of marine fuels, any remaining third party-chartered vessel emissions and the effectiveness of on board carbon capture and offshore storage. We will monitor the relative emissions intensity of future low-emission technology and fuel, and use our position and actions to influence our value chain towards lower emissions-intensity options to minimise our use of offsets in meeting the target.

In FY2022, we intend to begin to integrate the use of LNG-fuelled bulk carriers into our maritime operations, while also assessing the suitability of other routes for LNG or bio-fuelled bulk carriers. We will also explore additional ecosystem partnerships focused on wind-assisted propulsion and renewably produced future fuels. We expect that, in the long term, new fuels such as renewably produced diesel or LNG, or green/blue ammonia or methanol-fuelled dry bulk vessels, will be required to fully decarbonise the industry.

In addition to our existing use of RightShip's GHG rating vetting criteria, we are working to develop a sustainability analytics platform to analyse the operational energy efficiency and emissions of BHP-chartered vessels. This will provide intelligence to enable more energy-efficient vessel selection, as well as more targeted emissions reduction insights and actions that can be pursued with our shipping partners.

## Steelmaking

Steel is the backbone of the modern built environment and has an important role in decarbonisation. Our 1.5°C scenario<sup>62</sup> modelling suggests the world is expected to need almost twice as much steel in the next 30 years as it did in the last 30. As climate action and the energy transition unfold, we expect steel to remain the key building block of global infrastructure, underpinning the energy and economic transition as well as broader development goals.

Emissions from steelmaking represent around 7-10 per cent of global total estimated emissions,<sup>63</sup> meaning tackling the challenge of decarbonising the sector is crucial to meeting global ambitions. The continued production of steel is necessary to support future economic growth and to enable system-wide decarbonisation, even while it remains one of the most difficult sectors to abate.

The Institutional Investors Group on Climate Change (IIGCC), in partnership with Climate Action 100+ (CA100+), recently published a report<sup>64</sup> highlighting how difficult it will be to transition the global steel value chain to net zero by 2050. In their modelling of even the most ambitious trajectory for innovation, investment and adoption of decarbonisation measures, the steel industry is considered unlikely to reach net zero.

56 Net zero includes the use of carbon offsets as required.

57 BHP-chartered and third party-chartered shipping.

58 Target excludes maritime transportation of products purchased by BHP.

59 Carbon neutral includes all those greenhouse gas emissions as defined for BHP reporting purposes.

60 SO<sub>x</sub> are not GHGs and not all NO<sub>x</sub> are GHGs. However, nitrous oxide is a GHG and is commonly included under the banner of NO<sub>x</sub>.

61 RightShip is a leading maritime risk management and environmental assessment organisation that aims to improve the safety and environmental sustainability of the maritime industry. The company is equally owned by BHP, Rio Tinto and Cargill. More information is available at [rightship.com](https://rightship.com).

62 This scenario aligns with the Paris Agreement goals and requires steep global annual emissions reductions, sustained for decades, to stay within a 1.5°C carbon budget. Refer to the BHP Climate Change Report 2020 available at [bhp.com/climate](https://bhp.com/climate) for information about the assumptions, outputs and limitations of our 1.5°C Paris-aligned scenario.

63 <https://www.iea.org/reports/iron-and-steel-technology-roadmap>

64 <https://www.iigcc.org/resources>

For BHP, emissions from the processing of iron ore and metallurgical coal within customers' steelmaking operations totalled 300.5 Mt CO<sub>2</sub>-e in FY2021, representing 75 per cent of our total reported Scope 3 emissions inventory.

BHP's iron ore and metallurgical coal is processed almost exclusively within the blast furnace-basic oxygen furnace (BF-BOF) steelmaking process, which today represents 72 per cent of steel production.<sup>65</sup> The BF-BOF is favoured because of its efficiency and operational flexibility, enabling the use of a broad range of iron ore qualities. However, the BF-BOF process is roughly five times more emissions intensive than scrap-based electric arc furnace (EAF) and two times more emissions intensive than natural gas-based direct reduced iron-EAF (DRI-EAF).

The blast furnace (BF) relies on coke (produced from metallurgical coal) to remove oxygen and other impurities from iron ore to yield metallic iron. While low carbon fuels such as hydrogen can supplement energy requirements, only coke can provide the structural support required for efficient BF operation.

Utilising our deep understanding of the steelmaking process, we have developed a Steel Decarbonisation Framework to examine the stages that the industry must pass through on its decarbonisation journey, and associated technologies (Figure 4). The framework envisions an ultimate, assumed 'green' end-state in which carbon neutral steel can be produced due to the adoption of incremental and transformative technologies such as hydrogen-based direct reduced iron (DRI) or electrolysis. This would require access to affordable renewable electricity, widespread commercial-scale low or zero carbon alternative fuels (like hydrogen and biofuels) and supporting infrastructure. In the transition to this 'green' end state, additional abatement measures such as BF optimisation technologies (including use of low carbon fuels and/or top gas recycling) and CCUS would also be necessary.

Capital cost estimates for decarbonisation of the global steel sector vary widely, dependent upon technology pathways and assumptions regarding the inclusion of associated renewable energy infrastructure, but typically exist in the range of US\$1 trillion and US\$3 trillion (cumulative).<sup>66</sup> As argued by the IIGCC and other industry stakeholders, the costs of development and

deployment of technologies and energy sources for steel decarbonisation must be supported by regulators and investors and shared appropriately across the value chain. These costs will need to be captured in price signals further downstream to the end consumer in order to incentivise the development of solutions. Through wide-scale deployment and adoption, these costs can be brought down over time through efficiencies of scale and innovation.

For more on BHP's views on the key technologies needed to decarbonise steel, refer to our "Pathways to decarbonisation" series available at [bhp.com/media-and-insights/prospects/](https://bhp.com/media-and-insights/prospects/)

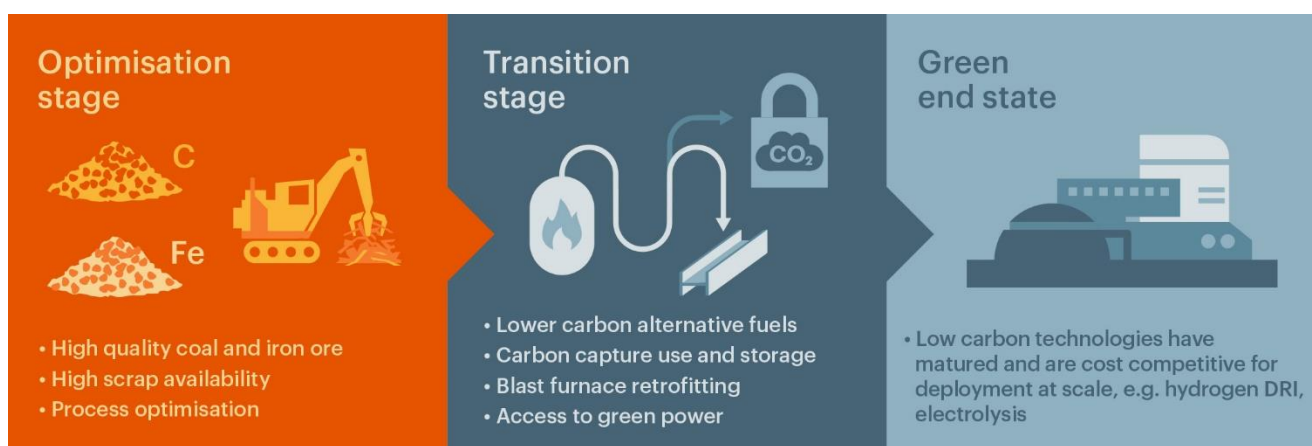
- Pathways to decarbonisation episode one: power
- Pathways to decarbonisation episode two: steelmaking technologies
- Pathways to decarbonisation episode three: regional approaches to steel
- Pathways to decarbonisation episode four: hydrogen

### Steelmaking: inherent uncertainties to net zero

There are a number of global uncertainties that must be reckoned with in terms of achieving net zero in steel. These are principally in the areas of technology development (including cost). Beyond this, there are a range of regional factors that are equally influential (and in some cases maybe more so) in determining likely future pathways. Key factors include:

- Availability of lower carbon raw material feedstock (including but not exclusively scrap)
- Age of existing facilities
- Variable levels of policy support (either subsidies for technology or carbon pricing to incentivise abatement)
- Exposure to international trade in steel and steel products
- Future growth in demand for affordable steel

Figure 4: BHP's steel decarbonisation framework



Source: BHP analysis.

65 <https://www.iea.org/reports/iron-and-steel-technology-roadmap>

66 See, for example, the Global Financial Markets Association, [Climate Finance Markets and the Real Economy](#)

Different regions will progress decarbonisation at different paces because of the factors outlined above. Today's policies and signposts indicate that most regions will only achieve a green end-state after 2050, as illustrated by the steel outcomes in our Central Energy and Lower Carbon scenarios (Figure 5)<sup>67</sup>.

Even assuming a step-change and global convergence in regulatory and technological factors over the next decade, our modelling indicates that it is still difficult to achieve net zero sector emissions for key steel producing regions. To explore the bottom-up limits of steel decarbonisation on a regional basis, we have developed a "Deep Green" hypothetical for the steel sector.

Deep Green seeks to simulate the specific impact on the steel sector of a much more rapid global convergence towards decarbonisation, universal access to zero emissions electricity and a US\$200 per tonne global carbon price. It is not like the whole-system modelling with global temperature outcomes like our Central Energy or Lower Carbon scenarios. Deep Green is also entirely separate to BHP's 1.5°C scenario (which is a global top-down technical model more similar in approach to the Central Energy and Lower Carbon scenarios) In this Deep Green hypothetical, global steel emissions fall by around two-thirds from current levels, bringing absolute volumes well below the 1990 base level. That is significant, but is not net zero. Even in Europe, which has positive exposure to the factors outlined above, net zero is not achieved. Under the Deep Green hypothetical, primary iron demand could be modestly affected due to higher scrap use. Metallurgical coal demand volumes may be lower than projected in our climate change scenarios due to

higher penetration of alternative steelmaking processes. However, potential reduction in demand could be offset by expected increase in premiums for higher quality coal, which BHP would be well placed to capture. It is important to emphasise that we consider the likelihood of the Deep Green hypothetical to be much lower than our Central and Lower Carbon scenarios.

We do note that the commitment to enable swifter decarbonisation pathways in the steel sector is gathering momentum. Today, 34 per cent of BHP's current iron sales are to customers that have net zero targets in place. These commitments are underpinned by net zero commitments in the major Asian steelmaking nations of China (2060), Japan (2050) and South Korea (2050). However, although ambitions are growing, a pathway to net zero for steel is still highly uncertain. Despite the supportive regulatory landscape, emitters may still be constrained by bottlenecks in scrap availability and the ramp up of low emissions steelmaking capacity. Notably, some steelmakers expect to utilise offsets and carbon abatement solutions (including CCUS), in addition to new production technologies, to achieve their long-term goals.

Finally, steel producers have available various decarbonisation levers (such as scrap usage), which do not always result in reduced emissions from customers' processing of our products. Net zero for some of our steel producers may not result in equivalent reduction of BHP's value chain emissions.

**Figure 5: Steel emissions for key regions under different assumptions**

Global steel emissions 2019–2050

Mt CO<sub>2</sub>-e



Source: BHP analysis.

Note: The "Central Energy" and "Lower Carbon" steel sector emissions portrayed in the chart are outcomes of the Central Energy View and Lower Carbon View scenarios described in more detail in BHP's Climate Change Report 2020, available at bhp.com. The "Base" levels portrayed are business-as-usual scenarios that are reflective of today's policies and future scrap availability, without considering additional abatement efforts. "Deep Green" is a hypothetical we described above that considers only strictly the impact on regional steel sectors assuming much more rapid global convergence towards decarbonisation, universal access to zero emissions electricity and a US\$200 per tonne global carbon price.

67 The Central Energy View and Lower Carbon View scenarios are described in the footnotes to section 4 below, and in more detail in the BHP Climate Change Report 2020 available at bhp.com/climate. There are inherent limitations with scenario analysis and it is difficult to predict which, if any, of the scenarios might eventuate. Scenarios do not constitute definitive outcomes for us. Scenario analysis relies on assumptions that may or may not be, or prove to be, correct and may or may not eventuate, and scenarios may be impacted by additional factors to the assumptions disclosed.



## Steelmaking: BHP's action plan

**Recognising the particular challenge of a net zero pathway for customers' processing of our products<sup>68</sup>, which is dependent on the development and downstream deployment of solutions and supportive policy, we will continue to partner with customers and others to accelerate the transition to carbon neutral<sup>69</sup> steelmaking.**

In the medium term, we will continue supporting industry to develop technologies and pathways capable of 30 per cent emissions intensity reduction in integrated steelmaking, with widespread adoption expected post 2030 (our goal for 2030).

As the IIGCC noted in their report, the decarbonisation of the steel industry is inherently a value chain effort that will require contributions from policy makers, investors, steel producers, suppliers and customers. We have a number of partnerships and internal initiatives underway to test and implement low-carbon steelmaking technologies and raw materials.

- In FY2021, we announced memoranda of understanding for partnerships with China Baowu, JFE and HBIS to invest up to a total of US\$65 million in research and development of steel decarbonisation pathways. We also established a research program with University of Newcastle in Australia to study raw material properties in low carbon iron and steel making.
- Additionally, BHP Ventures is strategically investing in a range of emerging companies, including some focused on low- or no-carbon steelmaking. Our portfolio includes various investments in electrochemical technologies that are particularly amenable to processing our Pilbara iron ores, potentially providing BHP and our customers with added optionality to complement other more readily available technologies, such as hydrogen-based DRI.
- We are currently assessing the opportunity to implement beneficiation at our Jimblebar operation. By improving our product quality, we can support emissions reduction in the short- to medium-term within the integrated BF-BOF steelmaking process. Longer-term, advancements in beneficiation and/or EAF technology may see a greater proportion of BHP's ores used in DRI-EAF steelmaking.

We will continue to seek opportunities to form partnerships with our customers and others in the industry to advance the development of key technologies and products. In FY2022, we intend to progress research and development and develop plans for operational testing and trials under the three steelmaking partnerships described above. In the long-term, we expect significant advancements in CCUS for the blast furnace and green hydrogen DRI-EAF will also be needed.

## Future facing commodities

Future facing commodities are those that BHP deem to be positively leveraged to the mega-trends, including decarbonisation, that are playing out in the world around us, as indicated by our scenario analysis including our 1.5°C scenario. In general, the demand for future facing commodities increases as the scale of decarbonisation encapsulated in each scenario increases. The modelled demand increases are of sufficient scale that they may be expected to have a material impact on long-term market balance. Currently, the major commodities in the BHP portfolio that fall within this criteria are copper, nickel, and potash.

Buyers of future facing commodities are increasingly demanding improved supply chain sustainability and traceability. The legal landscape, governmental policies and corporate goals continue to push the industry towards more sustainable practices and set new performance criteria for decarbonisation. Key nickel and copper customers such as automakers and battery manufacturers have indicated they are firstly focusing on removing emissions from their own operations and then from the entire value chain.

**We will support industry to develop technologies for improved traceability and support the value chain by pursuing carbon neutral<sup>70</sup> production of our future facing commodities, such as copper, nickel and potash, to provide the essential building blocks of a net zero transition.**

In FY2021, emissions related to our customers' processing of copper was 5 Mt CO<sub>2</sub>-e, representing only one per cent of our total reported Scope 3 emissions inventory. Our customers' processing or application of other products and/or by-products, including nickel and potash, are currently not included because of the difficulty in determining their exact end use, current production volumes still being relatively low or inconsequential, and/or downstream emissions being estimated to be immaterial.

For nickel, we have estimated the downstream emissions associated with the use of our product. The majority of our nickel is sold to the battery industry and we have consulted with that industry to assess value chain emissions. While the emissions associated with nickel production (accounted for in BHP's Scope 1 and Scope 2 emissions) are a material part of total emissions in the battery value chain, the emissions downstream from our nickel production are not material to our total reported Scope 3 emissions inventory. As emissions reporting standards in the battery sector improve, we will aim to include nickel downstream Scope 3 emissions within our reporting.

For potash, we announced on 17 August 2021 the approval of US\$5.7 billion (C\$7.5 billion) in capital expenditure for the Jansen Stage 1 potash project in the province of Saskatchewan, Canada. Jansen is designed with a focus on sustainability, including embedding a low carbon footprint and low water intensity in the design.<sup>71</sup> First ore is not targeted until the 2027 calendar year, so downstream emissions are currently immaterial, however we project that the potential emissions associated with our customers' processing and application of potash may be lower relative to that of other fertilisers.<sup>72</sup>

68 In line with our reporting methodology for Scope 3 emissions, we define 'processing of our products' as emissions resulting from our customers' processing of our products comprising iron ore and metallurgical coal (steelmaking materials) and copper (assumed to be processed into copper wire for end use).

69 Carbon neutral includes all those greenhouse gas emissions as defined for BHP reporting purposes.

70 Carbon neutral includes all those greenhouse gas emissions as defined for BHP reporting purposes.

71 Scope 1 and Scope 2 emissions of ~60kg CO<sub>2</sub>-e/t. Scope 1 and Scope 2 emissions for flotation-based MOP 50-80 kg CO<sub>2</sub>-e/t, other production routes are 100-500kg. High nutrient concentration (60 per cent K<sub>2</sub>O) maximises efficiency in transportation and spreading.

72 From BHP research conducted so far, nitrogen-based fertilisers appear to have a larger downstream emissions impact than potash-based fertilisers. However, trying to estimate the GHG contribution impact of fertiliser on soils and crops is very complicated. We continue to develop and improve our knowledge in this area. Scope 3 impact relates only to emissions associated with downstream processing and application, not other considerations such as transportation.

## 4. Assessing capital alignment with a 1.5°C world<sup>73</sup>

We recognise the importance of demonstrating how our capital allocation aligns with our strategy and action on climate change. Our stakeholders want to understand the potential impacts on our business if the world takes the actions necessary to limit global temperature increase to 1.5°C, and how we consider these potential impacts in our strategic decision making and allocation of growth capital.

Stakeholders have also communicated that they want to be able to assess whether we are allocating sufficient capital to meet our targets to reduce operational emissions (Scope 1 and Scope 2). See Section 2 above for how we are investing in operational decarbonisation through asset-level planning and our Capital Allocation Framework. The Basis of Preparation (BoP) of BHP's FY2021 financial statements describes how operational emissions reduction projects are considered in our key accounting judgements and estimates. The BoP also describes the two scenarios (Central Energy View<sup>74</sup> and Lower Carbon View<sup>75</sup>) currently being used as inputs to our operational planning cases, based on our current estimates of the most likely range of futures for the global economy and associated sub-systems. These operational planning ranges are periodically reviewed to reflect new information. They impact certain of the significant judgements and key estimates that Management is required to make in the preparation of BHP's Financial Statements, including the determination of the valuation of assets and potential impairment charges, the estimation of the remaining useful economic life of assets for depreciation purposes, the timing of closure and rehabilitation activities and the recoverability of certain deferred tax assets. For more information, refer to the BHP Annual Report 2021 available at [bhp.com/annualreport](http://bhp.com/annualreport).

### Our capital alignment approach

We consider a range of different global, sectoral and regional scenarios in forming our strategy and in operational and commercial decision making.

Our decisions on portfolio composition and capital allocation are based on assessment of plausible future pathways and then tested against a range of scenarios. For example, in 2020 we updated our portfolio analysis to include our 1.5°C scenario to better identify signposts for climate-related risks and opportunities, and understand how our scenario's trajectory towards a 1.5°C world might impact our strategy and portfolio resilience (refer to the BHP Climate Change Report 2020 available at [bhp.com/climate](http://bhp.com/climate) for more information).

Applying a wide range of scenarios is intended to enable us to examine divergent pathways to identify the biggest and most durable trends, determine the balance of risks that these external

trends pose to the resilience of our portfolio and investment decisions, and identify how well placed we are to act on opportunities they may present.

### Evolving our approach in FY2022

Global action to decarbonise under a 1.5°C trajectory would represent a significant shift in the global economy. Such a transition would be complex, multi-faceted and could reasonably be expected to manifest in unique ways across different regions, reflecting heterogeneous local conditions. We intend to systematically integrate one or more Paris-aligned scenarios (including 1.5°C scenarios) into our strategy and capital prioritisation processes beginning in FY2022. This will enhance our current approach, in which our 1.5°C scenario is used to inform and test strategic portfolio decisions.

### Green revenue

Green revenue is intended as a measure of the extent to which products and services contribute to the transition to a green economy<sup>76</sup>. While these contributions will be measured on a range of important indicators (including water conservation, biodiversity or reforestation), much of the discussion about green revenue is focused around the contribution to the transition to renewable energy that is vital for climate change mitigation.

There is no settled methodology for classifying green revenue in the resources sector. In response to increased investor interest in the concept, in FY2021 we reviewed potential approaches to classification and measurement of green revenue, starting with consideration of how our products contribute to addressing the challenge of climate change.

We expect many of our commodities to be important to the energy transition. For example, the International Energy Agency's 'The Role of Critical Minerals in Clean Energy Transitions' report<sup>77</sup> highlights the critical role of copper and nickel. Our 1.5°C scenario<sup>78</sup> indicates demand growth for copper, nickel and potash could be even more compelling as the world takes action to decarbonise. Iron ore also fares slightly better under our 1.5°C scenario versus our other scenarios, as steel requirements of the energy transition are expected to be considerable.

The most commonly used measure for green revenue is based on end use of products. However, this measure is not straightforward, for two reasons.

- Identifying the end use of some commodities is challenging. Copper and iron ore, in particular, undergo multiple stages of processing and have a diverse range of end uses.
- The way in which commodities are produced is not captured by end use measures. However, production methods for the resource sector can in themselves be an important contributor to achieving a green economy. For example, our Chilean copper operated asset at Escondida is on track to

<sup>73</sup> The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C. There are a range of GHG emissions trajectories to 2100 that could limit global warming to 1.5°C above pre-industrial levels. We refer to a '1.5°C world' as the 2050 point on these trajectories.

<sup>74</sup> Central Energy View reflects, and is periodically updated to respond to, existing policy trends and commitments and currently tracks to approximately 3°C temperature increase above pre-industrial levels by 2100. Refer to the BHP Climate Change Report 2020 available at [bhp.com/climate](http://bhp.com/climate) for more information.

<sup>75</sup> Lower Carbon View currently tracks to approximately 2.5°C temperature increase above pre-industrial levels by 2100, and accelerates decarbonisation trends and policies, particularly in easier-to-abate sectors such as power generation and light duty vehicles. Refer to the BHP Climate Change Report 2020 available at [bhp.com/climate](http://bhp.com/climate) for more information.

<sup>76</sup> A green economy is defined by the UN Environment Programme as low carbon, resource efficient and socially inclusive. In a green economy, growth in employment and income are driven by public and private investment into such economic activities, infrastructure and assets that allow reduced carbon emissions and pollution, enhanced energy and resource efficiency, and prevention of the loss of biodiversity and ecosystem services. Refer to Green Economy at [unep.org](http://unep.org) for more information.

<sup>77</sup> The Role of Critical Minerals in Clean Energy Transitions, World Energy Outlook Special Report, May 2021.

<sup>78</sup> This scenario aligns with the Paris Agreement goals and requires steep global annual emissions reductions, sustained for decades, to stay within a 1.5°C carbon budget. Refer to the BHP Climate Change Report 2020 available at [bhp.com/climate](http://bhp.com/climate) for information about the assumptions, outputs and limitations of our 1.5°C Paris-aligned scenario.

have 100 per cent renewable electricity supply by the mid-2020s, and source desalinated water for operational purposes, minimising water extraction from sensitive Andean aquifers.

End use may therefore not be the sole appropriate measure of products' contribution to the energy transition, and other measures (such as how they are produced) may also be useful, and even be more appropriate in some circumstances.

In FY2021, we have applied an approach to green revenue based on end use, using nickel and uranium by way of illustration. At this stage, these are the most straightforward of our commodities for which to determine contribution to the energy transition from their end use. In FY2022, we intend to continue to consult with investors, industry and standard setters to explore ways of establishing clear methodologies for classification and measurement of green revenue. We also plan to work with our customers, suppliers and others in our value chain to improve the traceability of our products and the emissions produced by their use.

Battery manufacture contributes to climate change mitigation<sup>79</sup>. Therefore, for illustrative purposes,<sup>80</sup> we have measured the revenue from our sales to battery materials suppliers as green revenue. Seventy two per cent of BHP's battery-suitable nickel metal<sup>81</sup> was sold to global battery material suppliers in FY2021<sup>82</sup>. For FY2021, our green revenue from battery-suitable nickel metal amounted to US\$760 million<sup>83</sup>.

Australian uranium is sold for nuclear power generation only, a low emissions source of electricity, and therefore, also for illustrative purposes, we have measured all revenue from uranium as green revenue. For FY2021, our green revenue from uranium amounted to US\$249 million.

## 5. Just transition

The Paris Agreement recognises the need to reduce emissions but also to take "into account the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities".<sup>84</sup>

The process of structural adjustment as economies and consumer priorities evolve is not new. However the energy transition implies an adjustment process on a global scale that will likely extend for decades as the world pursues decarbonisation of power generation and industrial processes. And the energy transition is only one aspect of the way in which economies are anticipated to evolve in the decades to come.

Such transitions must balance the needs of communities, nations and investors and protect our environment for the long term. Both financial and social value considerations are relevant - and inherently linked.

Social value is the positive contribution we make to the environment and society. It goes hand in hand with financial value in our decision-making, and we believe this approach is in the long-term best interests of shareholders. The longevity of our assets means that it is important for us to think and plan in decades. When we invest in a region, we become an intrinsic

part of the local community for the long term, which is why social value is an important part of the way we do business.

As a global leader in the development of natural resources, we have an opportunity to demonstrate a planned and purposeful approach to closure and rehabilitation through the life cycle of our operated assets. Our process considers risks and opportunities, for the communities and environment where we operate, as well as shareholder value. Where value cannot be generated from divestment, the best option to balance financial, workforce and community considerations may be to retain an asset and transition it towards closure, while setting a leading example for both rehabilitation and partnership with employees, local community and governments.

It drives toward optimised closure outcomes for our sites by balancing our values, obligations, safety, costs and the expectations of external stakeholders to enable an outcome that involves one or a combination of an alternative land-use, ongoing management, relinquishment or divestment. We maintain a provision for closure and rehabilitation, which currently stands, as disclosed in the BHP Annual Report 2021, at US\$11.9 billion.

Each of our operations (whether they are projects, producing assets, in care and maintenance or a closed site) must have a Closure Management Plan, documenting the implementation of the closure management process. This process includes collating relevant knowledge and data, undertaking a risk and opportunity assessment, framing closure options, comparing alternative options, and selecting the optimised closure outcomes, underpinned by ongoing stakeholder engagement and communication. Closure Management Plans are required to be supported by stakeholder engagement plans for the lifecycle of the site, and should balance business and stakeholder needs while meeting the following objectives:

- Meet all legal requirements and obligations, and recognised industry practice
- Manage pre- and post-closure risks and opportunities
- Manage and optimise costs
- Achieve safe and stable outcomes and meet approved environment outcomes
- Progressively reduce obligations

At some of our operations, the transition to new skill sets is already underway through the changing use of technology. For example, the implementation of autonomous haulage at sites such as Western Australia Iron Ore's Jimblebar mine has provided opportunities for our workforce to gain new skills. While the introduction of this technology removes the need for an operator in the haul truck, new roles are being created in the operations as a result. Roles such as field officers, service technicians and mine controllers are an essential part of an autonomous operation and we are working with our people to provide opportunities to transition into these new roles. Our people and the communities in which we operate are central to this change.

We also recognise that reducing employee numbers at certain operations can impact the viability of local communities, so it is important to consider not just which roles transition, but where they are located. As an example of where we have considered

79 For example, the draft EU taxonomy recognises battery manufacture as a significant contributor to climate change mitigation. The EU Taxonomy is a classification system, establishing a list of environmentally sustainable economic activities. Note the EU taxonomy does not presently cover the mining sector. [https://ec.europa.eu/finance/docs/level-2-measures/taxonomy-regulation-delegated-act-2021-2800-annex-1\\_en.pdf](https://ec.europa.eu/finance/docs/level-2-measures/taxonomy-regulation-delegated-act-2021-2800-annex-1_en.pdf)

80 Recognising that a settled methodology for classifying green revenue in the resources sector has yet to be determined.

81 Battery suitable nickel metal is defined as nickel briquettes and nickel powder. It does not include off-spec nickel metal.

82 Based on percentage battery-suitable nickel metal sales to battery material suppliers. Where customer's planned end-use is not known with certainty to be for battery supply, assumptions of usage have been made using historical nickel metal usage for those customers.

83 Calculated based on gross revenue from battery-suitable nickel metal multiplied by percentage of BHP's sales of nickel metal to battery material suppliers.

84 Paris Agreement preamble, [https://unfccc.int/sites/default/files/english\\_paris\\_agreement.pdf](https://unfccc.int/sites/default/files/english_paris_agreement.pdf).



these issues, in 2020 we launched our FutureFit Academy as part of BHP Operations Services, a new team of permanent BHP employees that provides production and maintenance services. Among other things, the FutureFit Academy is intended to develop the future facing skills in our teams to operate and maintain the zero-emission trucks under development through our collaboration with Komatsu. Candidates from regional communities are specifically targeted, and are offered fit-for-purpose training programs in dedicated learning centres in Perth, Western Australia or Mackay, Queensland. Once trained and qualified, graduates are offered a permanent position with the Operations Services Maintenance team at one of our Australia-based operations in Western Australia's Pilbara or Queensland's Bowen Basin regions.

Where demand for a commodity is expected to be particularly impacted by the transition, the opportunity for migration to alternate mining roles may not be possible and therefore alternative solutions will need to be identified in cooperation with government and the community themselves.

Currently, there are several external frameworks related to ensuring a just transition. Developing a common understanding of just transition and tracking progress will be essential for success, allowing companies to make clear commitments and investors to identify benefits of effective implementation.

The CA100+ Net Zero Company Benchmark, in its Disclosure Indicator 9, requests that a company considers the impacts from transitioning to a lower-carbon business model on its workers and communities. CA100+ has not yet fully developed this indicator. In FY2022, we intend to contribute to the CA100+ development work, providing insights from our sector.

## 6. Climate policy engagement

Achieving the Paris Agreement goals will require supportive policy across jurisdictions globally. The following principles underpin our views on how governments should take action on climate change:

- Climate change is a global challenge, and international collaboration is required to maximise emissions reductions and minimise impacts to competitiveness.
- National governments should set long-term climate change targets consistent with the Paris Agreement and intermediate targets aligned with this goal. Such certainty is essential to support business decision making.
- Policymaking should accommodate changes in scientific understanding over time, take into account full life-cycle impacts and promote the most efficient system-wide decarbonisation outcomes.
- Least-cost abatement should be the primary focus of climate mitigation policies. This is most likely to be realised through market mechanisms (including carbon pricing) and outcomes-based regulatory approaches.
- Governments should play an active role in supporting the development and deployment of low emissions technologies.
- Governments should undertake regular adaptation planning and introduce policies to strengthen the adaptive capacity of businesses and communities.

The policy-making process is complex and change is unlikely to be smooth or linear. We believe we can best support policy development by ensuring we meet our own climate commitments, continuing to make the case for the economic opportunities arising from the energy transition, and focusing on those policy areas where we are likely to have the greatest ability to influence change.

We engage on policy matters directly with government and through our membership of industry associations and issue-

specific coalitions and initiatives. Key examples of our recent public advocacy include:

- We are a signatory to the World Bank's 'Putting a Price on Carbon' statement and a partner in the Carbon Pricing Leadership Coalition, a global initiative that brings together leaders from industry, government, academia and civil society with the goal of putting in place effective carbon pricing policies. As part of this, we participated in the development of the Report of the High Level Commission on Carbon Pricing and Competitiveness.
- We have supported efforts by the Centre for Climate and Energy Solutions (C2ES) to strengthen the policy response to climate change in the United States. This included signing on to public statements calling for the administration and Congress to 'enact ambitious, durable, and bipartisan climate policies', and to prioritise investment in low carbon infrastructure. We also opposed the previous administration's change to methane emissions rules.
- We have provided feedback on key aspects of the Australian Government's approach to climate change, including the proposed Corporate Emissions Reduction Transparency report and the Technology Investment Roadmap.

We recognise there is considerable stakeholder interest in the role played by industry associations in public policy debates, particularly in the context of climate change policy. Over the past five years, we have introduced a range of measures to strengthen governance of our member associations and their climate change advocacy. These have included:

- Establishing a transparent process to review the alignment between BHP's climate policy positions and those held by our member associations, and to act where 'material differences' have been identified
- Publishing our Global Climate Policy Standards, which set our expectations for how member associations should advocate on climate policy
- Committing to disclose in 'real time' if we determine that one of our member associations has substantially departed from our Global Climate Policy Standards
- Working with key member associations in Australia to clarify advocacy roles and responsibilities and improve the transparency of their advocacy activities
- Disclosing key information about BHP's material member associations, including membership fees and our rationale for membership<sup>85</sup>

BHP has also been taking proactive steps to enhance the climate advocacy of our member associations. This has involved:

- Working with other members to progress the Mineral Council of Australia's (MCA) Climate Action Plan. This plan is focused on developing technology pathways to drive emissions reduction, improving the sector's understanding and management of climate change risks, and raising awareness of the sector's response to climate change.
- Working with the Australian Petroleum Production and Exploration Association to update its climate change policy principles. These provide explicit support for achieving net zero emissions by 2050, and are aligned with BHP's Global Climate Policy Standards.
- Supporting the efforts of the C2ES, the CEO Climate Dialogue and the Climate Leadership Council to provide public backing for the enactment of enact ambitious climate policy in the United States Congress.
- Contributing to the development of the Business Council of Australia's new National Climate Strategy, which is expected

85 Refer to [bhp.com/our-approach/operating-with-integrity/industry-associations-bhps-approach/](https://bhp.com/our-approach/operating-with-integrity/industry-associations-bhps-approach/).

to be released ahead of the 26<sup>th</sup> United Nations Climate Change Conference of the Parties (COP26) in late 2021.

We are also strengthening our approach by subjecting our material member associations to a formal industry association review, as we announced in 2020. In accordance with BHP's principles for participating in industry associations, if the review process identifies a material difference with a member association on climate policy, BHP will consider a range of remediation measures, including suspension or cessation of membership. BHP's general view, however, is that there is greater scope to achieve positive climate outcomes if we use our influence within industry associations.

As an example of this, BHP's 2019 industry association review identified two material differences with the US Chamber of Commerce (US Chamber), relating to the association's previous opposition to specific emissions reduction targets and carbon pricing. Through engagement from BHP and other member companies, the US Chamber recently updated its climate change position statement to provide support for market-based approaches to accelerate emissions reduction across the US economy. The US Chamber also recently welcomed the return of the United States 'to international leadership on climate change' following the announcement of President Biden's new climate goal. BHP will continue to use its position on the US Chamber's Task Force on Climate Action to further strengthen the association's advocacy on climate policy, particularly in regard to providing clearer support for carbon pricing and emissions reduction targets aligned with the Paris Agreement goals.

The next update to this review will be published in 2022. Further information on our approach to industry associations is available at [bhp.com/our-approach/operating-with-integrity](https://bhp.com/our-approach/operating-with-integrity).

## 7. Climate governance

Climate change is a material governance and strategic issue and is routinely on the BHP Board's agenda, including as part of strategy discussions, portfolio reviews and investment decisions, risk management oversight and monitoring, and performance against our commitments.

The Sustainability Committee assists the Board in overseeing the Group's climate change performance and governance responsibilities, and the Risk and Audit Committee assists the Board with the oversight of climate-related risk management, although the Board retains overall accountability for BHP's risk profile.

### Board skills and experience

Board members bring experience from a range of sectors, including resources, energy, finance, technology and the public sector. The Board also seeks the input of suitably skilled members of management and independent advisers. This equips them to consider potential implications of climate change on BHP and our operational capacity, as well as to understand the nature of the debate and the international policy response as it develops. In addition, there is an ongoing focus on understanding systemic risk and the potential impacts on our portfolio.

The Board has taken measures designed to ensure its decisions are informed by climate change science and expert advisers. The Board seeks the input from management (including Dr Fiona Wild, our Vice President Sustainability and Climate Change) and a range of independent advisers. In addition, our Forum on Corporate Responsibility (which includes Don Henry, former CEO of the Australian Conservation Foundation and Changhua Wu, former Greater China Director, the Climate Group) advises operational management teams and engages with the Sustainability Committee and the Board, as appropriate.

### Executive remuneration

The Board strengthened the link between executive remuneration and delivery of our climate change strategy in

2020, with performance against operational emissions and value chain measures now representing 10 per cent of the Cash and Deferred Plan (CDP) scorecard.

The 10 per cent climate change component applied to remuneration paid in respect of FY2021 and includes these key measures:

- Reductions in Scope 1 and Scope 2 operational GHG emissions
- Short and medium-term actions to reduce operational GHG emissions on the pathway to net zero emissions
- Short and medium-term actions to address value chain (Scope 3) GHG emissions

## Stakeholder engagement

The Board uses a range of formal and informal communication channels to seek to understand and take into account the views of shareholders. Feedback and commentary related to climate change are increasingly a part of all of our routine investor engagements, including results roadshows with the CEO and CFO, and the Chair's investor engagement meetings. A summary of this feedback is provided to the Board.

In FY2021, the CEO, CFO, senior management and the Investor Relations team held virtual meetings and roundtables with investors worldwide. Topics covered included corporate governance and ESG matters, steel decarbonisation technologies, strategy, finance and operating performance. We also engaged regularly with the CA100+ on a range of decarbonisation and emissions related topics, and with the Transparency Pathway Initiative and FTSE Russell about their methodologies relating to the transition and approach to mined commodities.

## Management authority

Below the level of the Board, key management decisions are made by the CEO and management, in accordance with their delegated authority. Our Executive Leadership Team (ELT) is held to account for a range of measures including climate-related performance, which are then cascaded through the organisation.

BHP has a dedicated Climate Change Team that is responsible for advising the ELT. The team collaborates with BHP's functions and asset teams, external partners and industry to develop practical climate change solutions, designed to preserve and unlock long-term value for the Group. It regularly prepares information and advice for the ELT, Sustainability Committee, Risk and Audit Committee and the Board on climate-related strategy, risks and opportunities, and performance against climate-related metrics. It also monitors key risk indicators and signposts against our appetite for climate change-related risks.

Climate-related activity is also undertaken across the Group, including in our Portfolio Strategy and Development, Commercial, Planning and Technical and Environment teams. These activities are overseen by the Climate Change Steering Committee, which is made up of ELT representatives of our Operational and Commercial teams, plus Legal, Governance, Finance, Planning and Investor Relations functions.

## 8. TCFD disclosure

We have been reporting in line with the Task Force on Climate-related Financial Disclosures (TCFD) recommendations since the recommendations were released in 2017. For example, the BHP Climate Change Report 2020 aligns with the TCFD's themes of Governance, Strategy, Risk Management, and Metrics and Targets. Our Vice President of Sustainability and Climate Change, Dr Fiona Wild, has been a member of the Task Force since its inception in 2015. We believe the TCFD recommendations represent an important step towards establishing a widely accepted framework for climate-related financial risk disclosure.

# Glossary

## Assets

Assets are a set of one or more geographically proximate operations (including open-cut mines, underground mines, and onshore and offshore oil and gas production and processing facilities). Assets include our operated and non-operated assets.

## BHP ('the Group', 'our business', 'organisation', 'we', 'us', 'our' and 'ourselves')

Both companies in the dual listed company structure, being BHP Group Limited, BHP Group Plc, and their respective subsidiaries.

## BHP Ventures

Our internal venture capital unit, which looks to invest in emerging companies with game-changing technologies and management teams to help drive innovation and provide us with a valuable portfolio of growth options.

## Board

The Board of Directors of BHP.

## Carbon dioxide equivalent (CO<sub>2</sub>-e)

The universal unit of measurement to indicate the global warming potential (GWP) of each greenhouse gas, expressed in terms of the GWP of one unit of carbon dioxide. It is used to evaluate releasing (or avoiding releasing) different greenhouse gases against a common basis.

## Carbon neutral

Carbon neutral includes all those greenhouse gas emissions as defined for BHP reporting purposes.

## Carbon offsets

The central purpose of a carbon offset for an organisation is to substitute for internal GHG emission reductions. Offsets may be generated through projects in which GHG emissions are avoided, reduced, removed from the atmosphere or permanently stored (sequestration). Carbon offsets are generally created and independently verified in accordance with either a voluntary program or under a regulatory program. The purchaser of a carbon offset can 'retire' or 'surrender' it to claim the underlying reduction towards their own GHG emissions reduction targets or goals or to meet legal obligations.

## Executive Leadership Team

The Executive Leadership Team directly reports to the Chief Executive Officer and is responsible for the day-to-day management of BHP and leading the delivery of our strategic objectives.

## Goal

An ambition to seek an outcome for which there is no current pathway(s), but for which efforts will be pursued towards addressing that challenge, subject to certain assumptions or conditions.

## Greenhouse gas (GHG) emissions

For BHP reporting purposes, GHG emissions are the aggregate anthropogenic carbon dioxide equivalent emissions of carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF<sub>6</sub>). All are expressed in carbon dioxide equivalent (CO<sub>2</sub>-e). Nitrogen trifluoride (NF<sub>3</sub>) GHG emissions are currently not relevant for BHP reporting purposes.

## Group

BHP Group Limited, BHP Group Plc and their respective subsidiaries.

## Net zero (for a BHP goal, target or pathway, or similar)

Net zero includes the use of carbon offsets as required.

## Net zero (for industry sectors, the global economy, transition or future, or similar)

Net zero refers to a state in which the greenhouse gases (as defined in this Glossary) going into the atmosphere are balanced by removal out of the atmosphere.

## Nickel West

Nickel West is our integrated sulphide mining, concentrating, smelting and refining operation in Western Australia.

## Paris Agreement

The Paris Agreement is an agreement between countries party to the United Nations Framework Convention on Climate Change (UNFCCC) to strengthen efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so.

## Paris Agreement goals

The central objective of the Paris Agreement is its long-term temperature goal to hold global average temperature increase to well below 2°C above preindustrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

## Paris-aligned

Aligned to the Paris Agreement goals.

## Plan

This Climate Transition Action Plan.

## Queensland Coal

Queensland Coal comprises the BHP Mitsubishi Alliance (BMA) and BHP Mitsui Coal (BMC) assets in the Bowen Basin in Central Queensland, Australia.

## Target

An intended outcome in relation to which we have identified one or more pathways for delivery of that outcome, subject to certain assumptions or conditions.

## 1.5°C

Above pre-industrial levels.



## Scenario analysis

### Central Energy scenario

Central Energy View is one of our scenarios used as an input to our planning cases (our mid-planning case). It reflects, and is periodically updated to respond to, existing policy trends and commitments and currently tracks to approximately 3°C temperature increase above pre-industrial levels by 2100. Refer to the BHP Climate Change Report 2020 at [bhp.com](http://bhp.com) for more information.

### Lower Carbon scenario

Lower Carbon View is one of our scenarios used as an input to our planning cases. It currently tracks to approximately 2.5°C temperature increase above pre-industrial levels by 2100, and accelerates decarbonisation trends and policies, particularly in easier-to-abate sectors such as power generation and light duty vehicles. Refer to the BHP Climate Change Report 2020 at [bhp.com](http://bhp.com) for more information.

### BHP's 1.5°C scenario ('our 1.5°C scenario')

Our 1.5°C scenario models a GHG emissions trajectory to 2100 that limits global warming to 1.5°C above pre-industrial levels. BHP's 1.5°C scenario aligns with the Paris Agreement goals and requires steep global annual emissions reductions, sustained for decades, to stay within a 1.5°C carbon budget.

### Deep Green hypothetical

Deep Green hypothetical is BHP's regional and sector-specific, bottom-up modelling exercise that seeks to simulate the specific impact on the steel sector of a much more rapid global convergence towards decarbonisation, universal access to zero emissions electricity and a US\$200 per tonne global carbon price. It is unlike and wholly separate from the whole-system modelling with global temperature outcomes approach taken in our Central Energy, Lower Carbon, or 1.5°C scenarios.

## Reporting terms

### Capital goods

Final goods that have an extended life and are used by the reporting company to manufacture a product, provide a service, or sell, store, and deliver merchandise. In financial accounting, capital goods are treated as fixed assets or plant, property and equipment (PP&E). Examples of capital goods include equipment, machinery, buildings, facilities, and vehicles.

### Cradle-to-gate

All GHG emissions that occur in the lifecycle of purchased products, up to the point of receipt by the reporting company (excluding emissions from sources that are owned or controlled by the reporting company).

### Customers' processing of our products

In line with our reporting methodology for Scope 3 emissions, we define 'processing of our products' as emissions resulting from our customers' processing of our products comprising iron ore and metallurgical coal (steelmaking materials) and copper (assumed to be processed into copper wire for end use). These are reported under the Scope 3 Standard's 'Processing of sold products' category.

### Customers' use of our energy products

In line with our reporting methodology for Scope 3 emissions, we define our energy products as oil, gas and energy coal and we account for metallurgical coal within our customers' processing of sold products (within steelmaking emissions). These are reported under the Scope 3 Standard's 'Use of sold products' category.

### Direct emissions

Emissions from sources that are owned or controlled by the reporting company.

### Downstream emissions

Indirect GHG emissions from sold goods and services. Downstream emissions also include emissions from products that are distributed but not sold (i.e. distributed without receiving payment).

### Emission factor

A factor that converts activity data into GHG emissions data (e.g. kg CO<sub>2</sub>-e emitted per gigajoule of fuel consumed, kg CO<sub>2</sub>-e emitted per kilowatt-hour of electricity used).

### Energy coal

Used as a fuel source in electrical power generation, cement manufacture and various industrial applications. Energy coal may also be referred to as steaming or thermal coal.

### Fugitive emissions

Emissions that are not physically controlled but result from the intentional or unintentional releases of greenhouse gases.

### GHG Protocol

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, which provides requirements and guidance for companies and other organisations preparing a corporate-level GHG emissions inventory.

### Indirect emissions

Emissions that are a consequence of the activities of the reporting company, but occur at sources owned or controlled by another party.

### LNG (liquefied natural gas)

Consists largely of methane that has been liquefied through chilling and pressurisation. One tonne of LNG is approximately equivalent to 46,000 cubic feet of natural gas.

### Metallurgical coal

A broader term than coking coal, which includes all coals used in steelmaking, such as coal used for the pulverised coal injection process

### Natural gas liquids

Consists of propane, butane and ethane – individually or as a mixture.

### Non-operated asset/non-operated joint venture (NOJV)

Non-operated assets/non-operated joint ventures include interests in assets that are owned as a joint venture but not operated by BHP. References in this Plan to a 'joint venture' are used for convenience to collectively describe assets that are not wholly owned by BHP. Such references are not intended to characterise the legal relationship between the owners of the asset.

### Operated assets ('our operations')

Operated assets include assets that are wholly owned and operated by BHP and assets that are owned as a joint venture and operated by BHP. References in this Plan to a 'joint venture' are used for convenience to collectively describe assets that are not wholly owned by BHP. Such references are not intended to characterise the legal relationship between the owners of the asset.

### Operational boundaries

The boundaries that determine the direct and indirect GHG emissions associated with operations owned or controlled by the reporting company.

### Operational emissions ('operational GHG emissions')

'Operational emissions' or 'operational GHG emissions' in this Plan refers to the Scope 1 and Scope 2 emissions from our operated assets.

### Operational GHG emissions of our direct suppliers

'Operational GHG emissions of our direct suppliers' means the Scope 1 and Scope 2 emissions of our direct suppliers included in BHP's Scope 3 reporting categories (under the Scope 3 Standard) of 'Purchased goods and services (including capital goods)', 'Fuel and energy related activities', 'Business travel', and 'Employee commuting'.

### Scope 1 greenhouse gas emissions

Scope 1 greenhouse gas emissions are direct emissions from operations that are owned or controlled by the reporting company. For BHP, these are primarily emissions from fuel consumed by haul trucks at our operated assets, as well as fugitive methane emissions from coal and petroleum production at our operated assets.

### Scope 2 greenhouse gas emissions

Scope 2 greenhouse gas emissions are indirect emissions from the generation of purchased or acquired electricity, steam, heat or cooling that is consumed by operations that are owned or controlled by the reporting company. BHP's Scope 2 emissions have been calculated using the market-based method using supplier specific emissions factors unless otherwise specified

### Scope 3 greenhouse gas emissions

Scope 3 greenhouse gas emissions are all other indirect emissions (not included in Scope 2) that occur in the reporting company's value chain. For BHP, these are primarily emissions resulting from our customers using and processing the commodities we sell, as well as upstream emissions associated with the extraction, production and transportation of the goods, services, fuels and energy we purchase for use at our operations; emissions resulting from the transportation and distribution of our products; and operational GHG emissions (on an equity basis) from our non-operated joint ventures.

### Scope 3 Standard

The GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, which allows companies to assess their entire value chain emissions impact and identify where to focus reduction activities.

### Scope 3 category

One of the 15 types of Scope 3 emissions defined by the Scope 3 Standard.

### Upstream emissions

Indirect GHG emissions from purchased or acquired goods and services.

### Value chain emissions

'Value chain emissions' in this Plan refers to BHP's reported Scope 3 emissions inventory.

## Abbreviations key

**BF** - blast furnace

**BF-BOF** - blast furnace-basic oxygen furnace

**CA100+** - Climate Action 100+

**CCUS** - carbon capture, utilisation and storage and/or carbon capture and storage.

**CO<sub>2</sub>-e** - tonnes of carbon dioxide equivalent

**DRI** - direct reduced iron

**DRI-EAF** - direct reduced iron electric arc furnace

**EAF** - electric arc furnace

**ESG** - Environment Social Governance

**GHG** - greenhouse gas

**H<sub>2</sub>** - hydrogen

**IEA** - International Energy Agency

**IIGCC** - Institutional Investors Group on Climate Change

**IMO** - International Maritime Organisation

**IPCC** - Intergovernmental Panel on Climate Change

**Kt CO<sub>2</sub>-e** – kilotonnes of carbon dioxide equivalent

**LNG** - liquefied natural gas

**Mt CO<sub>2</sub>-e** - million tonnes of carbon dioxide equivalent

**NSWEC** - New South Wales Energy Coal

**OEM** – original equipment manufacturer

**PPA** – power purchasing agreement

**TCFD** - Task Force on Climate-related Financial Disclosures

**UN** – United Nations

**US\$/t CO<sub>2</sub>-e** – United States dollars per tonne of carbon dioxide equivalent

## Independent Limited Assurance Report to the Management and Directors of BHP Group Limited and BHP Group Plc ('BHP')

### Our Conclusion:

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that suggests that the disclosures within BHP's Climate Transition Action Plan 2021 ('the Plan'), including the reasonableness of the approach supporting BHP's planned actions and climate-related goals and targets, and the completeness of the disclosures, have not been prepared, in all material respects:

- in alignment with the Climate Action 100+ Net Zero Company Benchmark Framework ('CA100+ NZCB'); and
- in accordance with the Criteria defined below.

### What our review covered

Ernst & Young (EY) was engaged by BHP to provide limited assurance over the following information ('Subject Matter') in alignment with the noted Criteria:

- ▶ BHP's disclosures with reference to the CA100+ NZCB, as presented in BHP's Climate Transition Action Plan 2021
- ▶ The approach supporting BHP's planned actions and climate-related goals and targets as outlined in the Plan.

### Criteria applied by BHP:

The Criteria for our assurance engagement ('Criteria') included the following:

- ▶ The Climate Action 100+ Net Zero Company Benchmark Framework

The Criteria also includes the below list of principles that have been used by BHP to inform the approach to reporting against the CA100+ NZCB, including the assumptions and claims supporting BHP's planned actions and climate-related goals and targets:

- ▶ **Reasonableness**, including
  - ▶ **Transparency** – that the Plan details BHP's decarbonisation approach across its self-identified material climate related transition risks and opportunities,
  - ▶ **Neutrality** – that the Plan neither overstates, nor understates the impact,
  - ▶ **Defensible** – that BHP's approach to decarbonisation set out in the Plan is achievable and does not contradict credible external climate scenarios.
- ▶ **Completeness** – that the Plan incorporates BHP's approach to decarbonisation across all self-identified material climate related transition risks and opportunities, and with reference to all publicly stated climate change performance KPIs.

### Key responsibilities

#### EY's responsibility and independence

Our responsibility was to express a limited assurance conclusion on the noted Subject Matter detailed in the "What our review covered" section above.

We were also responsible for maintaining our independence and confirm that we have met the requirements of the APES 110 Code of Ethics for Professional Accountants (including Independence Standards), and have the required competencies and experience to conduct this assurance engagement.

#### BHP's responsibility

BHP's management was responsible for selecting the Criteria and appropriately preparing, in all material respects, the Subject Matter in the Climate Transition Report in accordance with that Criteria. This responsibility includes establishing and maintaining internal controls, adequate records and making estimates that are reasonable in the circumstances.

#### Our approach to conducting the review

We conducted this review in accordance with the International Federation of Accountants' *International Standard on Assurance Engagements Other Than Audits or Reviews of Historical Financial Information* (ISAE 3000) and the terms of reference for this engagement as agreed with BHP on 16 August 2021.

#### Summary of review procedures performed

A review consists of making enquiries, primarily of persons responsible for preparing the Plan and related information and applying analytical and other review procedures.

#### Our procedures included:

- ▶ Interviewing key personnel to understand the reporting process, including management's processes to identify BHP's material climate-related transition risks and opportunities and decarbonisation ambitions
- ▶ Checking the Plan to understand how BHP's identified material climate-related transition risks and opportunities and decarbonisation ambitions are reflected in the qualitative disclosures

- ▶ Evaluating the suitability of the Criteria and that the Criteria have been applied appropriately to the Subject Matter
- ▶ Checking if the approach supporting BHP's planned actions and climate-related goals and targets was consistent with the principles specified in the Criteria
- ▶ Evaluating select disclosures against the CA100+ NZCB disclosure indicators to consider whether BHP partially or fully meets the Criteria requirements
- ▶ Checking if the approach supporting BHP's planned actions and climate-related goals and targets was consistent with the principles specified in the Criteria
- ▶ Undertaking analytical procedures of the metrics disclosed in the Plan
- ▶ On a sample basis, based on our professional judgement, agreeing claims and metrics to source information to check the accuracy and completeness of the claims
- ▶ Identifying and testing the reasonableness of assumptions and approach supporting BHP's planned actions and climate related goals and targets.

We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusions.

#### Observations from our assurance approach

The *Just Transition* disclosure indicator 9 set by the CA100+ NZCB is currently under development by Climate Action 100+. In the absence of disclosure expectations in this area, BHP have disclosed the consideration of the impacts from transitioning to a lower-carbon business model on its workers and communities with reference to the principles noted in our Criteria.

Our conclusion is not modified in respect of this matter.

#### Other matters

We have not performed assurance procedures in respect of any information relating to prior reporting periods, including those presented in the Plan. Our review does not include forwards looking statements or abatement projections disclosed in the Plan.

While we considered the effectiveness of management's internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls. Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within IT systems.

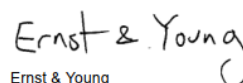
#### Limited Assurance

Procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Our procedures were designed to obtain a limited level of assurance on which to base our conclusion and do not provide all the evidence that would be required to provide a reasonable level of assurance.

#### Use of our Assurance Statement

We disclaim any assumption of responsibility for any reliance on this assurance report to any persons other than management and the directors of BHP, or for any purpose other than that for which it was prepared.

Our review included web-based information that was available via web links as of the date of this statement. We provide no assurance over changes to the content of this web-based information after the date of this assurance statement.



Ernst & Young  
Melbourne, Australia  
2 September 2021



Mathew Nelson  
Partner



# BHP