BHP

Bringing people and resources together to build a better world

CLIMATE TRANSITION ACTION PLAN 2024

Important notice

The Climate Transition Action Plan 2024 is available at bhp.com

BHP Group Limited's registered office and global headquarters are at 171 Collins Street, Melbourne, Victoria 3000, Australia. 'BHP', the 'Group', 'our business', 'organisation', 'we', 'us' and 'our' refer to BHP Group Limited and, except where the context otherwise requires, our subsidiaries. Refer to Financial Statements note 30 'Subsidiaries' in the BHP Annual Report 2024 available at bhp.com for a list of our significant subsidiaries. Those terms do not include non-operated assets.

This Climate Transition Action Plan (CTAP) covers functions and assets (including those under exploration, projects in development or execution phases, and sites and operations that are closed or in the closure phase) that, as at the date of this CTAP, are wholly owned and operated by BHP or are owned as a BHP-operated joint venture (referred to in this CTAP as 'operated assets' or 'operations'), unless otherwise stated. BHP also holds interests in assets that are owned as a joint venture but not operated by BHP (referred to in this CTAP as 'non-operated joint ventures' or 'non-operated assets'). Notwithstanding that this CTAP may include greenhouse gas (GHG) emissions data and/or 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. References in this CTAP 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.

BHP Group Limited has a primary listing on the Australian Securities Exchange. BHP holds an international secondary listing on the London Stock Exchange, a secondary listing on the Johannesburg Stock Exchange and an American Depositary Receipts program listed on the New York Stock Exchange.

Purpose

This CTAP has been prepared for submission to an intended shareholder advisory vote at the 2024 Annual General Meeting 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. Nothing in this CTAP 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.

This CTAP is intended to provide information from a perspective that may be different to that which is applicable to other disclosures, including our filings with the US Securities and Exchange Commission (US SEC). For instance, materiality, as used in the context of climate-related and/or sustainability-related disclosures may differ from the materiality standards applied by particular reporting regimes, including as defined for US SEC reporting purposes. Any issues identified as material for purposes of climate-related and/or sustainability-related matters in this CTAP are therefore not necessarily material for US SEC reporting purposes or for filings under other reporting regimes.

Forward-looking statements

This CTAP contains forward-looking statements, which involve risks and uncertainties. Forward-looking statements include all statements, other than statements of historical or present facts, including: statements regarding climate-related targets, goals and commitments; planned actions in relation to operational and/or value chain GHG emissions reductions or GHG emissions intensity reductions; projected GHG emissions; trends in commodity prices, carbon prices and currency exchange rates; demand for commodities; global market conditions; global responses to climate change; development and production forecasts; guidance; expectations, plans, strategies and objectives of management; the resilience of our portfolio under climate scenarios; approval of projects and consummation of transactions; suspension, closure, divestment, acquisition or integration of certain assets, operations or facilities (including associated costs or benefits); anticipated production or construction commencement dates; capital costs, operating costs and scheduling; availability of skilled employees; anticipated productive lives of projects, mines and facilities; the availability, implementation and adoption of new technologies, including artificial intelligence; and tax, legal and other regulatory developments.

Forward-looking statements may be identified by the use of terminology including, but not limited to, 'aim', 'ambition', 'anticipate', 'aspiration', 'believe', 'commit', 'continue', 'could', 'ensure', 'estimate', 'expect', 'forecast', 'goal', 'guidance', 'intend', 'likely', 'may', 'milestone', 'must', 'need', 'objective', 'outlook', 'pathway', 'plan', 'project', 'schedule', 'seek', 'should', 'target', 'trend', 'will', 'would', or similar words. These statements discuss future expectations or performance, or provide other forward-looking information.

Examples of forward-looking statements contained in this CTAP include, without limitation, statements describing: (i) our strategy, our values and how we define our success; (ii) our expectations regarding future demand for certain commodities, in particular copper, nickel, iron ore, steelmaking coal, potash and steel, and our intentions, commitments or expectations with respect to our supply of certain commodities, including copper, nickel, iron ore, potash, and uranium; (iii) our future exploration and partnership plans and perceived benefits and opportunities, including our focus to grow our copper and potash assets; (iv) our business outlook, including our outlook for long-term economic growth and other macroeconomic and industry trends; (v) our projected and expected production and performance levels and development projects; (vi) our expectations regarding our investments, including in potential growth options and technology and innovation, and perceived benefits and opportunities; (vii) our plans for our major projects, such as operational decarbonisation, and related budget and capital spend allocations and commitments; (viii) our expectations, commitments and objectives with respect to sustainability, decarbonisation, structural GHG emissions abatement, natural resource management, climate change and portfolio resilience; (ix) timelines and plans to seek to achieve or implement our objectives, including our approach to equitable change and transitions, our climate change strategy (including our approach to mitigation and adaptation), and our goals, targets, plans, pathways and programs to seek to reduce or support the reduction of GHG emissions, and related perceived risks (threats and opportunities), costs and benefits for BHP; (x) the assumptions, beliefs and conclusions in our climate-related statements and strategies, for example, in respect of future temperatures, energy consumption and GHG emissions, technology developments, credibility and availability of carbon credits and climate-related impacts; (xi) our commitments to social value; (xii) our approach to climate policy advocacy; (xiii) our commitments to sustainability reporting, frameworks, standards and initiatives; and (xiv) our commitments to achieve certain targets and outcomes with respect to Indigenous peoples and the communities where we operate.

Forward-looking statements are based on management's expectations and reflect judgements, assumptions, estimates and other information available, as at the date of this CTAP and/or the date of BHP's planning processes or scenario analysis processes. These statements do not represent guarantees or predictions of future financial or operational 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 CTAP. BHP cautions against reliance on any forward-looking statements.

For example, the potential decarbonisation pathways and stages of progression that individual steelmakers in our value chain may take will vary, influenced by a range of factors, including: (i) global and national economic trajectories; (ii) government policy and regulatory settings; (iii) steel grades that need to be produced; (iv) land, labour and capital stock (including the age of existing infrastructure); (v) materials and energy; and (vi) technological advances.

Other factors that may affect our future operations and performance, including the actual construction or production commencement dates, revenues, costs or production output and anticipated lives of assets, mines or facilities include: (i) our ability to profitably produce and deliver the products extracted to applicable markets; (ii) the impact of economic and geopolitical factors, including foreign currency exchange rates on the market prices of the commodities we produce and competition in the markets in which we operate; (iii) activities of government authorities in the countries where we sell our products and in the countries where we are exploring or developing projects, facilities or mines, including increases in taxes and royalties or implementation of trade or export restrictions; (iv) changes in environmental and other regulations; (v) political or geopolitical uncertainty; (vi) labour unrest; (vii) weather, climate variability or other manifestations of climate change; and (viii) other factors identified in the risk factors discussed in section 8.1 of the Operating and Financial Review in the BHP Annual Report 2024 and BHP's filings with the US SEC (including in Annual Reports on Form 20-F), available on the US SEC's website at www.sec.gov.

In addition, there are limitations with respect to scenario analysis, including any climate-related scenario analysis, and it is difficult to predict which, if any, of the scenarios might eventuate. Scenario analysis is not an indication of probable outcomes and relies on assumptions that may or may not prove to be correct or eventuate, and scenarios may be impacted by additional factors to the assumptions disclosed.

Except as required by applicable regulations or by law, BHP does not undertake to publicly update or review any forward-looking statements, whether as a result of new information or future events.

Past performance cannot be relied on as a guide to future performance.

Reliance on third party information

This CTAP may contain climate- and sustainability-related disclosures that have been prepared by BHP on the basis of publicly available information, internally developed data and other third-party sources believed to be reliable. BHP has not sought to independently verify information obtained from public and third-party sources and makes no representations or warranties as to accuracy, completeness, reasonableness or reliability of such information.

Contents

A Caterpillar zero-exhaust emissions haul truck, technology which is at a trial stage and key to future reductions in our operational GHG emissions

Important information about this Climate Transition Action Plan (CTAP)

How to use this CTAP

1 Navigation

This CTAP is structured to present the most important areas of our climate change strategy. Navigate by clicking the menu at the top of every page.

2 Endnotes

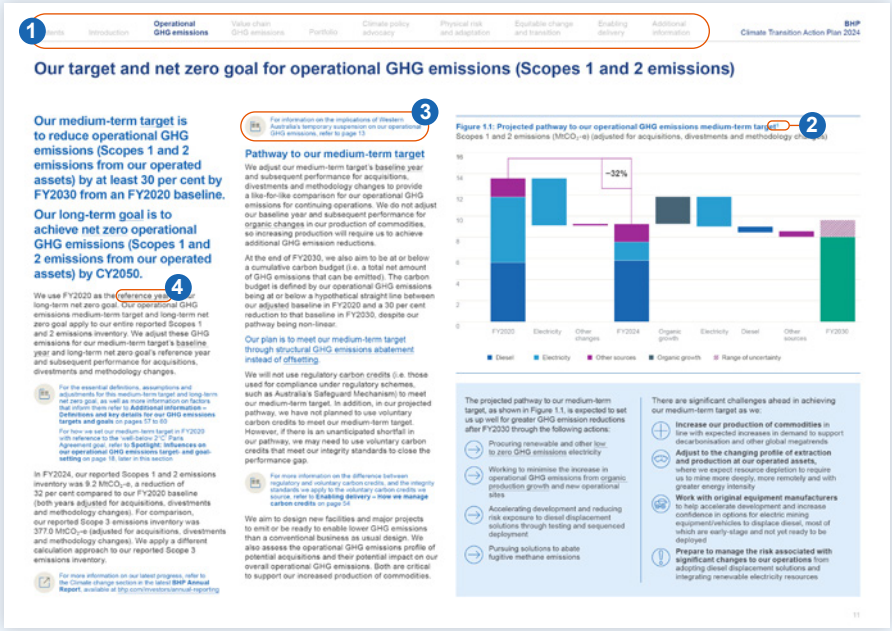
This CTAP uses clickable endnote numbers that will take you from any page that contains an endnote number to the Notes on pages 64 and 65.

3 Page references

This CTAP uses clickable page cross-references to other pages in this CTAP.

4 Defined terms and abbreviations

This CTAP uses defined terms (without capital letters) and should be read in conjunction with all terms defined in the Glossary on pages 66 to 69. Certain key terms are hyperlinked at their first use in a relevant paragraph or section so you can click on it to go to the page in the Glossary that provides the definition. Later references to that term in the paragraph or section should be taken to have the same defined meaning.



Important information

Presentation of our greenhouse gas (GHG) emissions data

All the GHG emissions data in this CTAP is presented on an adjusted basis to provide the information most relevant to assessing progress against our GHG emissions targets and goals. The BHP GHG Emissions Calculation Methodology explains the different calculation approaches based on the purpose for which the data is being provided. Inherent uncertainty and limitations in measuring GHG emissions mean all GHG emissions data or volumes (including ratios or percentages) in this CTAP are estimates. Third-party data may not be comparable to our data due to different calculation methodologies or reporting approaches.

The latest BHP GHG Emissions Calculation Methodology is available at bhp.com/climate

Where to find important information in this CTAP and our annual reporting suite

Our GHG emissions targets and goals

We reference our GHG emissions targets and goals throughout this CTAP.

For the essential definitions, assumptions and adjustments for the targets and goals for our operational GHG emissions (Scopes 1 and 2 emissions from our operated assets) and value chain GHG emissions (Scope 3 emissions), as well as more information on factors that inform them, refer to **Additional information – Definitions and key details for our GHG emissions targets and goals** on pages 57 to 60

Non-operated assets

Non-operated assets have their own operating and management standards. Non-operated assets do not form part of our operational GHG emissions as we use an operational control boundary for our calculation approach.

Scopes 1 and 2 emissions from our non-operated joint venture interests are reported in our Scope 3 emissions inventory under Category 15 'Investments' but are an insignificant source of Scope 3 emissions when compared to our total annual reported Scope 3 emissions inventory (based on FY2024 figures).

For more information on our approach to non-operated assets, refer to **Value chain GHG emissions – Our net zero goal for value chain GHG emissions (Scope 3 emissions)** on pages 20 and 21

Alignment with the voluntary UK Transition Plan Taskforce Disclosure Framework

When developing this CTAP, we considered the voluntary UK Transition Plan Taskforce Disclosure Framework, which aims to support companies to develop high-quality, consistent and comparable transition plan disclosures.

We illustrate the extent of the alignment of our disclosures in this CTAP with the disclosure elements of the Transition Plan Taskforce Disclosure Framework in **Additional information – Our Transition Plan Taskforce alignment** on page 56

BHP Annual Reporting Suite

We recommend this CTAP be read in conjunction with the latest BHP Annual Report to provide a more comprehensive view of past performance and future plans and for our annual reported Scopes 1, 2 and 3 emissions inventories (presented on both an adjusted and unadjusted basis):

- **The BHP Annual Report: Operating and Financial Review** provides recent prior year and current progress against our climate change strategy, GHG emissions targets and goals, commitments and key metrics.
- **The BHP Annual Report: Governance** provides an overview of governance structures, activities and remuneration incentives, some of which relate to our climate change strategy.
- **The BHP Annual Report: Financial Statements** reflect or explain the potential financial statement impacts, where material or relevant, of the assumptions, plans and actions of our climate change strategy.

The latest BHP Annual Report is available at bhp.com/investors/annual-reporting

BHP ESG Standards and Databook

The BHP ESG Standards and Databook provides detailed disclosures on our energy consumption and reported Scopes 1, 2 and 3 emissions inventory, including GHG emissions data for recent prior years (presented on both an adjusted and unadjusted basis).

The latest BHP ESG Standards and Databook is available at bhp.com/climate

BHP GHG Emissions Calculation Methodology

The BHP GHG Emissions Calculation Methodology details how we calculate the GHG emissions in our reported Scopes 1, 2 and 3 emissions inventories and our alignment with the GHG Protocol series of standards and relevant guidance.

The latest BHP GHG Emissions Calculation Methodology is available at bhp.com/climate

Introduction

A message from BHP Chair, Ken MacKenzie, and BHP Chief Executive Officer, Mike Henry

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Our climate change strategy and this CTAP at a glance

Enel Green Power's hybrid renewable energy park. Enel Green Power provides renewable electricity to our Escondida and Spence assets

A message from BHP Chair, Ken MacKenzie, and BHP Chief Executive Officer, Mike Henry

We're pleased to share the latest update on our climate change strategy. It continues our multi-decade focus on climate and underscores our commitment to becoming a more sustainable and resilient business. This is important work that will help set us up to grow long-term value for shareholders.

Much has changed in our portfolio since we released our first Climate Transition Action Plan in September 2021. We have increased our exposure to commodities that stand to benefit from the trends that will shape the world in the decades to come. We have divested our petroleum business. We are focusing our coal portfolio on the higher-quality steelmaking coals increasingly preferred by customers. And we have increased our exposure to copper and potash, with further growth to come. We expect the traditional drivers of demand for our key commodities to endure. That demand will only be amplified by the energy transition.

What has not changed is our resolve to operate our business in ever more sustainable ways. Since the 1990s, we have set and achieved targets for Scopes 1 and 2 greenhouse gas (GHG) emissions from our operated assets.

We call these operational GHG emissions and we are working to extend our track record of delivery through this plan.

In doing so, we seek to give our partners and stakeholders confidence in the integrity of our plans and our ability to deliver them. That confidence is important – not just for shareholders, but also the broader public and policymakers. And we will all need to hold that confidence over multiple decades to achieve the world's net zero transition.

We remain on track to meet our operational GHG emissions target of at least a 30 per cent reduction by FY2030 against an FY2020 baseline.

Much of our early progress has come from the purchase of renewable electricity from large scale, grid-connected power assets. Importantly, nine out of our 10 power purchase agreements for renewable electricity are enabling the development of new generation. As a major and, in some cases, foundational customer, we play a key role in delivering the demand needed to secure investment in these projects.

The next wave of our operational decarbonisation is going to require even more effort and investment. We estimate up to US$4 billion (nominal terms) in spend and commitments over the decade to FY2030 to execute our operational decarbonisation plans. This incorporates capital expenditure and lease commitments that were previously expected to be classified as capital expenditure. We apply our Capital Allocation Framework to help maximise the returns we achieve from the capital we invest to reduce operational GHG emissions.

Our biggest remaining source of operational GHG emissions is diesel. Since CY2021, we have been working with the likes of Caterpillar and Komatsu to support the development of battery-electric trucks. We are trialling electric mining equipment and vehicles in Western Australia Iron Ore (WAIO) and Copper South Australia and will continue working with manufacturers on the electrification of more equipment in the years ahead.

We are developing pathways for our long-term goal to achieve net zero operational GHG emissions by CY2050. Progress towards our medium-term target and long-term goal won't be linear. To help achieve global net zero and support population growth, we will have to provide more of the resources the world needs, not less. That means production growth.

More copper for electrification of transport and energy networks. More steelmaking raw materials to develop our cities and build renewable infrastructure. More potash to underpin our food security with more sustainable land use.

While we work to decarbonise our operations, we also seek to support our suppliers and customers to do the same. As Scope 3 GHG emissions relate to their businesses, we cannot directly control them, however, we can seek to influence better outcomes through our procurement decisions and the investments and partnerships we choose to pursue.

Our iron ore and coal products are mostly used for steelmaking, which is a GHG emissions intensive process that is currently hard-to-abate. We're supporting multiple potential pathways to a lower GHG emissions future for steelmakers.

We are working with and investing alongside our customers like ArcelorMittal, China Baowu, JFE, HBIS, POSCO, Tata Steel and Zenith – representing around 20 per cent of the world's reported steel production – on projects to help support future reductions in steelmaking's GHG emissions intensity.

Another example is the partnership we have entered into with Rio Tinto and BlueScope on a potential Australian ironmaking electric smelting furnace pilot. This is promising technology, which could materially lower GHG emissions intensity and is also amenable to a wider range of iron ores.

Through BHP Ventures, we are also investing directly in companies like Boston Metal and Electra, which are working to develop breakthrough processes that could one day produce near zero emissions steel.

In shipping, we are using five dual-fuelled LNG vessels within our time-chartered fleet that, when run on LNG, reduce GHG emissions by voyage compared to conventional fuel. We are also working with other miners and shipping stakeholders to explore the potential for alternative fuels, such as low to zero GHG emission ammonia, in the future.

By supporting and investing in various potential pathways, we want to help accelerate the development of technology that could not just benefit our value chain, but that of our broader industry.

The road from ambition to abatement is hard. No business can navigate it alone. In fact, we need industry and government to walk it together to achieve the world's net zero ambitions.

This is why we continue to support government policies aligned with the goals of the Paris Agreement and conduct our advocacy efforts consistent with our Climate Policy Principles.

Ken MacKenzie and Mike Henry

This Climate Transition Action Plan reaffirms our intent to play our part in this global effort – producing more of the essential commodities the world needs to develop and decarbonise; investing to reduce our operational GHG emissions; and collaborating to support lower GHG emissions in our value chain.

In doing this, we continue to reflect our purpose of bringing people and resources together to build a better world. We appreciate the engagement of shareholders and other stakeholders in the development of this plan and look forward to hearing your feedback on it in the weeks and months ahead.

Thank you.

Ken MacKenzie
Chair

Mike Henry
Chief Executive Officer

For more information on the defined terms used in this message, such as 'lower GHG emissions', 'near zero emissions' and 'low to zero emissions', refer to **Additional information – Glossary** on pages 66 to 69

Our portfolio changes and highlights of our climate change strategy delivery so far

This page includes highlights of our delivery on our climate change strategy and portfolio changes since our first Climate Transition Action Plan (CTAP) in CY2021. Since the 1990s, we have set and achieved targets for our operational GHG emissions (Scopes 1 and 2 emissions from our operated assets),[1] since the 2010s we have incorporated regional carbon price assumptions in our planning, investment decisions and asset valuations, and since CY2015 we have been analysing and periodically disclosing how various climate change scenarios might impact our portfolio.

CY2021

- Published our first CTAP, which received an 84.9 per cent approval vote at our 2021 AGM
- Approved Stage 1 of our Jansen potash project to increase our exposure to future-facing commodities
- Jointly launched the 'Charge On Innovation Challenge' to develop new concepts for haul truck electrification
- Began steelmaking decarbonisation partnerships with HBIS, JFE and POSCO
- Invested (via BHP Ventures) in Boston Metal to accelerate the development of steelmaking electrolysis technology
- Became a founding member of the Global Centre for Maritime Decarbonisation

"Much has changed in our portfolio since we released our first CTAP. What has not changed is our resolve to operate our business in ever more sustainable ways."

BHP Chair and Chief Executive Officer

CY2022

- Divested our Petroleum business to provide shareholders with further choice as to their exposure to oil and gas
- Divested our interest in BHP Mitsui Coal and Cerrejón to concentrate on higher-grade steelmaking coal
- Achieved our operational GHG emissions (Scopes 1 and 2 emissions from our operated assets) short-term target[2]
- Began trials with our first fully-electric jumbo (used to drill holes underground)
- Invested (via BHP Ventures) in Electra to accelerate the development of steelmaking electrolysis technology
- Launched the world's first dual-fuelled LNG Newcastlemax bulk carrier vessel
- Joined the First Movers Coalition for the shipping sector and committed to 10 per cent of our time-chartered vessel shipped products being on vessels using zero GHG emission fuels by CY2030
- Developed our principles for equitable change and transition

CY2023

- Approved Stage 2 of our Jansen potash project to double future production capacity
- Acquired OZ Minerals to support the creation of a South Australia copper basin
- Achieved 100 per cent renewable electricity use at our Chilean operations in CY2022 and CY2023
- Jointly established a 'Mining Taskforce' through CharIN to develop a global standard for electric mining equipment charging
- Established new steelmaking decarbonisation partnerships in India, South Korea and China
- Began a design study with Hatch for an electric smelting furnace pilot
- Updated and published our Climate Policy Principles to guide our government climate policy advocacy efforts
- Conducted and released our industry association review of our material memberships and their climate policy advocacy

CY2024

- Agreed to jointly acquire Filo Corp with Lundin Mining to develop an emerging copper district with world-class potential
- Further high-graded our steelmaking coal portfolio through the divestment of BHP Mitsubishi Alliance's (BMA) Blackwater and Daunia mines
- Began trials with our first fully-electric excavator
- Partnered with BlueScope and Rio Tinto to investigate the development of Australia's first ironmaking electric smelting furnace pilot plant
- Putting this CTAP to an advisory vote at our 2024 AGM

Portfolio

Potash | Oil and gas | Copper | Steelmaking coal

Other areas of delivery

Operational GHG emissions | Climate policy advocacy | Value chain GHG emissions | Equitable change and transition

Our climate change strategy and this CTAP at a glance

Our company strategy

Our strategy is to responsibly manage the most resilient long-term portfolio of assets in highly attractive commodities, and to grow value through excellence in operations, discovering and developing resources, acquiring the right assets and options, and disciplined capital allocation. Through our differentiated approach to social value, we aim to be a trusted partner that creates value for all stakeholders. We do this by creating mutual benefit for BHP, our shareholders, Indigenous partners and the broader community.

We are positioning our portfolio of commodities and assets to create value for today and the future.

Over the last few years, we have repositioned our portfolio towards commodities that enable and support decarbonisation and electrification, urbanisation and a growing population.

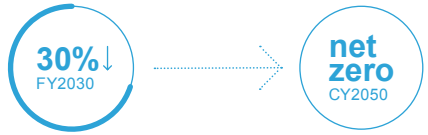
In our portfolio we have copper, iron ore, steelmaking coal, nickel, uranium and energy coal. Among other end uses, copper is used in electric vehicles, renewable energy technologies and the power grid; nickel is used in batteries; uranium is a feedstock for nuclear power; potash is used in fertilisers, which can assist with food security for a growing population and more sustainable land use; while iron ore and steelmaking coal create steel to build new infrastructure.

As the global population grows and urbanises and the world pursues decarbonisation and electrification, we are positioning our portfolio to increase our exposure to these megatrends.

We have made significant changes to our portfolio since our previous CTAP in CY2021. As we continue to build a portfolio of high-quality assets producing more of our chosen commodities, we are mindful of a global transition towards net zero.

Operational GHG emissions (Scopes 1 and 2 emissions from our operated assets) from page 10

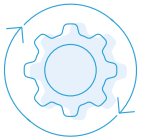
- Our long-term goal is to achieve **net zero operational GHG emissions** by CY2050
- Our medium-term target is to **reduce our operational GHG emissions by at least 30 per cent** by FY2030 from an FY2020 baseline



Medium-term target | Long-term goal

- Reducing our operational GHG emissions through structural GHG emissions abatement and staying on track to meet our medium-term target
- Procuring renewable electricity where feasible, and incentivising new renewable generation projects
- Working with original equipment manufacturers and industry groups to bring electric mining equipment/ vehicles to market safely and cost-effectively
- Working to minimise fugitive methane emissions to the greatest extent technically and commercially viable, through existing or emerging technology

FY2024 reported operational GHG emissions inventory: 9.2 $MtCO_2$-e (adjusted for acquisitions, divestments and methodology changes)



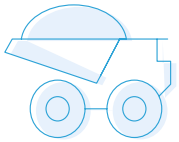
Value chain GHG emissions (Scope 3 emissions) from page 19

- We have a long-term goal of **net zero Scope 3 GHG emissions by CY2050**. Achievement of this goal is uncertain, particularly given the challenges of a net zero pathway for our customers in steelmaking, and we cannot ensure the outcome alone
- Our long-term targets are **to achieve net zero by CY2050** for the **GHG emissions from all shipping of BHP products** and for the **operational GHG emissions of our direct suppliers**
- Our medium-term goals for CY2030 are to **support industry to develop steel production technology capable of 30 per cent lower GHG emissions intensity** relative to conventional blast furnace steelmaking[3] and to **support 40 per cent GHG emissions intensity reduction of BHP-chartered shipping of BHP products[4]**

- Supporting the development of steel production technology to help the steel sector reach near zero emissions by partnering with our customers and others
- Encouraging direct suppliers to pursue net zero for their operational GHG emissions
- Establishing demand and incentivising the shipping industry to develop and adopt lower GHG emission and low to zero GHG emission fuels

FY2024 reported value chain GHG emissions inventory: 377.0 $MtCO_2$-e (adjusted for acquisitions, divestments and methodology changes)

Our climate change strategy and this CTAP at a glance continued



Portfolio from page 31

We are positioning our portfolio of commodities and assets **to create value for today and the future** by increasing our exposure to decarbonisation, electrification and other global megatrends

- Supplying commodities that are key to the global transition to net zero
- Pursuing growth opportunities in future-facing commodities, such as copper and potash
- Planning to close our last remaining energy coal asset
- High-grading our steelmaking coal portfolio

Climate policy advocacy from page 39

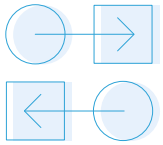
We are committed to conducting our advocacy on government climate policy (direct and indirect) **consistent with the goals of the Paris Agreement**

- Translating this into action by using our Climate Policy Principles in how we advocate (direct) and how we encourage industry associations where we are a material member to advocate (indirect)
- Increasing the transparency of our direct and indirect climate policy advocacy through industry association reviews and the publication of our major direct advocacy positions

Physical risk and adaptation from page 42

We are continuing our studies to assess physical climate-related risks and to inform potential adaptation responses to **prioritise safety and maintain productivity of our operations**

- Working to quantify physical climate-related risk exposure for our operated assets
- Enabling design and implementation of adaptation responses, where appropriate, to protect value and enable growth



Equitable change and transition from page 46

We are committed to working with communities where we operate in periods of change and transition to **achieve long-term mutual value**

- Working to leave a positive legacy from our mining in the Hunter Valley as we move towards the planned closure of Mt Arthur Coal
- More broadly embedding our approach to equitable change and transition in the way we operate

Operational GHG emissions

(Scopes 1 and 2 emissions from our operated assets)

We are on track to meet our medium-term target. Our pathway is challenging yet realistic and reflects current technology maturity, our increased production ambition and early investment to support our long-term net zero goal.

A Komatsu America Corp. electric haul truck, technology which is at a trial stage and key to future reductions in our operational GHG emissions

Our target and net zero goal for operational GHG emissions (Scopes 1 and 2 emissions)

Our medium-term target is to reduce operational GHG emissions (Scopes 1 and 2 emissions from our operated assets) by at least 30 per cent by FY2030 from an FY2020 baseline.

Our long-term goal is to achieve net zero operational GHG emissions (Scopes 1 and 2 emissions from our operated assets) by CY2050.

We use FY2020 as the reference year for our long-term net zero goal. Our operational GHG emissions medium-term target and long-term net zero goal apply to our entire reported Scopes 1 and 2 emissions inventory. We adjust these GHG emissions for our medium-term target's baseline year and long-term net zero goal's reference year and subsequent performance for acquisitions, divestments and methodology changes.

For the essential definitions, assumptions and adjustments for this medium-term target and long-term net zero goal, as well as more information on factors that inform them refer to **Additional information – Definitions and key details for our GHG emissions targets and goals** on pages 57 to 60

For how we set our medium-term target in FY2020 with reference to the 'well-below 2°C' Paris Agreement goal, refer to **Spotlight: Influences on our operational GHG emissions target- and goal-setting** on page 18, later in this section

In FY2024, our reported Scopes 1 and 2 emissions inventory was 9.2 $MtCO_2$-e, a reduction of 32 per cent compared to our FY2020 baseline (both years adjusted for acquisitions, divestments and methodology changes). For comparison, our reported Scope 3 emissions inventory was 377.0 $MtCO_2$-e (adjusted for acquisitions, divestments and methodology changes). We apply a different calculation approach to our reported Scope 3 emissions inventory.

For more information on our latest progress, refer to the Climate change section in the latest **BHP Annual Report**, available at bhp.com/investors/annual-reporting

For information on the implications of Western Australia's temporary suspension on our operational GHG emissions, refer to page 13

Pathway to our medium-term target

We adjust our medium-term target's baseline year and subsequent performance for acquisitions, divestments and methodology changes to provide a like-for-like comparison for our operational GHG emissions for continuing operations. We do not adjust our baseline year and subsequent performance for organic changes in our production of commodities, so increasing production will require us to achieve additional GHG emission reductions.

At the end of FY2030, we also aim to be at or below a cumulative carbon budget (i.e. a total net amount of GHG emissions that can be emitted). The carbon budget is defined by our operational GHG emissions being at or below a hypothetical straight line between our adjusted baseline in FY2020 and a 30 per cent reduction to that baseline in FY2030, despite our pathway being non-linear.

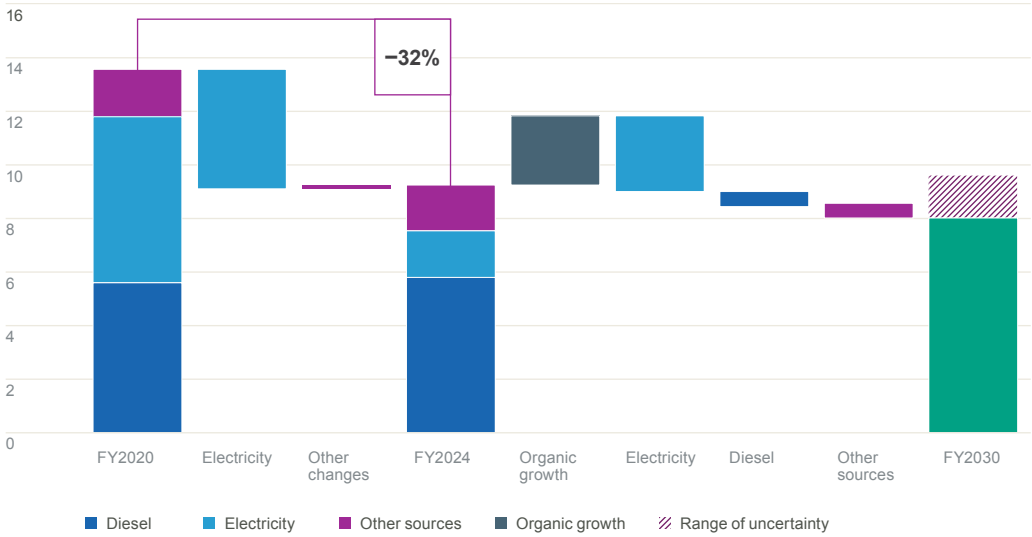
Our plan is to meet our medium-term target through structural GHG emissions abatement instead of offsetting.

We will not use regulatory carbon credits (i.e. those used for compliance under regulatory schemes, such as Australia's Safeguard Mechanism) to meet our medium-term target. In addition, in our projected pathway, we have not planned to use voluntary carbon credits to meet our medium-term target. However, if there is an unanticipated shortfall in our pathway, we may need to use voluntary carbon credits that meet our integrity standards to close the performance gap.

For more information on the difference between regulatory and voluntary carbon credits, and the integrity standards we apply to the voluntary carbon credits we source, refer to **Enabling delivery – How we manage carbon credits** on page 54

We aim to design new facilities and major projects to emit or be ready to enable lower GHG emissions than a conventional business as usual design. We also assess the operational GHG emissions profile of potential acquisitions and their potential impact on our overall operational GHG emissions. Both are critical to support our increased production of commodities.

Figure 1.1: Projected pathway to our operational GHG emissions medium-term target[5]
Scopes 1 and 2 emissions ($MtCO_2$-e) (adjusted for acquisitions, divestments and methodology changes)



The projected pathway to our medium-term target, as shown in Figure 1.1, is expected to set us up well for greater GHG emission reductions after FY2030 through the following actions:

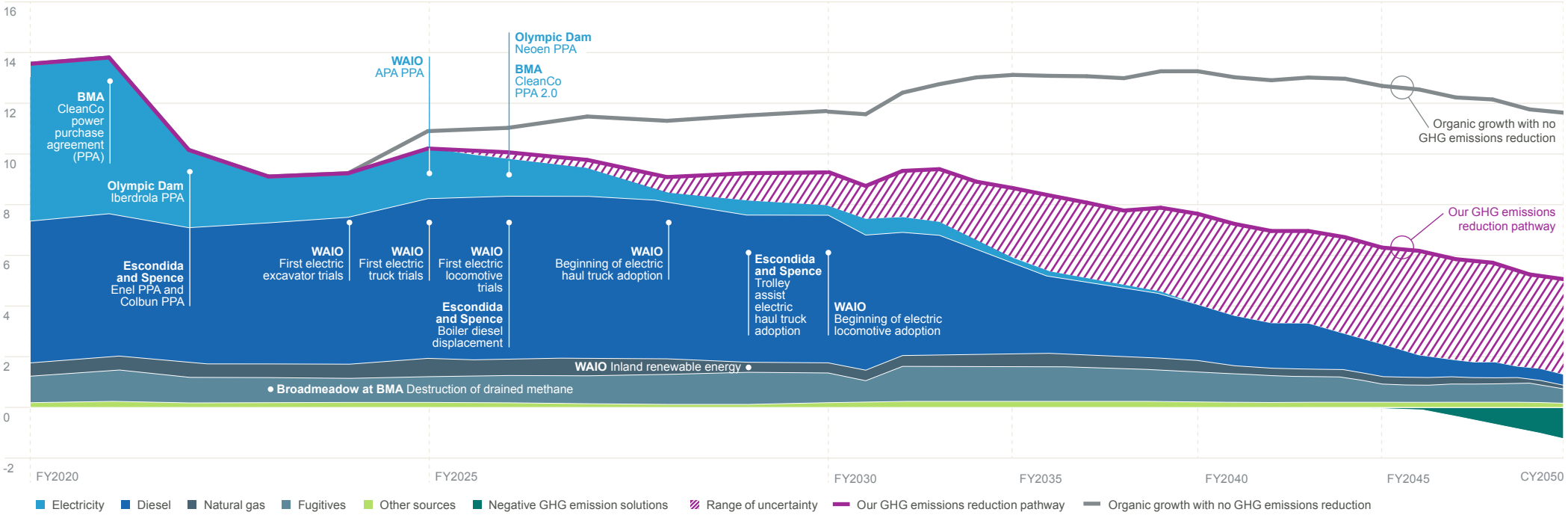
- Procuring renewable and other low to zero GHG emissions electricity
- Working to minimise the increase in operational GHG emissions from organic production growth and new operational sites
- Accelerating development and reducing risk exposure to diesel displacement solutions through testing and sequenced deployment
- Pursuing solutions to abate fugitive methane emissions

There are significant challenges ahead in achieving our medium-term target as we:

- **Increase our production of commodities** in line with expected increases in demand to support decarbonisation and other global megatrends
- **Adjust to the changing profile of extraction and production at our operated assets,** where we expect resource depletion to require us to mine more deeply, more remotely and with greater energy intensity
- **Work with original equipment manufacturers** to help accelerate development and increase confidence in options for electric mining equipment/vehicles to displace diesel, most of which are early-stage and not yet ready to be deployed
- **Prepare to manage the risk associated with significant changes to our operations** from adopting diesel displacement solutions and integrating renewable electricity resources

Our target and net zero goal for operational GHG emissions (Scopes 1 and 2 emissions) continued

Figure 1.2: Projected (to FY2030) and potential (beyond FY2030) pathways to our operational GHG emissions long-term net zero goal[6]
Scopes 1 and 2 emissions ($MtCO_2$-e) (adjusted for acquisitions, divestments and methodology changes)



Pathway to our medium-term target continued

Risks to our medium-term target

The 'range of uncertainty', as shown in Figure 1.1 on the previous page, reflects the potential range of applied risking factors (based on assessments, such as technology readiness levels) and options to increase the scale or pace of abatement. Our projected pathway is represented by the top of the 'range of uncertainty', which should enable us to meet our medium-term target. The bottom of the 'range of uncertainty' exceeds a 30 per cent reduction to protect against individual project risks and allow for sufficient options to meet our medium-term target, as well as maintaining momentum on developing technologies required to achieve our long-term net zero goal.

Pathway to our long-term net zero goal

Our potential pathway to our long-term net zero goal beyond FY2030, as shown in Figure 1.2, requires us to:

- **Displace diesel** via electric mining equipment/vehicles (e.g. haul trucks, locomotives, excavators, shovels)
- **Procure additional renewable and other low to zero GHG emissions electricity** to support the increased amount of electricity required for electric mining equipment/vehicles
- **Minimise fugitive methane emissions** to the greatest extent technically and commercially viable, through enhanced application of existing or emerging technology

Many of the technologies we will need to achieve our long-term net zero goal are not yet ready to be deployed.

A pathway between our medium-term target in FY2030 and our long-term net zero goal in CY2050 will require a significant technological step change in safety, reliability, productivity, availability and economics.

The 'range of uncertainty', as shown in Figure 1.2, reflects the potential for additional GHG emission reductions from options we have currently identified, including possible options to increase the scale or pace of GHG emissions abatement. These options may enable faster or more substantive reduction of GHG emissions, but they also currently have a relatively low technology readiness, higher operational integration risk and/or are not yet commercially viable.

We believe there are sufficient encouraging developments in the market, including with our suppliers, to identify a challenging but feasible potential pathway to our long-term net zero goal. We are working closely with suppliers to accelerate the readiness of new technologies in this decade, including several planned pilots and proof of concept trials primarily as alternatives for diesel-consuming mining equipment/vehicles.

For more information on our industry collaborations, refer to **Our areas of focus to reduce operational GHG emissions** on pages 15 to 17, later in this section

Our target and net zero goal for operational GHG emissions (Scopes 1 and 2 emissions) continued

Pathway to our long-term net zero goal continued

We anticipate many of the new technologies will have unique or new benefits, as well as challenges.

We anticipate electric haul trucks (compared to current state diesel haul trucks) will have superior fuel-to-wheel energy efficiency and trucks are able to drive faster on trolley assist than on diesel motors. However, significant operational challenges exist, including how we manage our fleet, how we integrate a mix of static and dynamic charging, how electrification impacts mine design and mine planning, and how we manage the risks associated with new technologies. Improvements to battery size, cost, weight, capacity and replacement cycles are also needed before large-scale adoption.

When renewable and other low to zero GHG emissions electricity production is localised or on-site, it can increase the security and stability of supply and offer improved economics over the lifecycle of an investment. However, wind and solar generation must also be sized (compensating for seasonal changes in electricity production) and must be firmed (ensuring the reliability and stability of energy supply over time).

Minimising fugitive methane emissions continues to be challenging as it requires a mix of enhanced use of currently available solutions and significant technology development, as well as challenges with integration into existing operations. There are also considerations and complexities in adapting currently available abatement solutions, including safety, integration and commercial viability.

We will continue to look for opportunities to help see the emerging technologies we need to reach technological readiness and commercial viability.

Based on what we know today, we estimate we can reduce our gross operational GHG emissions by up to around 85 per cent against FY2020 levels by CY2050 (adjusted for acquisitions, divestments and methodology changes), without the use of offsetting.

This is based on the projected improvements to the technologies we need, the nature of our business and the GHG emissions profile of our operations (particularly fugitive methane emissions). We believe a feasible pathway to net zero operational GHG emissions will require the use of some offsetting.

For more information on our approach to sourcing carbon credits, refer to **Enabling delivery – How we manage carbon credits** on page 54

Risks to our long-term net zero goal

Our ability to pursue a pathway beyond our medium-term target in FY2030 to our long-term net zero goal in CY2050 is affected by a range of considerations and potential complications, including:

- availability of commercially viable renewable and other low to zero GHG emissions electricity
- procurement strategies for electric mining equipment/vehicles, battery and charging infrastructure in a constrained supply environment
- scaling and incorporating electric mining equipment/vehicles may not be as efficient or effective as projected
- cost competitiveness of, and social concern regarding, the use of biofuels for hard-to-electrify applications
- the technical feasibility of fugitive methane emissions abatement and its commercial integration into mine designs and mine plans
- design of mine and processing facilities and our ability to integrate new technologies into existing operations
- impact of our acquisitions and divestments, as well as our new country and commodity entries
- availability of specialist skills for future operations

For more information on how our risk framework supports our operational GHG emission reduction strategy, refer to **Enabling delivery – How we manage climate-related risk (threats and opportunities)** on page 52

Spend and commitments

Investment in the reduction of operational GHG emissions is embedded in our corporate planning processes, which are used to prioritise and allocate capital across our business.

For more information on our Capital Allocation Framework and how it supports our operational GHG emission reduction strategy, refer to **Enabling delivery – How we manage capital** on page 53

On current assumptions, our overall collection of operational GHG emission reduction projects that support meeting our medium-term target remain net present value positive under current technology and cost assumptions and when factoring in our internal carbon price protocol.

We estimate up to US$4 billion (nominal terms) in spend and commitments over the decade to FY2030 to execute our operational decarbonisation plans.

This incorporates capital expenditure and lease commitments that were previously expected to be classified as capital expenditure. Our estimate represents incremental capital spend and lease commitments of the lower GHG emissions option above ordinary business as usual spend or commitment (e.g. the additional cost of an electric truck versus a diesel combustion truck).

The majority of our capital expenditure profile in this decade is weighted towards diesel displacement and weighted towards the late 2020s.

While some of our operational GHG emission reduction projects have a higher degree of delivery certainty, we also continue to study and progress projects that have a lower degree of certainty. As we progress necessary studies, we will learn more, and our estimates of our spend and commitments to FY2030 and beyond will evolve over time.

Our estimated spend and commitments will support our projected pathway to our medium-term target and our potential pathway to our long-term net zero goal. However, most of our estimated spend and commitments prior to FY2030 is focused on advancing diesel displacement solutions via electric mining equipment/vehicles. This would not significantly impact operational GHG emissions by FY2030 and we expect our estimated spend and commitments to more significantly impact operational GHG emissions post-FY2030.

Key actions

- Continue electric mining equipment/vehicle trials to test and learn in FY2025
- Pursue maximum renewable electricity penetration at all grid-connected operated sites, with an aim of 100 per cent purchased renewable electricity by FY2030, where available and commercially viable
- Investigate and collaborate on novel techniques for fugitive methane emissions measurement and reduction at our steelmaking coal mines, including atmospheric monitoring and open-cut mine gas drainage

Western Australia Nickel and its impact

In July 2024, we announced our Nickel West operations and West Musgrave project (Western Australia Nickel) would be temporarily suspended from October 2024. We intend to review the decision to temporarily suspend Western Australia Nickel by February 2027.

We will continue to report on Western Australia Nickel's operational GHG emissions, including as part of our baseline year for our medium-term target and reference year for our long-term net zero goal.

For our reported Scopes 1 and 2 emissions inventory (adjusted for acquisitions, divestments and methodology changes), Western Australia Nickel's operational GHG emissions were 11 per cent in FY2024 and 8 per cent in FY2020 (the baseline year for our medium-term target and reference year for our long-term net zero goal).

Western Australia Nickel's planned incremental capital spend and lease commitments on operational GHG emission reductions are less than five per cent of the estimated US$4 billion (nominal terms) in spend and commitments over the decade to FY2030 to execute our operational decarbonisation plans. This was calculated prior to the decision to temporarily suspend Western Australia Nickel.

Western Australia Nickel's temporary suspension does not change our strategy to reduce operational GHG emissions, nor materially impact our projected pathway to our medium-term target or our potential pathway to our long-term net zero goal or our planned incremental capital spend and lease commitments.

Spotlight

How we plan operational GHG emission reductions in a dynamic environment

Our operational GHG emissions reduction planning processes

Each year, as part of our annual planning processes, we re-assess our operational GHG emission reduction plans for our operated assets, including legacy assets and major projects. We use a standardised set of requirements, guidance and tools to develop a demonstrable and verifiable plan that considers a range of factors, both internal and external.

We monitor and manage changes in these plans each year for a variety of reasons, including the overall BHP strategy, individual asset strategies, our Capital Allocation Framework, growth plans, business performance to date, external regulations and carbon pricing. We incorporate updated views on market availability and demand for lower GHG emission technologies, and the outcomes of our early-stage studies, trials and pilots. Our teams monitor technology progress and actively engage and collaborate with our suppliers, where relevant, to enable our plans to reflect the dynamic nature of the energy transition and emerging lower GHG emission technologies.

Senior management continues to play an important role in reviewing the progress of our planned activities towards our operational GHG emissions medium-term target and long-term net zero goal, and the rationale for any changes. Senior management approves the plan and the Executive Leadership Team (ELT) and Board maintain regular oversight over the progress of our climate change strategy.

We also aim to be transparent by disclosing in the BHP Annual Report, where appropriate, when and why these changes occurred. When disclosing in the BHP Annual Report, we have these disclosures assured by a third party.

Changes to our projected and potential pathways to our long-term net zero goal

In the BHP Annual Report 2023, we published our operational GHG emissions projected pathway to FY2030 and potential pathway between FY2031 and CY2050. Incorporating the outcomes of our most recent annual planning process, our operational GHG emissions projected (to FY2030) and potential (beyond FY2030) pathways to our long-term net zero goal (as shown in Figure 1.2 on page 12, earlier in this section) has been updated for FY2024, with the primary changes being:

- **a decrease in diesel GHG emissions abatement** due to new and unforeseen challenges experienced by original equipment manufacturers, resulting in less certainty of technology and commercial readiness of diesel displacement options. An example is questions around the ability to apply electrification to certain mining equipment/vehicles (e.g. drill rigs, dozers, tugboats) before CY2050, which have led to an increase in projected residual GHG emissions from diesel
- **an increase in the range of uncertainty** due to less certainty of technology and commercial readiness of diesel displacement options, as well as our enhanced understanding of the challenges presented by a change to our operations as complex and far-reaching as large-scale electrification

Additionally:

- **our Jansen potash project's heightened focus on operational readiness for first production** has deferred certain studies on low to zero GHG emission energy options and GHG emission reduction technologies until after first production commences (expected in late CY2026). We continue to pursue commercial solutions with our partners to reduce operational GHG emissions for Jansen
- **the planned FY2024 drilling program at BMA**, which will assist in obtaining a deeper understanding of methane quality and quantity (in both magnitude and density), will now commence during FY2026/27

For more information on our approach to methane measurement, management and mitigation at BMA, refer to **Our areas of focus to reduce operational GHG emissions** on pages 15 to 17, later in this section

These changes are not expected to have any material impact on our ability to meet our medium-term target.

Likely future changes

As our studies, trials and pilots progress, we expect there will be future changes in our operational GHG emissions plans.

We anticipate, in some cases, we may have been conservative in our assessment of when the market can innovate and develop new technologies that are safe and productive, while in other cases, there may be unforeseen delays and challenges impacting our planning.

Critical to minimising impacts to our plans is our identification and management of varying types of risks, including asset-, technology- and project-specific. We aim to do this primarily through the integration of decarbonisation into our corporate planning and capital project delivery processes.

Our estimated spend and commitments over the decade to FY2030 for operational GHG emission reductions will continue to evolve as we seek to maximise returns while growing the business and decarbonising our operations. To do this, we apply our Capital Allocation Framework to seek to ensure our decisions are aligned with our medium-term target and long-term net zero goal, as applicable, and rank highly against the risk and return metrics we use to evaluate decarbonisation projects.

The tugboats we operate at our WAIO asset are an example where we have less certainty of technology and commercial readiness of diesel displacement options

Our areas of focus to reduce operational GHG emissions

Electricity

Most of our operated assets are in locations that are grid-connected and have access to renewable and other low to zero GHG emissions electricity through a network.

This has enabled us to establish a number of low to zero GHG emission power purchase agreements rapidly and at scale for a significant proportion of our total FY2024 electricity demand.

We aim to prioritise and encourage new renewable generation where commercially feasible to help drive a broader and positive change in the grid's profile mix, instead of increasing the burden on existing generation. Nearly all of our power purchase agreements signed in or before FY2024 enable new renewable generation projects as a foundational or major customer.

Diesel displacement via electric mining equipment/vehicles will increase the amount of electricity required at some of our operated assets by between two and four times by CY2050. Future electricity demand from the grid will also be amplified by the broader electrification trend we are seeing within our mining peers and other industries. We expect demand-side management and load optimisation will become more important, including matching time-of-use and time-of-consumption. Depending on our ability to manage load and reduce peak power demand or add on-site generation and storage, many of our sites are likely to require increased capacity in transmission lines providing electricity to site.

We are studying the spare network capacity and the ability to meet this load growth with existing networks. We will continue to work with our network service providers to understand and plan for future capacity. Our management of this risk considers the significant long lead time for approvals, permitting, availability of key equipment (e.g. transformers) and specialised workforce with skills in building high voltage transmission and distribution networks, substations, and other tasks associated with electrification of our operations.

In some of our more isolated locations (e.g. our WAIO asset in the Pilbara region in Western Australia) there is currently a shortage of renewable electricity under development. We are working with electricity generators, network operators, renewable electricity developers and Traditional Owners to explore opportunities to increase availability in these locations.

Diesel

Diesel combustion was the single largest source of GHG emissions – 63 per cent – in our FY2024 reported Scopes 1 and 2 emissions inventory (adjusted for acquisitions, divestments and methodology changes). Finding new ways of extracting and moving material is critical to achieving our long-term net zero goal.

We expect to displace diesel primarily via electrification of mining equipment/vehicles (including locomotives) and the associated use of low to zero GHG emissions electricity sources.

The potential for additional upside benefits of electrification over diesel and other low to zero GHG emission alternatives (e.g. biofuels) includes:

- improved maintenance performance
- elimination of diesel particulate matter and any other tail-pipe emissions
- reduction in heat, noise and vibrations
- compatibility with autonomous driving technology such as easier pairing with trolley lines, reduced idle time, and overall efficiency improvements

We have been working with original equipment manufacturers and our mining peers on electric vehicles/mining equipment through groups such as the International Council on Mining and Metals' 'Innovation for Cleaner Safer Vehicles' initiative to help accelerate the availability of mining equipment and vehicles that are safe and reliable.

The electrification of our mining equipment/vehicles will also be a change to the way we operate at our sites, which we will need to manage so that our operations remain safe and productive. For example, electrification will require a significant increase in high voltage electrical infrastructure for trailing cables, trolley lines, fast chargers and other infrastructure that will need to be safely integrated into our operations.

The introduction of vehicle autonomy at a number of our sites has taught us valuable lessons about adopting and de-risking new technology, which we intend to incorporate into our electrification plans. This includes taking a site-by-site approach to learn and adapt our plans as we progress, and to identify any implications of these changes to the safety of our teams and the productivity of our operations.

Trials and pilots of electric mining equipment/vehicles have begun, such as excavators, jumbos (used to drill holes underground) and light vehicles, and will continue until adopted as business as usual. All trial, pilot and adoption dates (as shown in Figure 1.2 on page 12, earlier in this section) are current estimates and we expect some could change due to external factors. These include possible manufacturing challenges as they move from research and development to mass production, and the degree of acceleration of new technologies.

These trials and pilots will inform the operational changes we need to make and help validate our GHG emission reduction models. This will enable investment decisions and also inform future operating and maintenance strategies, including safety and operating conditions for future electrified sites.

Our trials, pilots and other supporting studies aim to understand and address a wide and essential range of variables, including:

- additional safety considerations
- performance in high temperature, high altitude, dusty and rough environments
- battery lifecycle and recycling
- high-power static and dynamic charging
- mixed diesel and electric mining equipment/vehicles
- integration with autonomous haulage

We expect original equipment manufacturers to be ready to produce electric mining equipment/vehicles at scale in the late 2020s.

Our WAIO asset will likely be our first operated asset to progressively roll-out electric haul trucks and excavators towards the end of the 2020s.

We consider biofuels as a backup option if electrification is delayed or unsuccessful, and we continue to monitor developments in this area. Our position on biofuels is informed by a trial in FY2023 that provided us valuable insights into using hydrogenated vegetable oil in multiple types of mining equipment. The trial also helped us understand the biofuels value chain and the importance of standards and quality assurance to mitigate potential concerns with these fuels (e.g. competition with food production, water use, land use, and transparency of feedstocks).

While our plan for displacing diesel used in most of our mining equipment/vehicles is clear, our potential pathway to decarbonise hard-to-electrify mining equipment/vehicles (e.g. drill rigs, dozers, tugboats) and other ancillary equipment is less clear. Biofuels are a technically viable option, but remain relatively expensive and subject to the potential environmental and ethical concerns we noted from our trial. We will continue to look for opportunities to collaborate to support further innovation for hard-to-electrify equipment.

Fugitive methane emissions

Fugitive emissions occur when methane or CO_2 contained within and near coal seams are released during the mining process.

Fugitive emissions come from our steelmaking coal asset BMA (which has four open-cut mines that comprise the bulk of our steelmaking coal production and one underground mine) and our energy coal asset New South Wales Energy Coal (NSWEC). For BMA, although we have a 50 per cent ownership interest, as the operator we incorporate 100 per cent of its operational GHG emissions in our reported inventory.

Our strategy to address fugitive emissions focuses on BMA as we plan to cease mining at NSWEC by the end of FY2030. Our strategy also focuses on fugitive methane emissions, as the volume of fugitive CO_2 emissions occurring at BMA is relatively small.

Our analysis shows we currently have lower fugitive methane emissions intensity at our coal mines relative to Australian and international coal mines.

Our areas of focus to reduce operational GHG emissions continued

Fugitive methane emissions continued

Our methane emissions intensity is expected to increase over time as mining deeper coal seams typically releases more methane than from shallower seams.

Mitigating fugitive methane emissions presents significant challenges for BMA, as it does for many of our mining peers. These challenges include:

- the relatively low fugitive methane emissions intensity of our open-cut mines, while positive, means abatement using current prevention technologies is either not feasible or viable
- the configuration and scale of open-cut mines make it hard to accurately apply less intrusive 'atmospheric' monitoring techniques necessary for targeted and effective prevention measures
- we need to supplement our existing, advanced long-term coal resource knowledge with comparable gas resource data to inform effective methane mitigation plans

Our strategy is to achieve accurate measurement and forecasting, and then advance to fugitive methane emissions prevention and, where necessary, mitigation. This will be a multi-year journey that we are progressing now.

Measurement

We are developing a gas resource characterisation drilling plan that is intended to provide the data we need to identify potentially viable sites and seams for prevention measures.

Certain methane management studies have been completed at BMA that identified some changes to the long-term characterisation of its methane gas profile. Combined with investigation of other technical and operational factors (e.g. coal seam thickness and permeabilities, drilling techniques and mining and drainage operational interfaces), improved knowledge and insight (including the study findings) will inform and enable the development of a more targeted methane measurement, management and mitigation strategy for our open-cut mines.

All our open-cut steelmaking coal mines and our energy coal mine now employ direct, site-specific measurement of their fugitive emissions, known as 'Method 2' under Australia's National Greenhouse and Energy Reporting (NGER) rules, which more accurately estimates fugitive methane emissions than 'Method 1'. This is because it is based on site-specific in-situ gas content rather than default emission factors.

For more information on 'Method 2' direct, site-specific measurement of fugitive emissions, refer to **Spotlight: The Australian Government's methods for measuring fugitive methane emissions** on this page

In addition, we recently worked with researchers and service providers on 'top-down' atmospheric monitoring using satellite, aerial and ground-based sensing techniques, which detected varying methane levels leading to inconclusive measurement results. Through this work, we have learned that applying 'top-down' techniques to geographically large, topographically complex and diffuse methane sources, such as our open-cut coal mines, is very complicated. We believe more research is required, including the trialling of different combinations of methane detection instruments and atmospheric modelling techniques, to enable a proper understanding of the role of 'top-down' monitoring in complementing and/or verifying the 'bottom-up' measurement methods we currently employ.

We are currently partnering with other companies in industry research and are supporting, where suitable, other 'top-down' measurement trials by credible stakeholders, such as the Australian Government and United Nations International Methane Observatory.

Our aim is to identify the potential for emerging technologies to improve our understanding of real-time relationships of fugitive methane emission levels and mining activities and use that to inform our future efforts in measurement, prevention and mitigation.

We continue to monitor the developing potential of these technologies to enable effective monitoring and assessment of methane emissions.

We disclose our fugitive methane and CO_2 emissions by mine site in the latest **BHP ESG Standards and Databook**, available at bhp.com/climate

Prevention

Abating fugitive methane emissions is a more difficult prospect in our open-cut mines (compared to our only underground mine, Broadmeadow at BMA).

Gas drainage is a proven technology for underground mining and is used primarily for safety reasons. However, gas drainage is novel for open-cut mining. This is especially the case at established mines where the integration of gas drainage and handling is likely to lead to planning and operational challenges.

Use of drainage in open-cut mines is currently in its infancy, with potential impacts to safety, the environment and productivity still being explored. Its current effectiveness in open-cut mines is highly variable and is limited by multiple factors, including geology, reservoir characteristics, lead time, engineering design, access and operating parameters. Additionally, not all our open-cut mines will allow drainage due to their relatively low fugitive methane emissions intensity.

Deployment of drainage in suboptimal conditions could result in wasted investment and misprioritisation that could divert expenditure from more impactful management or mitigation options. Even if the challenges posed by drainage could be overcome, it is unlikely to prevent 100 per cent of fugitive methane emissions at our mines.

We are working to address these challenges, including by collaborating with other miners in the Australian Coal Industry Research Program. We are also actively monitoring for new and evolving fugitive methane emission abatement technologies and intend to allocate funding to explore suitable opportunities as they arise.

Mitigation

At our only underground coal mine, Broadmeadow at BMA, we have made good progress destroying drained methane through flaring (which converts methane into less harmful CO_2), when safe and practical to do so. In FY2024, we abated approximately 85,000 tCO_2-e using this approach.

Our efforts are now focused on maximising the volume of methane destroyed, including a recent investment to upgrade our gas drainage gathering pipeline to enable more methane to be safely flared.

Spotlight

The Australian Government's methods for measuring fugitive methane emissions

Method 2 is a 'higher order' direct measurement approach that more accurately estimates fugitive methane emissions associated with a mine site than the Australian state-specific default emission factors specified in the NGER rules for Method 1.

Method 2 uses a Commonwealth Scientific and Industrial Research Organisation (CSIRO)-developed technique for determining in-situ gas contents that has been operationalised using industry standard gas sampling, testing and modelling techniques to enable site-specific measurements that meet the NGER regime's stringent requirements for data sufficiency, integrity and auditability. To the best of our knowledge, it is the only direct measurement method for open-cut coal mine fugitive methane emissions in the world and represents the most scientifically rigorous approach currently available for this source.

Method 2 has two primary steps:

- Analyse core samples and geological characteristics to develop a model that identifies the distribution and composition of gas content across the mine (or for a particular mine plan horizon). The model may take the form of a three dimensional 'grid' of different gas contents per coal seam and location, or one or more 'zones' containing similar strata for which gas content and composition are averaged. The standards for development of the gas model are strict and govern the procedures for core sample acquisition and laboratory testing, gas data validation and screening, geological interpretation, and the skills of the person or team performing the estimations.
- Yearly mapping of the location and quantity of the coal and other carbonaceous material extracted against the mine's gas model to determine the estimated amount of methane and CO_2 released to the atmosphere. This includes a portion of gas that is assumed to be released from any coal seams up to 20 metres below the open-cut pit floor.

Our areas of focus to reduce operational GHG emissions continued

Industry collaboration

We are working with our mining peers and suppliers to find and accelerate development of technologies and better solutions to reach net zero operational GHG emissions.

We have been active in industry collaborations. Collaboration between industry stakeholders, with essential support from professional services firms and academia, is critical to demonstrating that it is technically and commercially feasible to decarbonise heavy industry. We have also collaborated in the electrification of mining equipment, where we work with mining peers through industry-led consortiums.

Our industry collaborations include our work with:

- **Australian Industry Energy Transitions Initiative,** which brought together key stakeholders across the Australian industry to build demonstrable pathways to decarbonisation
- **International Council on Mining and Metals' 'Innovation for Cleaner, Safer Vehicles' initiative,** which brought together suppliers and mining operators to help accelerate the transition to electrified mining equipment/vehicles
- **CharIN's 'Mining Taskforce',** which brought together equipment manufacturers, mining operators and industry bodies to standardise the charging connectors for future electrified heavy mining equipment
- **Clean Technology Institute,** where Chilean universities, mining companies and other industry companies will collaboratively develop projects to support the electrification of mining operations
- **Caterpillar,** who we are collaborating with through its Early Learner program to develop and deploy Cat zero-exhaust emission trucks
- **Komatsu,** who we partnered with to seek to develop commercially viable zero GHG emission trucks
- **Rio Tinto,** a mining peer with whom we plan to mutually share Caterpillar and Komatsu truck trial outcomes
- **Progress Rail**, a Caterpillar company, that will supply two battery electric locomotives for our planned trials in CY2025
- **Wabtec**, where we plan to use two battery electric locomotives supplied by Wabtec for our planned trials in CY2025
- **Toyota Australia**, who we partnered with to enhance our approach to reducing operational GHG emissions and improving safety measures for vehicles at our Minerals Australia assets

Our engagement with industry associations, such as the Chilean Mining Council and Minerals Council of Australia (MCA), are important platforms for cross-industry collaboration to support our efforts to reduce operational GHG emissions. An example of this is our work within the MCA to provide feedback in support of the reforms to Australia's Safeguard Mechanism from the perspective of the Australian mining sector.

We have also been active in executive-level collaborations to facilitate senior level discussion across industry, such as the World Economic Forum's Transitioning Industrial Clusters and Clean Power for Industry initiatives. Outcomes from these collaborations have had meaningful benefits for us, including the progression of reporting frameworks to enable renewable electricity supply to be matched with consumption, helping inform the mix of electricity generation sources we plan to contract.

For more information on our indirect policy advocacy through industry memberships, refer to the **Climate policy advocacy** section on pages 39 to 41

Our electric utility vehicle pilot trial with Toyota Australia

Spotlight

Influences on our operational GHG emissions target- and goal-setting

Nationally determined contributions

The Nationally Determined Contributions (NDC) of the countries where we have significant operations are:

- **Australia** is committed to reducing GHG emissions by 43 per cent below its CY2005 levels by CY2030 and achieving net zero GHG emissions by CY2050
- **Chile** is committed to reducing its CO_2 emissions per GDP unit by 30 per cent below its CY2007 levels by CY2030 and achieving GHG emissions neutrality by CY2050
- **Canada** is committed to reducing GHG emissions by 40 to 45 per cent below its CY2005 levels by CY2030 and achieving net zero GHG emissions by CY2050

Country NDCs are relevant signposts for our own operational GHG emissions trajectory for our operated assets in those locations. However, NDCs for countries where we have significant operations have baseline years of CY2005 to CY2007, which makes it hard to compare their trajectory with the FY2020 baseline we have for our medium-term target and against which we track progress towards our long-term net zero goal.

Our position is to support appropriate sectoral policy responses that, in aggregate, contribute to the delivery of NDCs at a country level, such as Australia's Safeguard Mechanism.

Influences on our operational GHG emissions target- and goal-setting

To determine whether we should adjust our medium-term target or long-term net zero goal in the future, we monitor key factors, including:

- advances in knowledge and insight from the scientific community
- government climate policies
- international developments, such as the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP)
- technology readiness and commercial viability
- the expectations and decarbonisation progress of our mining peers, suppliers and customers
- the expectations of our shareholders and other stakeholders and partners

Medium-term target influences

Our medium-term target percentage reduction was established in FY2020 by applying the same rate of reduction to our operational GHG emissions as the rate of reduction to global GHG emissions required to meet the Paris Agreement goal to hold the global average temperature increase to well below 2°C (based on the Science Based Targets initiative's (SBTi) absolute contraction approach at that time).

While there is no universal standard for determining the alignment of targets with the goals of the Paris Agreement, SBTi is often cited as a means of providing some assurance on the level of ambition.

At the end of FY2024, SBTi had not developed a methodology to assess the diversified mining sector. It currently excludes target verification for any company deriving more than five per cent revenue from fossil fuel assets – drawing no distinction between coal used for steelmaking and coal produced for energy generation. SBTi criteria also currently require companies to set Scope 3 emissions targets related to the GHG emissions from the steel sector that are aligned with a 1.5°C pathway. However, our analysis indicates the steel sector, particularly in the developing world, is far from being aligned with a 1.5°C pathway with significant technological uncertainty and challenges remaining for the decarbonisation of steelmaking. Therefore, it is not possible for us to set and verify a suite of targets that the SBTi would validate at this stage.

Long-term net zero goal influences

Our operational GHG emissions long-term net zero goal was influenced by the Paris Agreement, the NDCs of the countries we have significant operations in, the expectations of our shareholders and key stakeholders, and the general scientific consensus that the world must be operating in a net zero GHG emissions environment by CY2050 to hold the global average temperature increase to well below 2°C.

Other regulatory mechanisms

A pathway to our operational GHG emissions long-term net zero goal, as for most companies, is a multi-decade challenge. It requires fundamental shifts in market design, reporting regimes and energy infrastructure.

Climate-related regulations and policies are key to our success because they enable effective long-term strategic decision-making and are directly or indirectly supportive of actions that reduce GHG emissions.

The recent introduction of climate-related regulations such as reforms to Australia's Safeguard Mechanism, Canada's Greenhouse Gas Pollution Pricing Act and Chile's Climate Change Law seek to create and maintain commercial environments that help to support the transition to a lower GHG emissions economy. These types of policies and regulations help create an environment where business can invest in lower GHG emission solutions with increased certainty. For example, Australia's Renewable Energy Target resulted in the scale-up of cost-competitive renewable energy being available to us.

We support government policies through our policy advocacy that enable technology development and deployment, as well as incentives for decarbonisation, in line with our Climate Policy Principles.

Our latest Climate Policy Principles are available at bhp.com/sustainability/climate-change/advocacy-on-climate-policy

Value chain GHG emissions

(Scope 3 emissions)

Net zero Scope 3 emissions requires the development of enabling technologies for near zero emissions steelmaking, which we are supporting through our strategy and medium-term goal for steelmaking.

Draining molten iron produced in an electrolysis test cell from BHP ores, as part of our partnership with Boston Metal to support scaling up of the molten oxide electrolysis cell, a potential steelmaking technology pathway

Our net zero goal for value chain GHG emissions (Scope 3 emissions)

Scope 3 emissions result from the activities of others, outside our direct control, so we seek opportunities to partner with customers, suppliers and others in our value chain.

We have a long-term goal of net zero Scope 3 GHG emissions by CY2050. Achievement of this goal is uncertain, particularly given the challenges of a net zero pathway for our customers in steelmaking, and we cannot ensure the outcome alone.

We use FY2020 as the reference year for our long-term net zero goal. Our value chain GHG emissions long-term goal of net zero Scope 3 emissions by CY2050 applies to our entire reported Scope 3 emissions inventory. We adjust value chain GHG emissions (Scope 3 emissions) for our long-term net zero goal's reference year and subsequent performance for acquisitions, divestments and methodology changes.

For the essential definitions, assumptions and adjustments for our long-term net zero goal, as well as more information on factors that inform them, including how we and our value chain may use carbon credits for offsetting, refer to **Additional information – Definitions and key details for our GHG emissions targets and goals** on pages 57 to 60

We also have medium-term goals for steelmaking and BHP-chartered shipping of our products, and long-term net zero targets for the shipping of BHP products and the operational GHG emissions of our direct suppliers.

In FY2024, our reported Scope 3 emissions inventory was 377.0 $MtCO_2$-e (adjusted for acquisitions, divestments and methodology changes). For comparison, our reported Scopes 1 and 2 emissions inventory was 9.2 $MtCO_2$-e (adjusted for acquisitions, divestments and methodology changes).

We apply a different calculation approach to our reported Scope 3 emissions inventory than for our Scopes 1 and 2 emissions inventory.

For more information on our latest progress, refer to the Climate change section in the latest BHP Annual Report, available at bhp.com/investors/annual-reporting

Strategy

Our strategy to support reduction of GHG emissions in our value chain has four primary focus areas:

1. Support the development and adoption of GHG emissions intensity reduction technologies in steelmaking
2. Enhance the quality of the iron ore and steelmaking coal we produce
3. Encourage direct suppliers to pursue net zero for their operational GHG emissions (Scopes 1 and 2 emissions)
4. Support the development and adoption of GHG emission reduction technologies in shipping

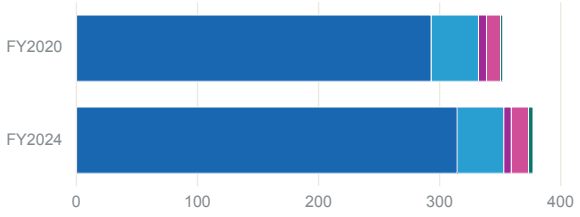
For more information on our value chain GHG emissions medium-term goals and long-term net zero targets and our approach to:

- supporting GHG emissions intensity reductions for steelmaking, refer to **Steelmaking: Our Scope 3 emissions goal to support capability for GHG emissions intensity reduction** on pages 24 and 25, later in this section
- encouraging direct suppliers to pursue net zero operational GHG emissions, refer to **Direct suppliers: Our Scope 3 emissions net zero target for direct suppliers' operational GHG emissions** on page 28, later in this section
- supporting GHG emission reductions from shipping, refer to **Shipping: Our Scope 3 emissions goal to support GHG emissions intensity reduction and net zero target** on pages 29 and 30, later in this section

These focus areas have been set with consideration of **the scale of GHG emissions in our value chain** (the dominant source being from processing of our iron ore and steelmaking coal by our customers for steelmaking), as shown in Figure 2.1, **the level of impact we can achieve with stakeholders and industry**, as shown in Figure 2.2, and **the alignment to our portfolio strategy**.

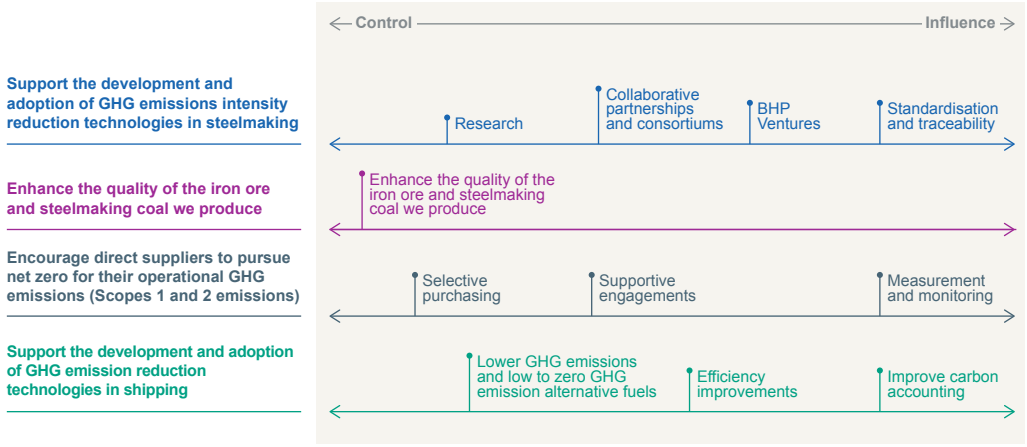
We estimate the current committed or planned funding and in-kind contributions from FY2020 to FY2029 by BHP and our industry partners in these steelmaking and shipping focus areas would result in a co-investment total of approximately US$820 million, based on available information and our assumptions.

Figure 2.1: Reported Scope 3 emissions inventory covered by our long-term net zero goal
Value chain GHG emissions ($MtCO_2$-e) (adjusted for acquisitions, divestments and methodology changes)



	FY2020	FY2024
Category 10 (subset) Steelmaking	292.9	314.4
Category 11 Energy coal	39.1	38.4
Categories 4 and 9 (subset) Shipping of BHP products	6.6	6.2
Categories 1, 3, 6 and 7 Supplier-related GHG emissions	11.6	14.3
Other categories Primarily copper processing, nickel processing and investments	1.8	3.7

Figure 2.2: Our ability to support reductions in our reported Scope 3 emissions inventory



Steelmaking
~US$420m co-investment from BHP and our steelmaking strategic partners
Total of committed and planned funding from us and our estimate of committed or anticipated funding and in-kind contributions from our strategic partners from FY2020 to FY2029.

Shipping
~US$400 co-investment from BHP and our maritime industry partners
Our estimate of actual or committed co-investment from us and our maritime industry partners from FY2021 to FY2024 led to by our shipping strategy.

For more information on how we have calculated our steelmaking co-investment estimates, refer to:

- **Steelmaking: Our Scope 3 emissions goal to support capability for GHG emissions intensity reduction** on pages 24 and 25, later in this section

For more information on how we have calculated our shipping co-investment estimates, refer to:

- **Shipping: Our Scope 3 emissions goal to support GHG emissions intensity reduction and net zero target** on pages 29 and 30, later in this section

Our net zero goal for value chain GHG emissions (Scope 3 emissions) continued

Strategy continued

Iron ore and steelmaking coal quality

The GHG emissions intensity of conventional blast furnace steelmaking can be reduced with higher quality iron ore and steelmaking coal. We anticipate that steelmakers will increasingly prefer higher quality raw materials as the steel sector decarbonises. We have increased the ratio of high grade lump ore that we produce through the recent development of our South Flank mine which completed its ramp up to full production capacity in FY2024.

In recent years we have divested our interests in BHP Mitsui Coal (BMC) and BMA's Blackwater and Daunia mines to high-grade our steelmaking coal portfolio.

We are also assessing other options to enhance the quality of our product portfolio in a targeted manner, including:

- beneficiating (i.e. using physical processes to remove impurities from ore) our iron ores
- washing our steelmaking coals to reduce ash content
- supporting customers to pelletise our iron ores to improve steelmaking efficiency

Other important considerations

For more information on the calculation methodologies, assumptions, treatment of divestments and acquisitions and key references used in the preparation of our reported GHG emissions data, refer to the latest BHP GHG Emissions Calculation Methodology, available at bhp.com/climate

Changes in our portfolio

Since our previous CTAP in CY2021 we have made changes in our portfolio relevant to our reported Scope 3 emissions inventory, primarily the divestment of our Petroleum business in FY2022 and the divestment of our interest in the energy coal asset Cerrejón in FY2022. Subsequently, Scope 3 emissions in Category 11 'Use of sold products' (which covers GHG emissions from the end use of goods and services sold by the reporting company, such as the combustion of energy coal or natural gas) are a significantly smaller source of GHG emissions in our reported Scope 3 emissions inventory.

We project the planned closure of our Mt Arthur Coal mine by FY2030 would result in Scope 3 emissions in Category 11 becoming an insignificant source in our reported Scope 3 emissions inventory.

Carbon credits used for offsetting

We anticipate offsetting by our customers, suppliers and other third parties will play a role in meeting our long-term net zero goal (and potentially our long-term net zero targets), particularly for residual GHG emissions in steelmaking which are not currently expected to reach net zero by CY2050.

Over time, as transparency improves over third-party offsetting of their GHG emissions that appear in our reported Scope 3 emissions inventory, we plan to recognise and report the net Scope 3 emissions after offsetting.

Carbon credits sourced by third parties in our value chain and associated with GHG emissions that appear in our reported Scope 3 emissions inventory would need to be high-integrity before we recognised that offsetting in our reporting.

For more information on our integrity standards that we apply to the carbon credits we source, refer to **Enabling delivery – How we manage carbon credits** on page 54

Measuring Scope 3 emissions

Improving GHG emissions measurement is essential to quantifying the GHG emission reductions occurring in our value chain as a result of our actions and support, as well as those occurring as a result of a global transition to net zero.

We currently estimate certain Scope 3 emission categories using methodologies that rely on industry assumptions rather than supplier- or customer-specific data. As a result, estimated GHG emissions for those categories may be higher or lower than calculated by the supplier or customer. This also means a significant proportion of our reported Scope 3 emissions inventory is currently not able to reflect GHG emission reductions that our suppliers and customers may achieve.

We are seeking ways to improve the availability and reliability of supplier- and customer-specific Scope 3 emissions data, and we have included this as part of our strategy for steelmaking, shipping and suppliers.

We are developing technology projects to streamline, automate and enhance carbon accounting and better integrate Scope 3 emissions data sources, as well as a pilot project for a data exchange platform to learn about viability and scalability.

We regularly engage with our steelmaking customers to discuss ways to align GHG emission calculation methodologies.

We have started to introduce contractual requirements for regular GHG emissions reporting by our suppliers that will help to build their measurement capability and improve our ability to report Scope 3 emissions.

We have already had some early successes with data availability for shipping stemming from our partnership with DNV and our use of its Veracity data platform for validation and reporting of shipping-related value chain GHG emissions since FY2022.

Non-operated assets

Our non-operated assets, like Samarco and Antamina, have their own operating and management standards.

Operational GHG emissions from our non-operated joint venture interests are reported in our Scope 3 emissions inventory under Category 15 'Investments' and are an immaterial source of Scope 3 emissions when compared to our FY2024 reported Scope 3 emissions inventory. We see our role in non-operated joint ventures as primarily to encourage and seek to influence them through their respective governance structures to reduce their operational GHG emissions, as well as sharing decarbonisation knowledge and experience where appropriate.

Samarco, which is jointly owned (50:50) by BHP Billiton Brasil LTDA and Vale S.A., has a target to reduce Scopes 1 and 2 emissions by 30 per cent by CY2032 compared to a CY2015 baseline, which is an important step towards its ambition to reach net zero for operational GHG emissions longer-term.[7]

Antamina, which we partly own (33.75 per cent), did not have public GHG emission reduction targets or goals in FY2024.

Steelmaking: Longer-term industry pathways

For the world to transition to a net zero economy and produce the steel needed to meet the demands of increasing urbanisation, population growth and energy transition infrastructure, widespread deployment of near zero emissions steelmaking technology is needed.

Today, integrated steelmaking via blast furnaces dominates ore-based steel production and has evolved to be more energy efficient, but it remains GHG emissions intensive. Lowering the GHG emissions intensity of ore-based steelmaking will require innovation through the adoption of alternative process routes, new equipment design and different operating parameters.

Near zero emissions steel can be successfully produced from scrap today in an electric arc furnace powered by renewable or other low to zero GHG emissions electricity. However, production is limited by the amount of scrap that can be recovered and there is expected to be a large deficit between scrap-based steel production and steel demand through to CY2050. We therefore expect ore-based steel production will continue to be a vital part of the industry.

We use our conceptual 'steel decarbonisation framework' as a foresight tool for how ore-based steel production may evolve. It consists of the four process routes which, in our view, offer the greatest potential for developing into near zero emissions steelmaking with sufficient flexibility, scalability and efficiency to support widespread adoption.

The four process routes, as shown in Figure 2.3, are described by the core ironmaking furnace or reactor used:

1. Blast furnace
2. Electric arc furnace
3. Electric smelting furnace
4. Electrolysis

The electric arc furnace and electric smelting furnace process routes are collectively referred to as direct reduced iron routes as they both require a direct reduced iron processing step prior to the electric furnace.

Under our framework, reaching an end state where near zero emissions steel production is widespread would involve the sector migrating through three stages of progression:

1. Optimisation
2. Transition
3. End state

Estimates of the typical GHG emissions intensity in the end state for the four process routes are shown in Figure 2.3. For residual GHG emissions, it may be technically feasible to reduce them even further, however offsetting methods may be a more cost-effective alternative.

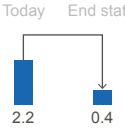
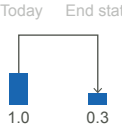
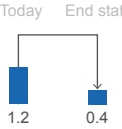
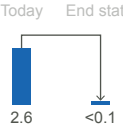
Overall, the pathways and stages of progression that individual steelmakers may take will vary, influenced by a range of factors, including:

- global and national economic trajectories
- government policy and regulatory settings
- steel grades that need to be produced
- land, labour and capital stock (including the age of existing infrastructure)
- materials and energy, particularly the availability, grade and cost of iron ore, scrap metal, low to zero GHG emissions electricity and key reductant fuel sources (steelmaking coal, natural gas and low to zero GHG emissions hydrogen)
- technological advances

These factors will largely determine how extensively hydrogen, natural gas, CCUS and electrolysis is used, as the industry pursues near zero emissions steel production. They will also mean there are likely to be significant differences in the prevalence of the four process routes, their configurations and the timing of adoption between regions, particularly between Asia and Europe.

We support government policies through our policy advocacy which enables technology development and deployment, as well as incentives for decarbonisation, in line with our Climate Policy Principles.

Figure 2.3: Potential ore-based (integrated) steelmaking technology pathways[8]

Process routes Sequence of furnaces or reactors used for process	1 **Blast furnace** Blast furnace – basic oxygen furnace	2 **Electric arc furnace** Direct reduced iron – electric arc furnace	3 **Electric smelting furnace** Direct reduced iron – electric smelting furnace – basic oxygen furnace	4 **Electrolysis** Electrolysis cell (molten oxide or low temperature)
Primary reactor technology readiness				
Raw material flexibility				Unknown
Steel grade flexibility				Unknown
Integration with existing plants				
Primary reductant source	Steelmaking coal	**Now**: Natural gas or coal (any) **Future**: Hydrogen	**Now**: Natural gas or coal (any) **Future**: Hydrogen	Electricity
GHG emission intensity (tCO_2 per tonne of steel)				
End state enablers	• CCUS • Top gas recycling • Low to zero GHG emission hydrogen • Biomass	• Low to zero GHG emission hydrogen • Abundant renewable electricity	• Low to zero GHG emission hydrogen • Abundant renewable electricity	• Abundant renewable electricity

Our latest Climate Policy Principles are available at bhp.com/sustainability/climate-change/advocacy-on-climate-policy

Steelmaking: Longer-term industry pathways continued

We believe a feasible GHG emissions intensity reduction trajectory for steelmaking will involve a combination of existing blast furnace assets (modified to reduce their GHG emission intensities), as well as the progressive introduction of near zero emission process routes.

Our strategy is to support the development of technologies across all four process routes.

Currently there are no near zero emissions technologies for iron ore-based steelmaking that are ready for widespread commercial adoption. This must change for us to achieve our long-term net zero goal.

Near zero emissions steelmaking options for the traditional blast furnace require CCUS in combination with other complementary technologies (e.g. top gas recycling).

Low to zero GHG emissions hydrogen has the potential to decarbonise the electric arc furnace and the electric smelting furnace process routes to near zero emissions.

The electric arc furnace route is relatively mature but lacks flexibility and there are insufficient high-quality iron ore resources to rely exclusively on this route to meet global demand. In CY2023, only 3 to 4 per cent of global seaborne iron ore supply met the specifications currently accepted in the market for production of direct reduced iron for electric arc furnaces.[9] It is critical the steel sector develops alternative technology pathways to near zero emissions steel that are compatible with a wider range of iron ore types.

For new process routes, we estimate the electric smelting furnace will begin to play a substantive role from the early- to mid-2030s, while electrolysis is unlikely to be ready for widespread deployment until the late 2030s. These estimates remain subject to further advancements and testing required to demonstrate technical and commercial viability.

For case studies on how we're supporting the development of the electric smelting furnace and electrolysis for steelmaking, refer to **Steelmaking: Case studies** on pages 26 and 27, later in this section

Our view is that decarbonisation of the steel sector is likely to occur more slowly than has been projected by many low GHG emission scenarios, including our 1.5°C scenario.

For more information on the steel sector in our 1.5°C scenario, refer to **Portfolio – Steelmaking, iron ore and steelmaking coal in our 1.5°C scenario** on pages 37 and 38

We also believe decarbonisation of the steel sector will occur more slowly than what has been projected by the International Energy Agency's Net Zero Emissions by 2050 scenario. That scenario incorporates a larger role for electrolysis in the period to CY2050, which we believe is unlikely to be feasible based on current technical and commercial readiness.

Our view of a near zero emissions steel trajectory for the sector informs our strategy and actions, and reflects the signposts we have observed, particularly over the past three years. Our view is informed by:

- insights from our customers
- investment commitments from steelmakers
- lead time for permits and construction for new operations or retrofitting of existing blast furnace assets
- policy settings in the dominant steel producing regions (particularly China and India)
- cost
- technology readiness levels
- lifespan of existing assets (particularly for regions with younger blast furnace fleets)

We continue to monitor these signposts and incorporate their signals into our views on a feasible transition for the steel sector and its likely timeframe.

Electra (which we invested in through BHP Ventures) and their pilot plant facility in Boulder, Colorado

BHP iron ore (left), direct reduced iron produced from BHP iron ore (middle) and iron after electric smelting of BHP direct reduced iron (right)

Steelmaking: Our Scope 3 emissions goal to support capability for GHG emissions intensity reduction

Our medium-term goal is to support industry to develop steel production technology capable of 30 per cent lower GHG emissions intensity relative to conventional blast furnace steelmaking, with widespread adoption expected post-CY2030.

For the essential definitions, assumptions and adjustments for this medium-term goal, as well as more information on factors that inform it, and more information on how we define the GHG emissions intensity of the unmodified blast furnace process route, refer to **Additional information – Definitions and key details for our GHG emissions targets and goals** on pages 57 to 60

We have revised the language used in our medium-term goal for steelmaking to provide greater clarity and to reflect the range of steelmaking process routes that now form part of our strategy. This is due to technological advances as well as the evolution of our strategy. We have clarified that 'technologies and pathways' (as used in our original language) means 'steel production technology'. We have also replaced 'reduction in integrated steelmaking' with 'relative to conventional blast furnace steelmaking', which broadens the scope of our medium-term goal to encompass GHG emissions abatement across more process routes than just the conventional blast furnace route. This brings the wording of our medium-term goal in line with our current activities (as described on this page) and plans across all four steelmaking process routes (as described on the previous pages).

For the previous language of our medium-term goal for steelmaking, refer to the Climate change section in the BHP Annual Report 2023, available at bhp.com/investors/annual-reporting

We are technically and financially contributing to the development of technologies that can potentially provide a GHG emissions intensity reduction of at least 30 per cent.

These technologies may be deployed either in isolation or in combination. While some of the technologies we are supporting have a potential GHG emissions intensity reduction exceeding 30 per cent, none has the commercial readiness and flexibility needed for widespread adoption today.

We currently estimate steelmaking-associated Scope 3 emissions using a methodology that relies on industry assumptions rather than customer-specific data. As a result, any GHG emission reductions achieved by our steelmaking customers because of our actions are not reflected in our FY2024 reported Scope 3 emissions inventory. We continue to engage with our steelmaking customers on ways to enhance GHG emission data collection and calculation methodologies with an eventual aim to increase visibility of the Scope 3 emissions associated with the processing of our sold products.

For more information on our latest progress, refer to the Climate change section in the latest BHP Annual Report, available at bhp.com/investors/annual-reporting

Our strategy and actions

Since publishing our previous CTAP in CY2021, we have made substantial progress toward the achievement of our medium-term goal for steelmaking. Drawing upon our in-house iron and steelmaking industry expertise, we have developed our steelmaking decarbonisation project program, as shown in Figure 2.4. Our ambition is for multiple technology pathways to mature so that there are commercially feasible options available to steelmakers in different regions.

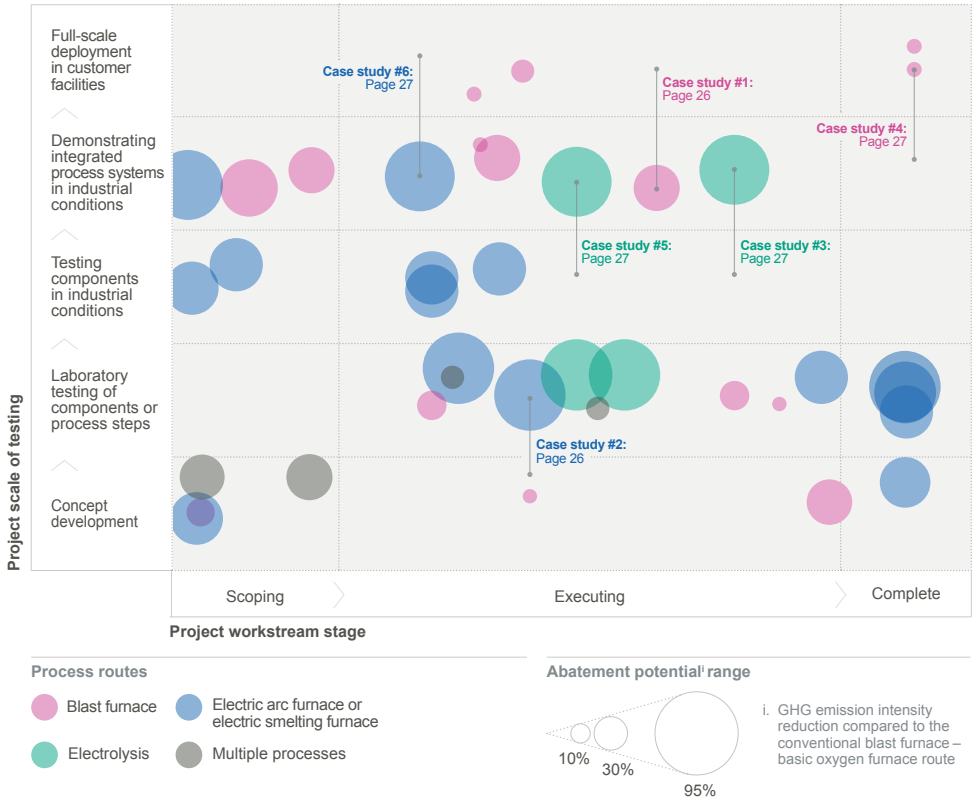
More information on the projects we have in our steelmaking decarbonisation program is available at bhp.com/climate

The primary criteria we use to identify and prioritise projects for our program are:

- **Scale:** The depth of GHG emission abatement that could be attained, how quickly it could be brought to readiness, and how broadly it could be adopted across the industry
- **Influence:** Our capabilities and the leverage available to us to have a tangible impact on development and help enable the technology to be successfully propagated
- **Alignment:** Relevance to our assets, our commodities and our customers, and the fit within the wider technology landscape

Our pipeline of projects spans a wide range of process routes and levels of technological maturity.

Figure 2.4: Our project workstreams for steelmaking GHG emissions intensity reduction[15]
Project workstreams (not all project workstreams are shown)



48 partners
Distinct industry partners, including 9 steelmakers, 16 research institutes and 11 technology companies (both start-ups and vendors)[10]

20% coverage
Partnerships with steelmakers represent 20 per cent of CY2023 reported global steel production[11]

Steelmaking: Our Scope 3 emissions goal to support capability for GHG emissions intensity reduction continued

Our strategy and actions continued

Our steelmaking decarbonisation program has four components:

1. **Collaborative partnerships and consortiums:** We partner to develop and execute high-impact tests, trials, pilots and demonstrations that can be shared with steelmakers and are aligned with our conceptual steel decarbonisation framework.
2. **Research:** We directly fund, produce and disseminate industry-leading research, collaborate with technology developers and support the establishment of cooperative research centres.
3. **BHP Ventures:** We invest in early-stage technologies with breakthrough potential and participate in their development journey.
4. **Standardisation and transparency:** We advocate for consolidated, robust sustainability and reporting standards that are fit-for-purpose and support transparency and traceability improvements in the value chain.

Across all four areas, we regularly monitor the merits of technologies under development.

Collaborative partnerships and consortiums

We collaborate with strategic partners in the steel sector through bilateral partnerships and through larger consortiums. Our partners share a common aim to accelerate GHG emission reductions in steelmaking – for existing and new steelmaking assets. The scope of each of our partnership projects is consistent with our partners' technology roadmaps.

To support the development of near zero emissions steelmaking technologies, we aim to progress specific partnerships to more mature development phases over time, while also considering options for greater collaboration to increase the scale and impact of knowledge sharing. Our electric smelting furnace pilot plans are an example where:

1. In FY2022, we successfully tested electric smelting of our iron ores at laboratory scale (at the University of Newcastle) and prioritised the technology for scale up.
2. In FY2023, we formed a partnership with the engineering firm, Hatch, to design an electric smelting furnace pilot plant. The design study was completed in February 2024.
3. In FY2024, we formed a consortium with BlueScope and Rio Tinto to conduct a joint pre-feasibility study for a pilot facility. This arose from a shared ambition to collaborate and advance near zero emissions steelmaking in Australia. If the study is successful and further investment is approved by all partners, a pilot plant could be commissioned as early as CY2027.

Research

The research we conduct is a foundation for effective technological development. Our laboratory experimental programs and published research build the understanding of fundamental processes to inform the:

- scope of larger and more costly industrial trials
- optimisation of our customers' operations to lower their GHG emissions
- design of GHG emission abatement technology

We are expanding our established and industry-leading research programs with further funding and enhancing our own capabilities to help accelerate the generation and sharing of knowledge.

During FY2024, we strengthened our funding commitment to the BHP Centre for Sustainable Steelmaking Research (formerly the Centre for Ironmaking Materials Research) at the University of Newcastle in Australia. Through this and other research activities, we have been focusing on areas such as demonstrating the performance of BHP ores in pellet blends in China, testing hydrogen reduction and electric smelting of BHP ores, and studying biomass utilisation in coke-making.

BHP Ventures

Through our venture capital arm, BHP Ventures, we search for and invest directly in early-stage and developing technologies with breakthrough potential. BHP Ventures' participation in the technology ecosystem affords us early visibility of potential breakthroughs and the opportunity to access and accelerate their development creating real strategic benefits and financial returns.

In the iron and steel sector, BHP Ventures is invested in transformative electrochemical reduction technologies, which utilise electrons instead of carbon to reduce iron oxide ores to metallic iron. Leading startups Boston Metal and Electra have demonstrated to us their focus and capability to rapidly advance and adapt their technologies toward the technical demands of efficient, scalable iron and steelmaking. These technologies have now progressed through from the laboratory to pilot-scale, with plans for demonstration-scale options.

Standardisation and transparency

We advocate for the harmonisation of sustainability-related standards, including Scope 3 emission measurement methodologies in steel value chains.

As a member of ResponsibleSteel, we are actively engaged in the development of broader sustainability performance standards that promote responsible production improvements in steel value chains.

Co-investment

Through our steelmaking decarbonisation program, we aim to leverage our own funding by significant multiples by attracting and enabling investment (financial and in-kind) from our strategic partners. As shown in the key metrics on the right, we estimate a potential co-investment figure by combining funding by us and funding and in-kind contributions from our partners for the period from FY2020 to FY2029, to indicate how our funding can amplify impact. This figure is not a forecast and relies on estimation that is limited by available information and our assumptions. We hope to see certain projects in our program qualify for government funding available to accelerate pre-commercial innovation, which can further amplify impact.

Governance

Our strategy, actions and progress to support steelmaking GHG emission reductions are subject to existing Board and management governance.

Between FY2021 and FY2023, we have included measures related to steelmaking and the support of our steelmaking medium-term goal as part of the determination of remuneration outcomes for our Chief Executive Officer (CEO) and other ELT members.

For more information on our climate-related governance and remuneration, refer to:
- **Enabling delivery – Our governance on page 50**
- **Enabling delivery – Our management, remuneration and organisational capability** on page 51

All investments related to steelmaking GHG emission reductions that are above a certain financial threshold are subject to existing capital management processes.

For more information on how we review proposed investments, refer to **Enabling delivery – How we manage capital on page 53**

Key actions

Key actions are included in each of the case studies outlined on the next two pages.

~US$**420**m co-investment this decade

Total of committed and planned funding from us and our estimate of committed or anticipated funding and in-kind contributions from our strategic partners from FY2020 to FY2029 in support of steelmaking GHG emissions intensity reductions[12]

This figure includes the estimated contributions from our strategic partners, as well as:

~US$**140**m funding committed by BHP in the past five years

Committed funding (including BHP Ventures investments) from FY2020 to FY2024[13]

and

~US$**75**m funding planned by BHP for the next five years

Estimated additional funding (including BHP Ventures investments) for FY2025 to FY2029[14]

39% alignment

Proportion of our FY2024 iron ore and steelmaking coal revenue from customers that have set net zero operational GHG emissions targets or goals for CY2050 or sooner

Case study #1
Optimising carbon capture for blast furnace gas

Process route	Blast furnace
Technology route	CCUS
GHG emissions intensity reduction potential[15]	45 per cent, or 1.0 tCO_2 per tonne of steel
Technology readiness level (TRL) (1 to 9)[16]	Component tests in operational environment (TRL 5 to 6)
Collaboration model	Consortium
Project type	Industry trial

Partners

ArcelorMittal: Leading multinational steelmaker

Mitsubishi Heavy Industries: Technology vendor and trial operator

Mitsubishi Development: Mineral resources developer and investor in Australia, and wholly owned subsidiary of Mitsubishi Corporation

BHP contribution

Trial funding, technical support and guidance, and project structuring

Project aims

Pilot the performance of a commercially available carbon capture process on blast furnace gas and other on-site point sources in order to test the efficiency and effectiveness of CCUS for various gas streams and support the scale-up of CCUS

> "The installation of the carbon capture unit on our Ghent blast furnace is a great example of a step towards CO_2-free processes."
>
> ArcelorMittal Belgium
> Chief Executive Officer, Manfred Van Vlierberghe

Recent activities

- Designed, constructed and commissioned industrial pilot equipment at ArcelorMittal's Ghent steelworks in Belgium – a flagship operation for blast furnace GHG emissions intensity reduction research
- Commenced carbon capture trials in FY2024, testing its efficiency and effectiveness on blast furnace gas streams

Next steps

- Conduct the carbon capture testing pilot at Ghent for 12 to 18 months, including testing of other on-site GHG emission point sources
- Continue engineering studies for commercial installation as part of ArcelorMittal's decarbonisation roadmap for its Ghent operations

Carbon capture plant at ArcelorMittal's Ghent steelworks

Case study #2
Hydrogen reduction and electric smelting of BHP ores

Process route	Electric smelting furnace
Technology route	Hydrogen reduction and smelting
GHG emissions intensity reduction potential[15]	85 per cent, or 1.8 tCO_2 per tonne of steel
Technology readiness level (TRL) (1 to 9)[16]	Laboratory validation (TRL 4 to 5)
Collaboration model	Research
Project type	Laboratory scale optimisation program

Partners

BHP Centre for Sustainable Steelmaking Research at the University of Newcastle in Australia: Leading ironmaking research centre

BHP contribution

Direct funding support, supply of raw materials for testing and technical resources

Project aims

- Test hydrogen reduction and electric smelting of BHP iron ore using laboratory prototype equipment
- Investigate iron ore performance, optimise the test methodology and scale up the experiments to 100kg to 200kg scale

Recent activities

Successfully used hydrogen to convert our WAIO iron ore fines into direct reduced iron, then electrically smelted the direct reduced iron to produce molten iron at laboratory scale

Next steps

- Further research into hydrogen reduction of our iron ores in shaft furnace and fluidised bed laboratory scale tests
- Planned optimisation experiments at the kilogram scale and continue smelting batch testing at hundreds of kilograms scale
- Evaluation of the potential to utilise electric smelting furnace slag waste as a cement substitute (thereby avoiding GHG emissions associated with the production of Portland cement)

BHP Centre for Sustainable Steelmaking Research conducting a laboratory electric smelting furnace test

> "Our laboratory tests and advanced research are revealing the mechanisms of hydrogen-based steelmaking using BHP iron ores – critical knowledge for successful scale up of the technology."
>
> University of Newcastle
> Professor Tom Honeyands

The information and analysis in each of the case studies on this page has been prepared by BHP and does not necessarily reflect the views of BHP's partner(s) in the collaboration featured by the case study.

Case study #3
Molten oxide electrolysis

Process route	Electrolysis
Technology route	Electrolysis
GHG emissions intensity reduction potential[15]	95 per cent, or 2.1 tCO_2 per tonne of steel
Technology readiness level (TRL) (1 to 9)[16]	Pilot validation (TRL 5)
Collaboration model	BHP Ventures-led investment
Project type	Laboratory test program and pilot plant

Partners
Boston Metal: Technology startup based in the US

BHP contribution
– Equity investment (through BHP Ventures) as a strategic partner, supply of ores for testing and technical knowledge exchange

Project aims
– Support the development of molten oxide electrolysis technology, which has the potential to provide a scalable, near zero emissions ironmaking process without fossil fuels or hydrogen and may have the flexibility to process a variety of iron ore types
– Understand its breakthrough potential and establish the performance of our iron ore products early in the development lifecycle

Recent activities
– In CY2023, we increased our investment by participating in Boston Metal's Series C funding
– We have collaborated closely with Boston Metal since CY2020, including sharing expertise to support technology development and supplying iron ore to support scaling up of the molten oxide electrolysis cell

Next steps
– Boston Metal plans to commission new test equipment in CY2024 to validate and integrate design components at larger scale, with a full-scale industrial cell prototype anticipated as early as CY2026
– We commenced a larger scale, longer testing campaign in May 2024 to extend our understanding of the performance of our iron ores in Boston Metal's commercial-scale cell

Case study #4
China customer partnerships to improve blast furnace efficiency

Process route	Blast furnace
Technology route	Raw materials efficiency and coke ovens gas injection
GHG emissions intensity reduction potential[15]	5 per cent, or 0.1 tCO_2 per tonne of steel
Technology readiness level (TRL) (1 to 9)[16]	Integrated system demonstrations (TRL 8 to 9)
Collaboration model	Customer partnerships
Project type	Industry trial and full-scale implementation

Partners
HBIS: Leading Chinese steelmaker
Zenith: Leading Chinese steelmaker

BHP contribution
– Funding, project resources, technical knowledge and supply of ores for testing

Project aims
– Study and undertake GHG emission reduction initiatives on multiple blast furnaces at commercial scale that can have immediate impact

Recent activities
– Installed a novel lump iron ore screening plant at a HBIS site to more efficiently clean lump iron ore before charging into the blast furnace, allowing high ratios of lump to be used instead of more GHG emissions intensive pellets and sinter
– Completed an engineering design study and began the installation of a commercial-scale drying system at the HBIS site to further improve the use of lump iron ore in place of pellets and sinter, and lower fuel use and GHG emissions
– Began an engineering study with Zenith to install hydrogen-rich byproduct coke oven gas injection into the blast furnace to lower coal use and GHG emissions intensity of steel production. The parties have since agreed and announced their plans to jointly fund the installation of coke oven gas injection equipment

Next steps
– Construction of the HBIS lump iron ore dryer project and the Zenith coke oven gas injection will continue into FY2025

Case study #5
Low temperature electrolysis

Process route	Electrolysis
Technology route	Electrolysis
GHG emissions intensity reduction potential[15]	95 per cent, or 2.1 tCO_2 per tonne of steel
Technology readiness level (TRL) (1 to 9)[16]	Pilot validation (TRL 5)
Collaboration model	BHP Ventures-led investment
Project type	Laboratory test program and pilot plant

Partners
Electra: Technology startup based in the US

BHP contribution
– Equity investment (through BHP Ventures) as a strategic partner, supply of ores for testing and technical knowledge exchange

Project aims
– Support the development of low temperature electrolysis technology, which has the potential to provide a scalable, near zero emissions ironmaking process with the flexibility to process a variety of iron ore types
– Understand its breakthrough potential and establish the performance of our iron ore early in the development lifecycle
– Explore performance impacts when rapidly turned down or idled, as this could enable the use of variable renewable electricity without power storage

Recent activities
– In March 2024, Electra announced the launch of a pilot plant in Boulder, Colorado to produce 1m² pure iron plates. Our iron ore has been supplied for testing

Next steps
– Continue testing of our iron ores at Electra's pilot plant to extend our understanding of the performance of our iron ores and support the development of the electrochemical and hydrometallurgical process

Case study #6
Electric smelting furnace pilot plant

Process route	Electric smelting furnace
Technology route	Smelting
GHG emissions intensity reduction potential[15]	85 per cent, or 1.8 tCO_2 per tonne of steel
Technology readiness level (TRL) (1 to 9)[16]	Laboratory validation (TRL 4 to 5)
Collaboration model	Consortium
Project type	Pilot plant

Partners
BlueScope: Leading Australian steelmaker
Rio Tinto: Mining peer

BHP contribution
– Funding, project resources, technical knowledge and supply of ores for testing

Project aims
– Demonstrate the potential viability of near zero emissions electric smelting to our customers
– Work towards a pilot-scale facility to seek to resolve technical questions that cannot be answered in the laboratory
– Optimise for safe and efficient processing of Pilbara iron ores at full scale
– Accelerate the opportunity for scale-up of this technology in a configuration suitable for our ores

Recent activities
– In FY2023, we announced a pre-feasibility design study for a pilot-scale electric smelting furnace facility with Hatch. The study examined scale, configuration, and location of a potential pilot facility and was completed in FY2024.
– In FY2024, we announced a collaboration with Rio Tinto and BlueScope to consolidate and advance the work each has undertaken to date

Next steps
– We will assess locations in Australia for a pilot facility together with Rio Tinto and BlueScope, considering supporting infrastructure, workforce, access to target industry and suppliers, and the suitability for operational trials. This study is expected to conclude in FY2025. If approved, the pilot facility could be commissioned as early as CY2027

The information and analysis in each of the case studies on this page has been prepared by BHP and does not necessarily reflect the views of BHP's partner(s) in the collaboration featured by the case study.

Direct suppliers: Our Scope 3 emissions net zero target for direct suppliers' operational GHG emissions

Our long-term target is to achieve net zero by CY2050 for the operational GHG emissions of our direct suppliers.

We use FY2020 as the reference year for our long-term net zero target. This long-term net zero target covers the Scopes 1 and 2 emissions (i.e. operational GHG emissions) of our direct suppliers in our reported Scope 3 emissions inventory in:

- Category 1 'Purchased goods and services (including capital goods)'
- Category 3 'Fuel-related and energy-related activities'
- Category 6 'Business travel'
- Category 7 'Employee commuting'

We adjust supplier-related value chain GHG emissions (Scope 3 emissions in the above categories) for our reference year and subsequent performance for acquisitions, divestments and methodology changes.

For the essential definitions, assumptions and adjustments for this long-term net zero target, as well as more information on factors that inform it including how we and our value chain may use carbon credits for offsetting, refer to **Additional information – Definitions and key details for our GHG emissions targets and goals** on pages 57 to 60

For more information on our latest progress, refer to the Climate change section in the latest BHP Annual Report, available at bhp.com/investors/annual-reporting

Industry pathways

Most of our reported Scope 3 emissions inventory covered by our long-term net zero target for direct suppliers is in Category 1, as shown in Figure 2.5.

Around five per cent of our FY2024 reported Scope 3 emissions inventory for Category 1 (adjusted for acquisitions, divestments and methodology changes) was from suppliers providing engineering, financial, labour, insurance and consulting services. Operational GHG emissions from these types of suppliers are typically dominated by electricity use. We expect that because reducing operational GHG emissions from electricity is one of the relatively easier GHG emission abatement pathways to pursue, these types of suppliers should be more willing and able to set a net zero operational GHG emissions target or goal – and potentially for a timeframe well before CY2050.

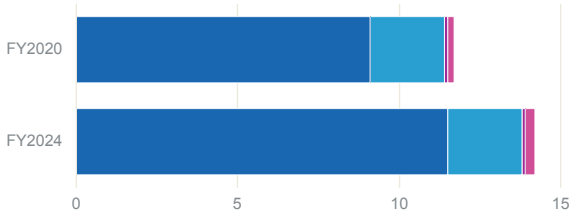
Around 44 per cent of our FY2024 reported Scope 3 emissions inventory for Category 1 (adjusted for acquisitions, divestments and methodology changes) was from types of suppliers whose GHG emissions are hard-to-abate. These include suppliers of major mobile and fixed equipment, tyres, air transportation, chemicals and explosives. Due to their hard-to-abate operational GHG emissions profile, these suppliers can find it more challenging to set a net zero operational GHG emissions target or goal. This situation is further complicated by the relatively smaller pool of these types of suppliers, requiring us to work more closely to encourage their GHG emission reduction efforts.

The level of difficulty in abating the remainder of our FY2024 reported Scope 3 emissions inventory for Category 1 sits somewhere in between easier-to-abate and hard-to-abate.

Our long-term net zero target for direct suppliers also covers Category 3, 6 and 7. We aim to apply our strategy to these other categories where feasible, noting that they have significantly less GHG emissions than Category 1.

Figure 2.5: Reported Scope 3 emissions inventory covered by our long-term net zero target for direct suppliers

Scope 3 emissions ($MtCO_2$-e) (adjusted for acquisitions, divestments and methodology changes)



	FY2020	FY2024
Category 1 Purchased goods and services (incl. capital goods)	9.1	11.5
Category 3 Fuel- and energy-related activities	2.3	2.3
Category 6 Business travel	0.1	0.1
Category 7 Employee commuting	0.2	0.3

Strategy

Each year we spend billions of dollars on goods and services from thousands of suppliers. Our strategy targets our top 500 suppliers by spend, which contributed to 78 per cent of our FY2024 total spend on suppliers.

Selective purchasing

Our selective purchasing approach sets a commercial requirement that, over time, a supplier must actively reduce its operational GHG emissions and/or maintain a competitive level of GHG emissions intensity for their product or service. We expect that, for contracts where we implement this, it will add commercial value for direct suppliers with robust plans and demonstrated performance improvement.

We have also recently begun to incorporate new GHG emission reduction criteria into our supplier selection and tendering processes, including the setting of net zero targets and goals, the GHG emissions intensity of the goods and services being provided, or specific and relevant GHG emission reduction initiatives.

We have seen a year-on-year increase in the proportion of our top 500 suppliers that have a target or goal aligned with our long-term net zero target for direct suppliers – from 27 per cent in FY2022, increasing during FY2023 and up to 78 per cent in FY2024.

We also recognise selective purchasing will be a progressive strategy as many suppliers are still early in the journey towards setting and progressing towards their GHG emission reduction targets and goals.

Supportive engagements

Our supportive engagements intend to identify, assess and pursue opportunities to partner with our direct suppliers to support their GHG emission reduction initiatives.

Measurement and monitoring

Measurement and monitoring are essential to assessing performance against our long-term net zero target for direct suppliers. Our current calculation methodology for Scope 3 emissions reporting depends on industry averages.

We plan to improve the accuracy of our Scope 3 emissions inventory reporting over time, noting there is currently a wide range of reporting capabilities among our suppliers. We have started to introduce contractual requirements for regular GHG emissions reporting by our suppliers that will help to build their measurement capability and improve our ability to report progress against our long-term net zero target for direct suppliers. We have also made incremental improvements in the calculation of this part of our reported Scope 3 emissions inventory, moving from spend-based emission factors to quantity-based measurement for certain supplied items.

Shipping: Our Scope 3 emissions goal to support GHG emissions intensity reduction and net zero target

Our medium-term goal is to support 40 per cent GHG emissions intensity reduction of BHP-chartered shipping of BHP products by CY2030, from a CY2008 baseline.

Our long-term net zero target is to achieve net zero by CY2050 for the GHG emissions from all shipping of BHP products.

We use FY2020 as the reference year for our long-term net zero target. We adjust shipping-related value chain GHG emissions (Scope 3 emissions, Category 4 'Upstream transportation and distribution' and Category 9 'Downstream transportation and distribution' emissions) for our CY2008 baseline year for our medium-term goal and FY2020 reference year for our long-term net zero target, and subsequent performance for acquisitions, divestments and methodology changes.

For the essential definitions, assumptions and adjustments for this medium-term goal and long-term net zero target, as well as more information on factors that inform them, including how we and our value chain may use carbon credits for offsetting, refer to **Additional information – Definitions and key details for our GHG emissions targets and goals** on pages 57 to 60

We have also committed that, by CY2030, 10 per cent of our total products shipped to our customers using our time charter vessels will be using zero GHG emission fuels. This commitment is subject to the availability of technology, supply, safety standards and the establishment of reasonable thresholds for price premiums.

Our medium-term goal for shipping relies on sector-wide progress being made by the shipping industry and so we have framed it as a goal and aligned it with the approach of the International Maritime Organisation (IMO), which has set levels of ambition for GHG emissions for the international shipping sector. We selected CY2008 as our goal's baseline year to align with the base year for the IMO's CY2030 goal and its corresponding reasoning and strategy.

Together, shipping industry participants, including us, have made significant progress, particularly through vessel efficiency, to enable GHG emissions intensity reductions compared to CY2008 for BHP-chartered shipping of our products.

In FY2024, the GHG emissions intensity of BHP-chartered shipping was 42 per cent below CY2008 (adjusted for acquisitions, divestments and methodology changes), as shown in Figure 2.6, achieved through a combination of lower GHG emission fuel use and vessel efficiency improvements.

We believe it will be possible to at least maintain, if not reduce, GHG emissions intensity in the coming years although this will be more challenging because of our expanding business activity and the associated dependence on the availability of GHG emission reduction solutions for the shipping industry.

We see the potential for emerging pathways to enable net zero GHG emissions from shipping in the future based on the industry's ambition and promising progress so far in the development and trialling of low to zero GHG emission fuels. Our long-term net zero target reflects this ambition and progress.

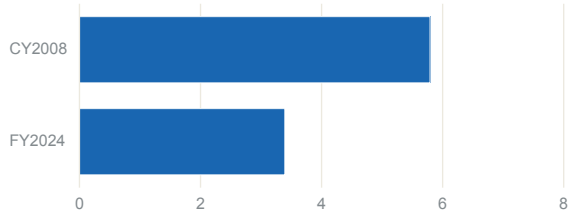
For more information on our latest progress, refer to the Climate change section in the latest BHP Annual Report, available at bhp.com/investors/annual-reporting

Industry pathways

The IMO has set levels of ambition, strategies and regulations governing the GHG emissions resulting from the international shipping sector. As a result, we are seeing the shipping industry beginning to focus on the next stage of what will be required to decarbonise to net zero.

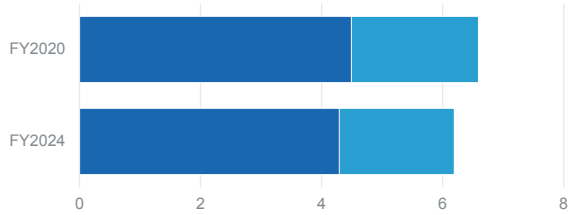
For more information on the IMO's levels of ambition for international shipping, refer to **Spotlight: The International Maritime Organisation and its levels of ambition for international shipping** on this page

Figure 2.6: Reported Scope 3 emissions intensity covered by our medium-term goal for shipping
Grams of CO_2-e per deadweight tonne per nautical mile (gCO_2-e/dwt/nm) (adjusted for acquisitions, divestments and methodology changes)



	CY2008	FY2024
Category 4 (subset) BHP-chartered shipping of BHP products	5.8	3.4

Figure 2.7: Reported Scope 3 emissions inventory covered by our long-term net zero target for shipping
Scope 3 emissions ($MtCO_2$-e) (adjusted for acquisitions, divestments and methodology changes)



	FY2020	FY2024
Category 4 (subset) BHP-chartered shipping of BHP products	4.5	4.3
Category 9 (subset) Third party-chartered shipping of BHP products	2.1	1.9

Spotlight

The International Maritime Organisation and its levels of ambition for international shipping

The IMO is the United Nations agency responsible for measures to improve international shipping and prevent pollution. The IMO has set the following levels of ambition for the international shipping sector:

- reduce CO_2 emissions per transport work (i.e. the transport of a unit of cargo or passengers per nautical mile), as an average, by at least 40 per cent compared to CY2008, by CY2030
- uptake of zero or near zero GHG emission technologies, fuels and/or energy sources[17] to represent at least five per cent, striving for 10 per cent, of the energy used, by CY2030
- peak GHG emissions as soon as possible, and reach net zero GHG emissions by or around CY2050

The IMO is supporting shipping industry progress to achieve these ambitions through current and proposed regulatory measures and a capacity building and technical assistance program that includes a range of global projects.

For more information on the IMO's work to cut GHG emissions from ships, refer to the IMO website, available at imo.org/en/MediaCentre/HotTopics/Pages/Cutting-GHG-emissions.aspx

Shipping: Our Scope 3 emissions goal to support GHG emissions intensity reduction and net zero target continued

Industry pathways continued

In the 2020s, the largest GHG emission reduction opportunities for international shipping are expected to come from improved operational and technological energy efficiencies, including voyage optimisation and energy saving technologies. Lower GHG emission alternative fuels that have reached a suitable level of technological readiness are also expected to play some role in the 2020s. For example, on a well-to-wake basis, a B24 biodiesel blend has a potential to reduce GHG emissions by up to 19 per cent compared to conventional fuel oils.[18] However, widespread use of these fuels is dependent on the availability and commercial viability of supply in shipping routes.

In the 2030s and beyond, switching to low to zero GHG emission fuels (e.g. ammonia produced with low to zero GHG emissions, civil nuclear technologies for commercial vessel propulsion) is expected to be a significant lever. The transition to low to zero GHG emission fuels will require the alignment of many factors, including technology readiness, appropriate safety regulations, crew competency, availability and security of fuel supply and commercially viable charter and fuel pricing. The alignment of these factors is likely to be a continuing challenge for the shipping industry and will require collaboration and partnerships to solve.

Strategy

As one of the world's largest dry bulk charterers, we play an important role in supporting the maritime industry to meet or exceed the GHG emission reduction ambitions set by the IMO.

Our shipping medium-term goal, long-term net zero target and CY2030 commitment are generally consistent with or exceed the IMO's CY2030 ambitions and CY2050 ambition as outlined above, and therefore we expect to have a similar pathway as the sector. Our pathway will be accelerated directly by our actions and indirectly by the impact of our actions and influence in the industry.

Our strategy to support our pathway encompasses three areas of focus:

1. **Efficiency improvements:** Drive operational efficiency through vessel and voyage optimisation and technological energy efficiency improvements. Operational efficiency measures include consolidating parcel sizes to use larger and more efficient vessels and using alternative routes. Technological measures include chartering vessels with energy saving technologies such as vessels with premium hull coatings and wind-assisted propulsion, which we are trialling with Pan Pacific Copper and Norsepower.
2. **Lower GHG emission** and **low to zero GHG emission alternative fuels:** Establish demand and incentivise industry uptake of lower GHG emission fuels and low to zero GHG emission fuels, such as our dual-fuelled LNG chartered vessels and biodiesel-fuelled voyages, respectively. We are also working across the ammonia value chain for the design and build of ammonia fuelled vessels, and supply of low to zero GHG emissions ammonia.
3. **Improve carbon accounting:** Step change improvements in the completeness and accuracy of our carbon accounting through digitisation and automation in our value chain. This builds on our partnership with DNV and our use of their Veracity data platform for validation and reporting of shipping-related value chain GHG emissions since FY2022.

We estimate our shipping strategy since FY2021 has led to actual or committed co-investment from BHP and our maritime industry partners totalling approximately US$400 million[19] for the period from FY2021 to FY2024.

The vast majority of the co-investment figure is based on our assumptions about the cost to the owners of five new dual-fuelled LNG chartered vessels to meet our chartering requirements in alignment with our strategy, together with actual and committed future spend on the Global Centre for Maritime Decarbonisation by BHP, its other five founding partners and the Singapore Maritime and Port Authority.

The retrofit installation of a wind rotor on a BHP-chartered vessel, with our partners Pan Pacific Copper and Norsepower

Stewardship

International shipping is a hard-to-abate industry. Demand signals for vessels powered by low to zero GHG emission fuels are important to establish the business case for investment and development of new shipping fuel supply chains.

Considering this, we have launched an expression of interest for establishing an ammonia value chain for the maritime industry, which includes the design and build of ammonia-fuelled vessels and supply of low to zero GHG emissions ammonia for use as a shipping fuel. We are now working closely with vessel owners and fuel providers, as well as shipyards and regulators, on critical developments to address challenges for use of ammonia onboard vessels.

We intend to start deploying ammonia-fuelled vessels on our iron ore shipping routes in the latter half of this decade, subject to technical and commercial viability.

Portfolio

We are positioning our portfolio of commodities and assets to create value for today and the future.

Copper, one of the commodities we produce, can be used in renewable energy technologies

Our portfolio strategy

Our strategy is to responsibly manage the most resilient long-term portfolio of assets, in highly attractive commodities, and grow value through being excellent at operations, discovering and developing resources, acquiring the right assets and options, and capital allocation.

Through our differentiated approach to social value, we will be a trusted partner who creates value for all stakeholders.

We are positioning our portfolio of commodities and assets to create value for today and the future.

In our portfolio we have copper, nickel, uranium, iron ore, steelmaking coal and, currently, energy coal. Among other end uses, copper is used in electric vehicles, renewable energy technologies and the power grid, nickel is used in batteries, uranium is a feedstock for nuclear power, potash is used in fertilisers, which can assist with food security for a growing population and more sustainable land use, while iron ore and steelmaking coal create steel to build new infrastructure.

We have made or announced significant changes to our portfolio since our previous CTAP in CY2021, including:

- the acquisition of OZ Minerals in FY2023 to support the creation of a South Australia copper basin
- sanctioning of our Jansen Stage 2 potash investment in FY2024 (following approval of Jansen Stage 1 in FY2022)
- the divestment of our Petroleum business in FY2022 to provide shareholders with further choice as to their exposure to oil and gas
- consolidation of our coal portfolio to concentrate on higher-quality (grade) coals through the divestment of our interest in BMC and Cerrejón in FY2022 and divestment of the Blackwater and Daunia mines from our BHP Mitsubishi Alliance (BMA) joint venture in FY2024
- agreement with Lundin Mining Corporation to jointly acquire Filo Corp and form a 50:50 joint venture to develop an emerging copper district with world-class potential
- planned closure of our Mt Arthur Coal mine by FY2030

To continue responding to changes in the external environment and help shape a more resilient strategy, we carefully monitor key signposts for economic, societal, political and technological changes that could materially move our long-term forecast for demand, supply and price across our commodities (referred to as 'our planning range'). We regularly reassess our views on commodity and asset attractiveness to this end.

Climate change, climate scenarios and the progress towards the global net zero transition are among the key drivers of decision-making that support our risk appetite and commodity outlook to inform strategy and corporate planning.

Insights from commodity and portfolio reviews are presented to our ELT and Board. They inform major portfolio decisions and cascade through our planning processes, including how we allocate capital and how we unlock new business opportunities. Our strategy formation, capital allocation and planning processes enable deliberate and timely responses to the climate-related risks (threats and opportunities) our portfolio is facing.

We maintain a strong balance sheet and monitor our net debt and gearing ratio (the ratio of net debt to net debt plus net assets). This gives us the flexibility to respond to changing external factors, including climate-related risks, as they arise. This, coupled with our Capital Allocation Framework, enables us to execute our portfolio positioning decisions for the benefit of shareholders.

For more information on how we form our views on commodity and asset attractiveness, refer to:
- **Spotlight: Our planning range – what it is and how we use it** on this page
- **Spotlight: Our 1.5°C scenario – what it is and how we use it** on the next page

For more information about our capital management processes, refer to **Enabling delivery – How we manage capital** on page 53

Spotlight

Our planning range – what it is and how we use it

Our planning range refers to our long-term forecast for demand, supply and price across our commodities. It is comprised of three unique independent planning cases: a 'most likely' base case, and an upside case and downside case that provide the range's boundaries.

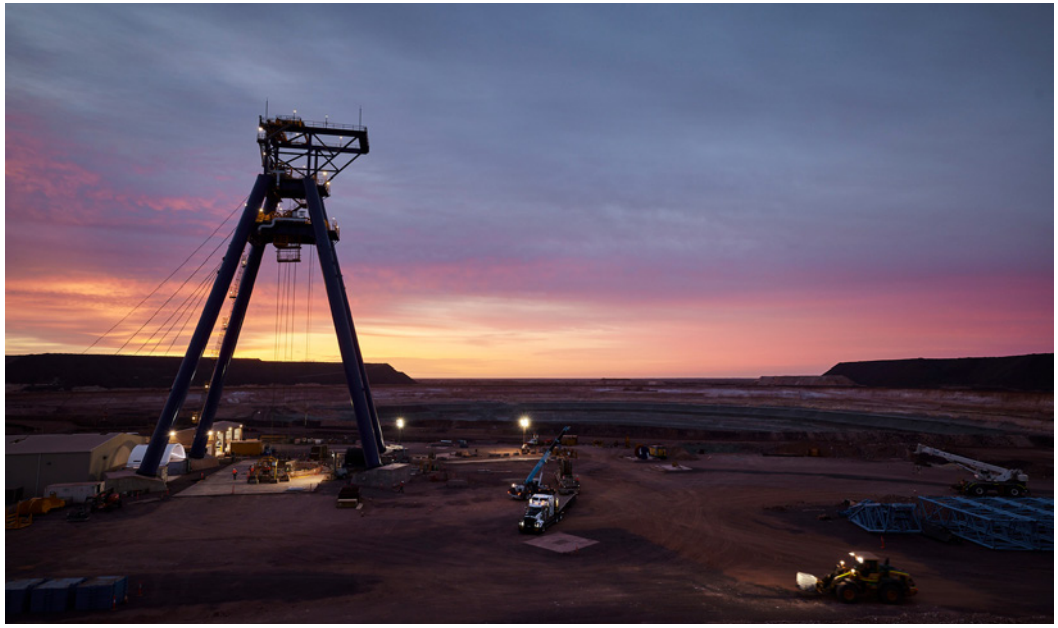
These three cases reflect proprietary forecasts for the global economy and associated sub-sectors (i.e. energy, transport, agriculture, steel) and the resulting market outlook for our core commodities.

We regularly make updates to our planning range, which is informed by key signposts associated with the global economy and sub-sectors, as well as commodity markets. For example, since we published the BHP Climate Change Report 2020 (containing our previous portfolio analysis), we have updated our planning range to reflect an acceleration in policy and progress on climate change for certain sectors, such as power and transport.

The modelled outputs of our planning range result in global CO_2 emission pathways implying a projected global temperature increase of around 2°C by CY2100.

How we use our planning range

Our planning range's demand, supply and price forecasts for key commodities are used to inform data inputs into operational modelling and drive operational planning. Our planning range is also used for strategy formation and investment decisions.



Prominent Hill in South Australia, which we acquired in FY2023, produces one of the highest grades of copper concentrate in the world.

Spotlight

Our 1.5°C scenario – what it is and how we use it

Scenarios

Scenarios highlight different hypothetical pathways for the future and are not necessarily what we or others expect to happen. We use scenarios to explore different themes or end states to stress test business decisions and portfolio resilience.

Among the scenarios we use are climate scenarios with lower global average temperature outcomes to assess climate-related transition risks as they imply a more rapid transition and therefore greater potential exposure to transition risk. This is in contrast to physical climate-related risk, which would be expected to be more pronounced in higher temperature outcomes. Our studies of physical climate-related risks at our operated assets include scenarios aligned to higher global average temperature outcomes to assess our potential exposure.

For more information on the scenarios we are using in our physical climate-related risk studies, refer to **Physical risk and adaptation – Our approach to physical climate-related risk** on pages 43 and 44

1.5°C scenarios present a significant acceleration in efforts to reduce GHG emissions from what we see today, and therefore are considered among the most effective scenarios for testing potential impacts of climate-related transition risks.

All 1.5°C scenarios require historically unprecedented global annual GHG emission reductions across all sectors, sustained for decades, to stay within a 1.5°C carbon budget (i.e. the total net amount of GHG emissions that can be emitted worldwide to limit global average temperature increase to 1.5°C by CY2100).

Nonetheless, we include a 1.5°C scenario as one aspect of our analysis to inform our understanding of the potential impacts of an acceleration in global decarbonisation. We have used an internally developed 1.5°C scenario, benchmarked against external scenarios, to test the modelled impacts of potential pathways towards deep decarbonisation and the climate-related transition risks it would give rise to.

For potential pathways to 1.5°C, refer to **Additional information – Our 1.5°C scenario compared to benchmarks** on page 62

There are limitations to scenario analysis, including any climate-related scenario analysis, and it is difficult to predict which, if any, of the scenarios might eventuate. Scenario analysis is not a forecast and is not an indication of probable outcomes and relies on assumptions that may or may not prove to be correct or eventuate.

Our new 1.5°C scenario

In FY2024, we developed a new 1.5°C scenario **(which we refer to in this CTAP as 'our 1.5°C scenario')** to reflect recent technology changes and efforts to reduce GHG emissions globally. We use this CTAP to present our new 1.5°C scenario for the first time and describe in detail the pathway it charts, recognising the level of shareholder and other stakeholder interest in the resilience of our portfolio should global ambitions be realised in the future.

We believe it is unlikely this pathway will play out, because of current trends and global efforts to date to address climate change.

Our 1.5°C scenario uses aggressive assumptions around political, technological and behavioural change, particularly for hard-to-abate sectors, such as steel. It is designed to specifically test our current portfolio following the changes to our portfolio since our previous 1.5°C scenario was developed in CY2020 and presented in the BHP Climate Change Report 2020 **(which we refer to in this CTAP as 'our CY2020 1.5°C scenario')**.

The assumptions used in our 1.5°C scenario result in an almost immediate impact to pricing for some commodities and carbon markets.

Our 1.5°C scenario charts one of many potential pathways in which future GHG emissions are constrained within a carbon budget that is aligned to scenarios from the Intergovernmental Panel on Climate Change which limit global average temperature increase to 1.5°C by CY2100.[21]

In our 1.5°C scenario, there is a smaller carbon budget than in our CY2020 1.5°C scenario to reflect that GHG emissions have continued to grow over the last four years, requiring steeper GHG emission reductions to achieve net zero and to meet a 1.5°C temperature outcome.

We do not see our 1.5°C scenario as being any more likely than our CY2020 1.5°C scenario.

For the key metrics for our 1.5°C scenario and our CY2020 1.5°C scenario, together with other third-party 1.5°C scenarios, refer to **Additional information – Our 1.5°C scenario compared to benchmarks** on page 62

How we use our 1.5°C scenario

We use our 1.5°C scenario in two distinct ways.

First, we use it to derive commodity price sensitivities to assess potential impacts on portfolio value compared with our base case valuations using our planning range. We calculate the net present value for all assets and the overall portfolio using commodity prices and carbon prices from our 1.5°C scenario, and we then assess the impact of these prices on portfolio value relative to the base case of our planning range. All other inputs into this sensitivity test are derived from the base case of our planning range. The results of this analysis, as described on the next page, are presented to the ELT and the Board and provide insights about resilience against changing commodity and carbon prices to inform strategic decision-making (such as acquisitions or divestments to reposition our portfolio).

Second, we consider our 1.5°C scenario as a sensitivity in capital allocation processes, which compares the demand outlook for our products in our planning range to that of a rapidly decarbonising global economy, should that eventuate. We use our 1.5°C scenario commodity and carbon prices as one of the stress tests to the assessment based on our planning range, to support investment decisions.

Before developing our new 1.5°C scenario, we used our CY2020 1.5°C scenario in these two processes.

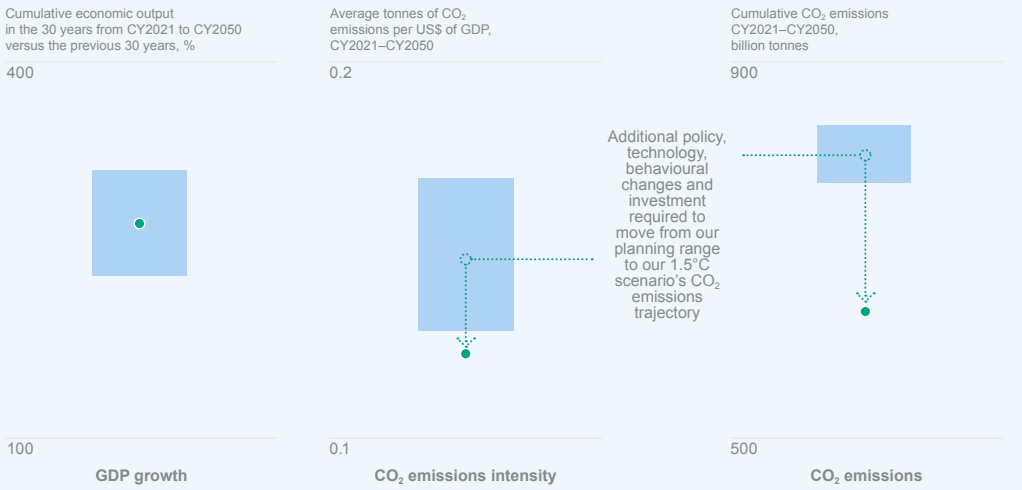
We do not use our 1.5°C scenario:

– for operational planning, which is based on our planning range
– to inform how we plan to achieve our GHG emissions targets and goals
– in the studies we are undertaking to assess physical climate-related risks

Approaches to scenario analysis continue to evolve, with an increasing number of external scenarios becoming available as reference points for the full range of commodities we produce. Recognising this, and the increasing maturity of those external scenarios, in future years we plan to transition to the use of externally-developed 1.5°C scenarios, where appropriate, to derive commodity price sensitivities to inform resilience testing of our portfolio and to consider as a sensitivity in capital allocation processes. 1.5°C scenarios are inherently ambitious and currently have a low likelihood of eventuating, therefore we will be able to draw more useful insights from a broader range of 1.5°C scenario versions than only our own.

For the key assumptions, carbon budget and carbon prices used in our 1.5°C scenario, refer to **Additional information – Our 1.5°C scenario assumptions and the signposts we monitor** on page 61

Figure 3.1: Global indicators in our planning range and our 1.5°C scenario[20]



Source: BHP analysis

Resilience in our 1.5°C scenario

Our portfolio remains resilient under our 1.5°C scenario.

The net present value of our portfolio under our 1.5°C scenario is approximately the same as under the current base case of our planning range, indicating we would be resilient in an accelerated transition to this 1.5°C outcome, as described in this section and as shown in Figure 3.2.

The impact of our 1.5°C scenario is different on each of our commodities. The value of our copper, potash and nickel assets increases relative to our base case, and offsets the effect to our portfolio from some downside risk to steelmaking coal.

The base case of our planning range now incorporates a significant acceleration in the pace of renewable energy deployment and electrification of transport, which aligns with recent trends (relative to our planning range when we conducted scenario analysis in CY2020). The gap between demand for copper and nickel in our 1.5°C scenario and our base case has narrowed. This reflects the significant growth we have seen in these areas over the last four years.

In order to test the resilience of our steelmaking commodities, we have assumed an aggressive decarbonisation pathway for the steel sector in our 1.5°C scenario, which sets a trajectory for the sector that we see as unlikely to occur at this pace.

The pathway for the steel sector in our 1.5°C scenario is far from what we see unfolding today, and it diverges significantly from the base case of our planning range.

It is important to note this assessment of our portfolio's performance doesn't account for changes that could be made or actions that could be taken if our 1.5°C scenario was to eventuate. This could include harnessing new opportunities or mitigating potential financial impacts.

Our 1.5°C scenario results in a marginal decrease in the value of our iron ore assets and some loss of value in steelmaking coal relative to the base case of our planning range.

Western Australia Nickel's temporary suspension has not altered our scenario analysis, which includes nickel in our portfolio.

The overall portfolio outcome indicated by our 1.5°C scenario is different to our portfolio analysis presented in the BHP Climate Change Report 2020. There was a larger increase in demand for copper, nickel, potash and iron ore between our CY2020 1.5°C scenario and the base case of our planning range at that time than there is between our 1.5°C scenario and the current base case of our planning range.

Signposts for our 1.5°C scenario

Based on current trends, it is unlikely our 1.5°C scenario will play out, however different elements of the scenario may be more or less likely.

For our 1.5°C scenario to eventuate, it would require every sector of the economy to transform to net zero or net negative or, in the case of hard-to-abate sectors, to otherwise deeply decarbonise[22] by CY2050. In some sectors, such as power and light duty transport, there are one or more clear pathways for such a transition, albeit challenging ones. However, some hard-to-abate sectors, such as the steel sector, require much larger technological, political and behavioural shifts from today's settings to achieve this end state.

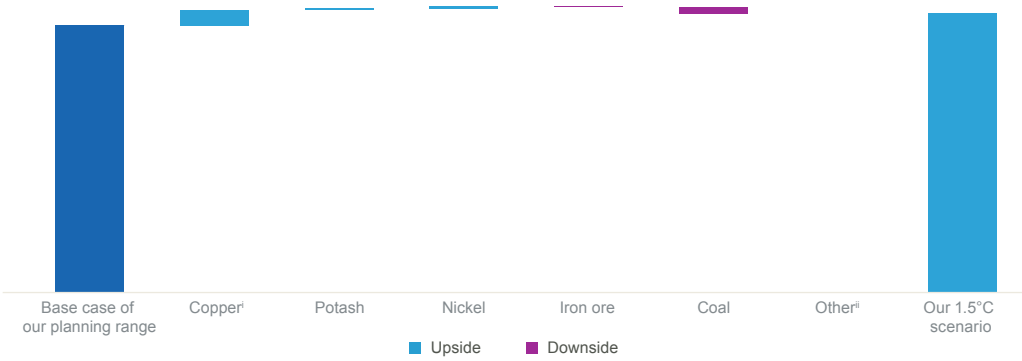
We see two important factors influencing likelihood:

1. The electrification megatrend is well underway, which we expect to lead to upside demand for copper, nickel and uranium in our portfolio.
2. The global steel sector, like many hard-to-abate sectors, is not currently seeing the investment, policy settings or technological progress needed to align with a 1.5°C trajectory. Based on these trends, we believe the modelled outcome for our iron ore and steelmaking coal portfolio is unlikely to occur.

We remain aware of non-linear transition risks that could impact commodity markets. We regularly monitor signposts related to decarbonisation and the energy transition and incorporate them into our annual planning processes and asset strategies.

For more information about the key signposts that we monitor, refer to **Additional information – Our 1.5°C scenario assumptions and the signposts we monitor** on page 61

Figure 3.2: Our diversified portfolio in our 1.5°C scenario
Net present value of our 1.5°C scenario versus our planning range base case



i. Uranium included under Copper.
ii. Other includes legacy assets and corporate overheads.

Note: Analysis reflects a price-only sensitivity using the commodity and carbon price outlooks from our 1.5ºC scenario. It assumes that all other factors in the asset valuations, such as production and sales volumes, capital and operating expenditures, remain unchanged from those used in the base case of our planning range as disclosed in the BHP Annual Report 2024 Financial Statements.

Source: BHP analysis

Figure 3.3: Commodity cumulative demand over the 30 years from CY2021 to CY2050 compared to the 30 years preceding that period
Demand change (100 per cent = cumulative demand from CY1990 to CY2019)

i. Iron ore and steelmaking coal demand accounts for contestable market = global seaborne market plus Chinese domestic demand.
ii. Nickel and copper demand references metal derived directly from ore rather than scrap.

Source: BHP analysis

Copper, nickel, uranium and potash in our 1.5°C scenario

Power and electrification

In transport, battery cost reductions and policy support lead to rapid penetration of electric vehicles, as shown in Figure 3.4. Electricity is also vital for producing low to zero GHG emissions electrolytic hydrogen and ammonia for use in hard-to-abate sectors.

Our 1.5°C scenario sees power demand triple between CY2021 and CY2050 driven by the large-scale trend towards electrification.

Demand for the metals needed to build power generation, storage and infrastructure grows as a result of this electrification megatrend in our 1.5°C scenario. The scenario assumes most governments ban new coal-fired power in the mid-2020s and force all unabated fossil power generation offline two decades later. Extraordinary growth in renewable energy and efficient storage capacity is required to displace retiring plants and meet rapidly growing electricity demand. Large transmission infrastructure upgrades, growing consumer demand and zero GHG emission dispatchable power are required for last-mile decarbonisation of the power grid. Vast electricity networks must also be enhanced and expanded to connect dispersed renewable electricity supply and demand centres.

There is an increase in the recycling of metals, but the limited availability of scrap metals means it only slightly dampens demand growth in our 1.5°C scenario. Scrap is particularly limited in developing economies as there is not a large pool of existing stock to draw from.

Our portfolio of copper, nickel and uranium is positioned to benefit from megatrends of population growth, urbanisation and rising living standards. In our 1.5°C scenario, the demand for these commodities increases even further due to the scale of electrification that would be required.

Copper

Copper demand grows rapidly due to strong renewable electricity uptake, the expansion of electricity networks and electrification of transport, as shown in Figure 3.5.

Our 1.5°C scenario sees cumulative total copper consumption (primary and recycled) increase 2.1 times and cumulative copper (primary) demand increase 1.9 times over the 30 years from CY2021 to CY2050 compared to the 30 years preceding that period.

This increase in demand for copper flows through to higher valuations of our copper assets and growth options.

Our 1.5°C scenario sees healthy growth of copper-intensive energy transition technologies. Wind and solar facilities are more copper-intensive than fossil power generation. Electric vehicles require about three times as much copper as internal combustion engine vehicles. With all countries looking to electrify simultaneously in our 1.5°C scenario, this leads to an unprecedented upswing in demand.

Scrap availability remains constrained, particularly in developing countries, even after assuming much higher recovery and collection rates than today.

The current pipeline of copper supply projects is unlikely to be able to meet the rapidly growing demand in our 1.5°C scenario. This creates risks for a supply shortfall in the latter half of the 2020s, which could lead to prices rising materially above the cost curve. Our 1.5°C scenario assumes the dynamics in this period prompt manufacturers to thrift copper use where feasible (e.g. by using thinner foil in electric vehicle batteries) and to look for opportunities for substitution (e.g. replacing copper with aluminium cables or wires). Nevertheless, substitution and product redesign have proven to be relatively slow-moving trends. We would expect this to create risks to the overall energy transition during this period. In time, the ramp up of new projects, higher scrap collection and recovery rates, and new mining technologies such as sulphide leaching, would help to alleviate potential shortfalls.

Figure 3.4: Global light duty electric vehicle sales penetration in our 1.5°C scenario
Penetration (%)

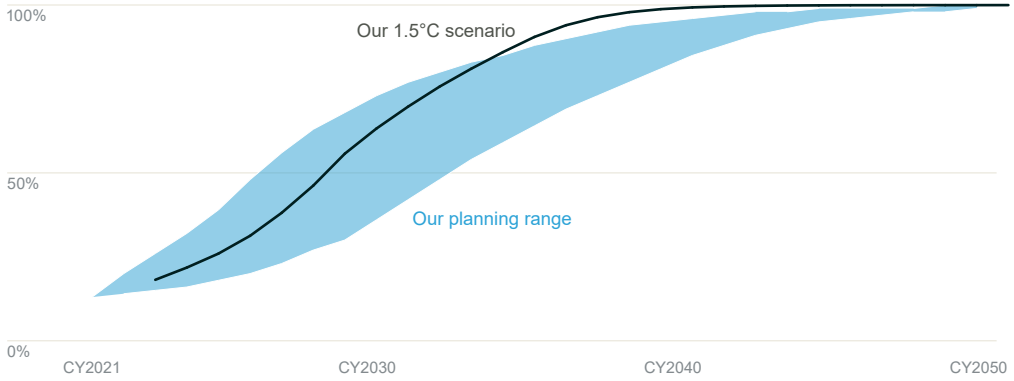
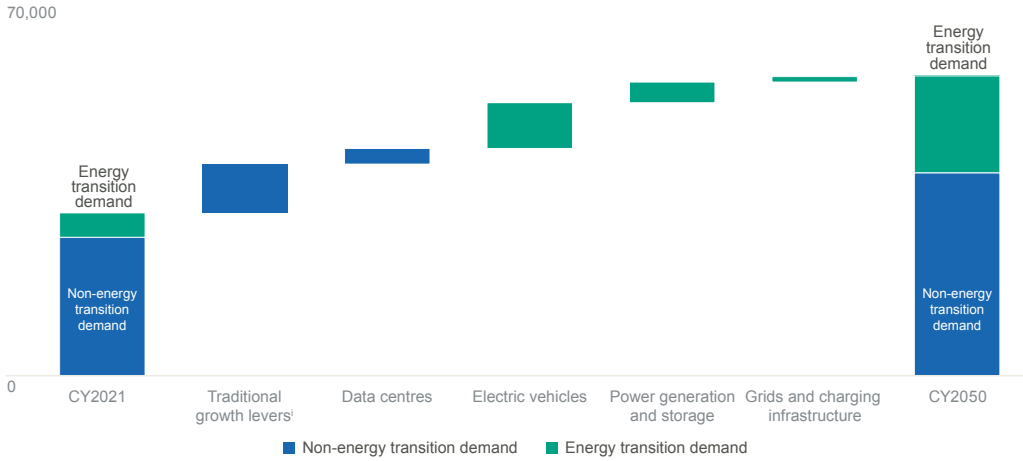


Figure 3.5: Copper's energy transition demand adds upside in our 1.5°C scenario
Copper demand (thousand tonnes copper contained)



i. Includes copper demand growth from buildings, consumer durables, electronics, machinery and non-electrified vehicles.
Source: BHP analysis

Copper, nickel, uranium and potash in our 1.5°C scenario continued

Nickel

In our 1.5°C scenario, nickel demand grows strongly in the late CY2020s and into the CY2030s due to the penetration of electric vehicles in the automotive sector.

Our 1.5°C scenario sees cumulative primary nickel demand increase 3.7 times over the 30 years from CY2021 to CY2050 compared to the 30 years preceding that period.

In July 2024, we announced our Nickel West operations and West Musgrave project (Western Australia Nickel) would be temporarily suspended from October 2024. Over the longer-term, our 1.5°C scenario and the base case of our planning range see nickel demand growing in response to the transition. However, the decision to temporarily suspend operations follows oversupply in the global nickel market. At the time of our announcement, forward consensus nickel prices over the next half of the decade had fallen sharply reflecting strong growth of alternative low-cost nickel supply.

Uranium

Nuclear power plays a stronger role in our 1.5°C scenario than the base case of our planning range, especially to enable last-mile decarbonisation in renewables-heavy power grids, although construction of new conventional and small modular reactors remains a relatively expensive generation option with currently comparatively long lead times.

Our 1.5°C scenario sees uranium demand increase 2.3 times over the 30 years from CY2021 to CY2050 compared to the 30 years preceding that period.

Land use for agriculture

In our 1.5°C scenario, greater demand for food, fibre, biofuels and land for afforestation over the years to CY2050 requires the world to increase crop production with less agricultural land. The need to improve agricultural productivity is increased due to the higher land competition associated with building out a large-scale distributed renewables power network, bioenergy infrastructure, as well as afforestation of CO_2 removals.

Potash

The value of potash in our portfolio would increase in our 1.5°C scenario, with demand modelled to rise above our planning range. This is driven by increasing competition for land and the need for agricultural productivity.

Potash is used in fertilisers to enable more efficient and sustainable farming. The need to further improve productivity yields in our 1.5°C scenario adds upside to the outlook in the base case of our planning range. With the world's population continuing to grow and rising concerns around food security and competition for land use, potash demand could rise significantly.

An intensification of farming in our 1.5°C scenario means the uptake of natural potassium in the soil is higher and therefore needs to be more regularly replenished in the form of potash fertiliser.

Our 1.5°C scenario sees potash demand increase 2.3 times over the 30 years from CY2021 to CY2050 compared to the 30 years preceding that period.

Higher demand is assumed to translate to higher potash prices and therefore higher valuation for our Jansen asset in our 1.5°C scenario.

Potash mining and processing also has a more favourable upstream environmental footprint among the major fertiliser nutrients. Beyond the mine gate, potash does not generate some of the negative environmental impacts (e.g. leaching into and polluting waterways and the release of GHG emissions in the application process) that are associated with excessive application of nitrogen, and to a lesser extent, phosphorus fertilisers.

Potash production at Jansen is expected to start in late CY2026

Steelmaking, iron ore and steelmaking coal in our 1.5°C scenario

Steelmaking

While overall steel demand grows, iron ore demand is slightly reduced by the increased use of scrap metal instead of iron ore.

Our 1.5°C scenario sees cumulative steel demand increase 1.8 times over the 30 years from CY2021 to CY2050 compared to the 30 years preceding that period.

Our 1.5°C scenario incorporates policies and technological advances in the steel sector that could challenge our steelmaking commodities, although these are unlikely to occur at the pace assumed in our 1.5°C scenario.

In particular, it assumes:

- countries and regions increase scrap collection
- the steel sector progresses or accelerates a number of currently challenging, evolving or early-stage steel decarbonisation technologies
- governments enact top-down policies that constrain investment in new and re-lined blast furnaces and the continued operations of existing steel mills

These measures are in addition to carbon pricing significantly ramping up in all regions, compared to today's levels.

In our 1.5°C scenario, the maturation of near zero emissions steelmaking technologies from research stage to adoption is significantly faster than has been typically seen in the steel sector. Our 1.5°C scenario also considers the different age and size of the existing steelmaking stock in different regions in determining the potential pace of change.

Four major technology options drive the scenario's technological GHG emission reductions:

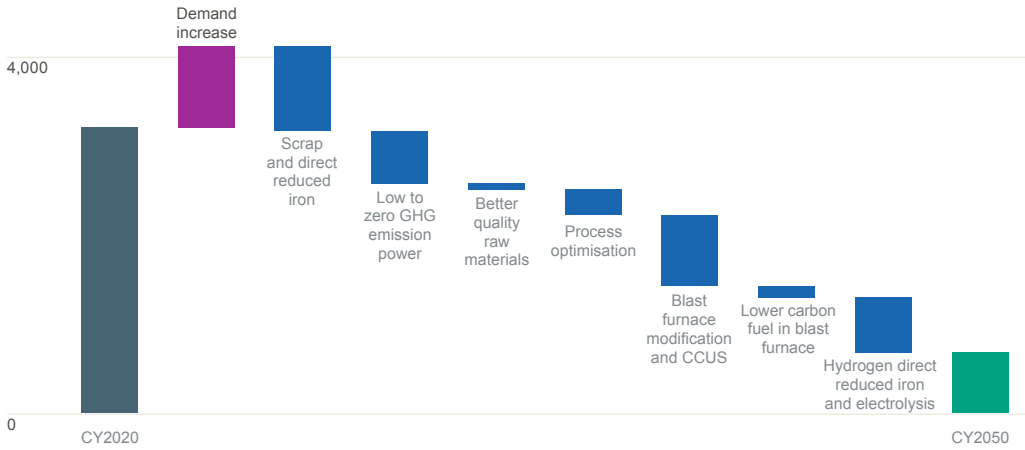
1. **Blast furnace – basic oxygen furnace route** with carbon capture, utilisation and storage (CCUS) and powered by low to zero GHG emissions electricity, which is a modification of the incumbent technology
2. **Hydrogen-based, direct reduced iron – electric arc furnace route,** which is mature but less flexible, with low to zero GHG emissions hydrogen and low to zero GHG emissions electricity
3. **Hydrogen-based, direct reduced iron – electric smelting furnace route,** which is an emerging alternative, with low to zero GHG emissions hydrogen and renewable electricity
4. **Electrolysis route** powered by low to zero GHG emissions electricity, which is relatively early-stage

For more information about near zero emissions steelmaking process routes, refer to **Value chain GHG emissions – Steelmaking: Longer-term industry pathways** on pages 22 and 23

The likelihood and timing of the technology roll-out vary by region and are influenced by factors, including:

- availability of scrap, lower carbon feedstock (e.g. low to zero GHG emission hydrogen and bioenergy) and CO_2 emissions storage
- age of existing steelmaking facilities
- access to a consistent supply of low to zero GHG emissions electricity
- levels of policy support
- levels of investment
- regions' dependence on export markets
- continued demand for affordable steel

Figure 3.6: Global steelmaking GHG emissions outlook and key reduction levers in our 1.5ºC scenario
GHG emissions ($MtCO_2$)



Source: BHP analysis

Steelmaking, iron ore and steelmaking coal in our 1.5°C scenario continued

Iron ore

Iron ore demand is slightly reduced by the increased use of scrap metal instead of iron ore in our 1.5°C scenario. This is partially offset by an increase in demand due to higher overall steel demand.

Our 1.5°C scenario sees cumulative iron ore demand increase 1.6 times over the 30 years from CY2021 to CY2050 compared to the 30 years preceding that period.

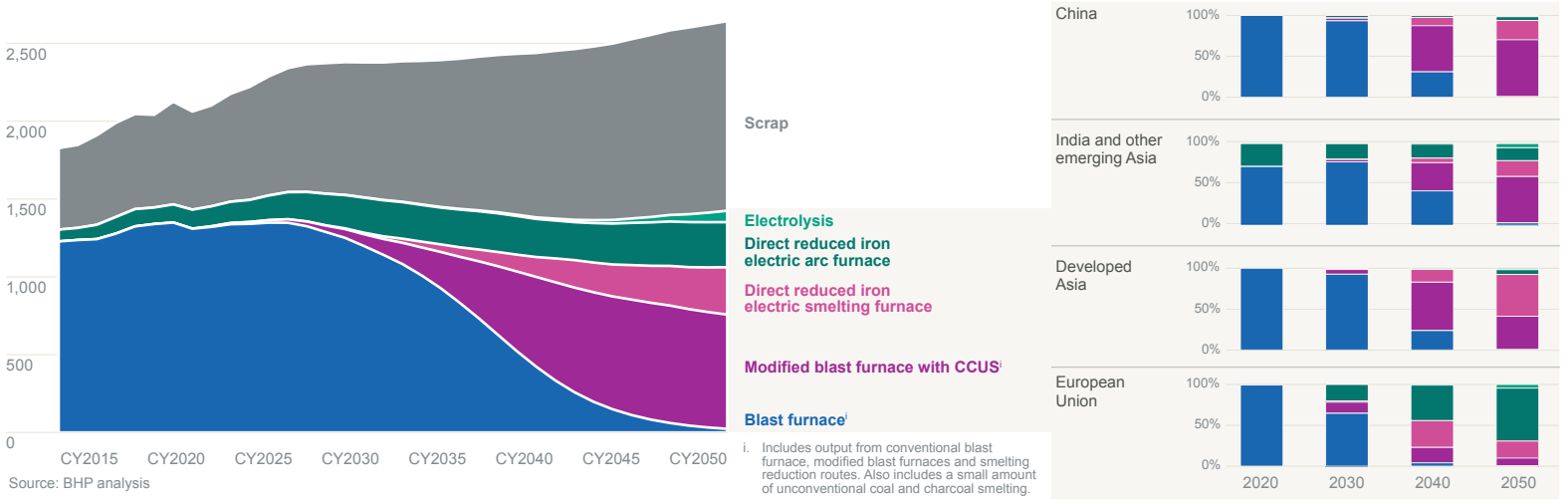
The roll-out of hydrogen-based direct reduced iron from the mid-2030s has a negligible impact on total seaborne iron ore demand as this technology still requires primary ore. However, higher deployment of electric arc furnace steelmaking increases demand for higher quality ores, which reduces the value-in-use of comparatively lower grades (including Australian iron ores). This effect is dampened by the assumed uptake of the electric smelting furnace in Asia, which is a key market for Australian iron ores today.

Our 1.5°C scenario results in a marginal decrease in the value of our iron ore assets relative to the base case of our planning range.

Demand for our iron ore is resilient in our 1.5°C scenario, but the spread in prices between different ore grades widens due to demand for ore suitable for use in direct reduced iron electric arc furnaces. Any potential discount for lower grade ores could be partially offset by premiums for low impurity iron ore fines and direct charge materials (i.e. materials that can be fed directly into furnaces without significant processing, such as iron ore lump that we produce) for use in blast furnaces, as steel mills look to improve efficiency and reduce GHG emissions.

Significant technical and commercial progress is required to move towards the technological end state assumed by our 1.5°C scenario. In CY2023, only 3 to 4 per cent of global seaborne iron ore supply met the specifications currently accepted in the market for production of direct reduced iron for electric arc furnaces.[9] Even when using higher-grade ores, electric arc furnaces are currently unsuitable for producing the best grades of steel (e.g. auto sheets for car manufacture). If lower grade ores are used, today's processes are inefficient, and generate large volumes of operational GHG emissions (primarily from fossil fuel power and the use of fossil carbon reductants) and larger amounts of mine waste.

Figure 3.7: Primary iron and scrap use in steelmaking and primary iron making in our 1.5°C scenario
Primary iron and scrap use (million tonnes)



Source: BHP analysis

i. Includes output from conventional blast furnace, modified blast furnaces and smelting reduction routes. Also includes a small amount of unconventional coal and charcoal smelting.

Steelmaking coal

In our 1.5°C scenario, demand for steelmaking coal peaks in the late CY2020s followed by a modest decline over the following decade. The blast furnace equipped with CCUS, which requires steelmaking coal, remains an important route for steel production out to CY2050.

Our 1.5°C scenario sees cumulative steelmaking coal demand increase 1.25 times over the 30 years from CY2021 to CY2050 compared to the 30 years preceding that period.

Higher carbon pricing leads to a growing preference for higher-quality hard steelmaking coal by remaining blast furnaces to reduce GHG emissions intensity. High-strength coke made from higher-quality hard steelmaking coal is essential to improving energy efficiency for large-sized blast furnaces in the initial 'optimisation' stage of decarbonisation. It also enables lower carbon fuels (including hydrogen injection) to displace lower-quality steelmaking coal as mills enter the 'transition' stage of steeper GHG emission reductions. Because of these factors, higher-quality (grade) steelmaking coal, like what we produce at BMA, will be the most resilient given the lower associated GHG emissions of steelmaking coal during use.

The near- to medium-term demand resilience means that cumulative seaborne steelmaking coal demand in our 1.5°C scenario is only marginally lower to the base case of our planning range until the mid-2030s. However, the assumed rapid roll-out of hydrogen-based direct reduced iron begins to erode steelmaking coal demand thereafter. By CY2050, approximately half of all global primary iron production no longer requires steelmaking coal under our 1.5°C scenario.

While there is some loss of value in steelmaking coal in our 1.5°C scenario, the outlook for steelmaking coal in the base case of our planning range remains robust.

Steelmaking coal continues to be an attractive commodity for us over the next several decades.

Demand for steelmaking coal could decline in the future depending on the pathways taken by the steel sector, however we are not yet seeing signals of the decarbonisation needed to align with our 1.5°C scenario.

For our view on more likely longer-term industry pathways for steelmaking, as well as our medium-term goal, strategy and actions to support the reduction of GHG emissions intensity from steelmaking in our value chain, refer to:

- **Value chain GHG emissions – Steelmaking: Longer-term industry pathways** on pages 22 and 23
- **Value chain GHG emissions – Steelmaking: Our Scope 3 emissions goal to support capability for GHG emissions intensity reduction** on pages 24 and 25

Climate policy advocacy

We are committed to the progress of climate policies aligned to the long-term goals of the Paris Agreement in areas where we believe we have the greatest ability to influence change: our policy engagements, our advocacy with governments and our advocacy within our material industry association memberships.

Our Group Sustainability and Social Value Officer, Dr Fiona Wild, discussing the 'Net Zero Energy Speedway' at the Responsible Investment Association Australasia conference

Our approach to policy advocacy

Governments have a central role to play in responding to climate change. Engaging constructively with governments on climate policy is an important way we can help the world decarbonise and build resilience to the impacts of climate change.

We believe governments around the world should adopt and progress policies aligned with the goals of the Paris Agreement to limit the increase in the global average temperature by CY2100 to well below 2°C above pre-industrial levels and pursue efforts to limit the increase to 1.5°C. We commit to conducting our climate policy advocacy consistent with these goals in our direct advocacy and our indirect advocacy.

Our Climate Policy Principles show how we intend this commitment to be translated into action. They represent our views on how governments can best pursue the goals of the Paris Agreement, with a focus on policymaking principles and policy outcomes. We use our Climate Policy Principles to inform and guide our own advocacy (our 'direct advocacy') and to seek to influence the advocacy of the industry associations of which we are a member (our 'indirect advocacy').

Our latest Climate Policy Principles are available at bhp.com/sustainability/climate-change/advocacy-on-climate-policy

How we focus our advocacy efforts

The global climate policy environment is continually evolving.

We focus our advocacy efforts on areas where we have the greatest ability to influence positive change.

In addition to our Climate Policy Principles, we typically consider three factors in determining which climate policy issues to engage on and how to do so:

1. **The relevance of the issue,** taking into account our previous advocacy efforts, the extent of the connection between the issue and our business or industry, and the views of our stakeholders.
2. **The materiality of the issue,** in terms of how it could contribute to achieving the goals of the Paris Agreement and its potential implications for our strategy or operations.
3. **Our ability to influence policy discussions on the issue,** which will largely be driven by the degree of relevance of the issue to us, the strength of our stakeholder relationships, and the extent to which we share a similar view on the issue with other relevant companies.

Our industry association memberships also play an important role in our engagement approach. They provide an avenue for us to help influence industry views on climate policy issues and allow us to extend and augment our own advocacy efforts (e.g. by undertaking policy monitoring, commissioning research, and engaging with governments on behalf of members). We believe these associations perform a number of functions that can lead to better outcomes on public policy, practice and standards. We expect these associations to act with integrity, be constructive in their engagements with governments and stakeholders and reflect the consensus views and positions of their members.

Our approach to policy advocacy has been informed by our regular engagement with investors and other stakeholders.

We engage on a wide and varying range of policy and regulatory issues in line with the principles and factors outlined here. For more information on these engagements, refer to **Our recent and planned policy engagements** on the next page

Governance and oversight

The Board approves significant social, community and sustainability policies, including those related to climate change and public sustainability goals and targets. In FY2023, the Board approved our Climate Policy Principles and Industry Association Review 2023. Management, primarily our Chief Legal, Governance and External Affairs Officer, President Minerals Australia, President Minerals America, Group Sustainability and Social Value Officer and Group Corporate Affairs and Communications Officer, oversees the day-to-day implementation of our climate policy engagement approach and practices.

We maintain four processes to assist stakeholder visibility and understanding of our climate policy engagement approach and practices:

1. **Industry association review (IAR):** Every two years, we undertake a comprehensive review of the alignment between the advocacy of our material association memberships and our Climate Policy Principles. Where we identify misalignment, which may be material or non-material, we take steps consistent with our Principles for Participating in Industry Associations. We publish the findings and outcomes of our IARs on our website. In the intervening years, we have committed to publish an update on the progress we have made in addressing areas of misalignment from the prior review and any relevant findings from our real time monitoring.
2. **Real time monitoring:** We monitor the advocacy of our material[23] association memberships (as represented on their websites and in the media). We are committed to disclose on our website if we identify advocacy that is materially misaligned with our Climate Policy Principles.
3. **Membership disclosure:** Every year, we disclose the industry associations of which we are a member on our website. We categorise all our memberships in terms of their materiality, broad purpose and location. For our material association memberships, we separately provide information on our base membership fees and the highest governance role we play in the association.
4. **Direct advocacy disclosure:** We believe governments have a vital role to play in addressing climate change. We advocate in support of proposed climate policies that are aligned with our Climate Policy Principles, where relevant to our operations and strategy. Each quarter, we disclose on our website our direct advocacy on climate policy, including how this advocacy is aligned with our Climate Policy Principles.

Our Principles for Participating in Industry Associations, as well as our current industry association memberships, latest Industry Association Review, progress to address any areas of misalignment and any results from our 'real time' monitoring are available at bhp.com/about/operating-ethically/industry-associations

Our latest disclosures on our direct advocacy on climate policy are available at bhp.com/sustainability/climate-change/advocacy-on-climate-policy

Key actions

– Engage with the Australian Government on its proposed sectoral decarbonisation pathways and Nationally Determined Contribution for CY2024. This will support us in determining any synergies and impacts to our projected (to FY2030) and potential (beyond FY2030) pathways to our operational GHG emissions (Scopes 1 and 2 emissions from our operated assets) long-term net zero goal

Our recent and planned policy engagements

Our recent engagements on climate policy[24]

The Australian Government's reform of the Safeguard Mechanism

Our position
We supported the objective of the Government to align the Safeguard Mechanism with Australia's national GHG emission reduction targets. We made proposals during the consultation process aimed at enhancing the new Safeguard Mechanism and Australia's general approach to emissions reduction.

Our activities
- We have engaged directly with the Government on the reforms (including by making two submissions, participating in industry roundtables, and sharing our views with senior decision makers)
- We reviewed and commented, where relevant, on the submissions developed by the Minerals Council of Australia and the Business Council of Australia

Issue status
- The Government secured parliamentary support for its reforms, and the new Safeguard Mechanism commenced in July 2023
- We continue to engage in a number of processes associated with the reforms, including the Government's Carbon Leakage Review

International and national policy approaches to critical minerals

Our position
We have highlighted the importance of mining to the energy transition, and the policy settings that will allow countries to unlock new supplies of minerals like copper and nickel.

Our activities
- We have released a thought leadership piece on the changes we believe are necessary in Australia, made a number of submissions (including in relation to Australia's Critical Minerals Strategy, the Australian Federal Budget, and the Biden Administration's proposed mining law reform), and supported the advocacy of bodies like the Minerals Council of Australia
- Our ELT has given numerous speeches on the issue

Issue status
- While there is wide acceptance among governments of the need to accelerate supply of battery and other critical/strategic minerals, work is still needed to ensure policy settings are best aligned with government ambitions
- We continue to advocate in international and national forums on this issue

The introduction of new climate-related financial reporting requirements in Australia and the United States

Our position
We have supported the objectives of the International Sustainability Standards Board (ISSB), the Australian Government and the United States Securities and Exchange Commission (US SEC) to introduce new corporate reporting requirements that meet investor demands for consistent, comparable, and decision-useful information. We have advocated for international alignment across these standards.

Our activities
- We have made submissions to the ISSB, the Australian Accounting Standards Board, the Australian Government and the US SEC
- We reviewed and commented, where relevant, on the submissions developed by the Minerals Council of Australia and the Business Council of Australia

Issue status
- In March 2024, the US SEC adopted a rule setting out climate-related disclosure requirements for SEC-reporting companies, including foreign private issuers, such as BHP. However, following a number of legal challenges, the SEC voluntarily stayed implementation of the Rule pending completion of the judicial review of consolidated challenges
- The Treasury Laws Amendment (Financial Market Infrastructure and Other Measures) Bill 2024 to introduce a new climate-related financial disclosure regime is expected to pass into law in Australia in the near term

Our planned climate policy engagements to support our CTAP

The current and proposed decarbonisation approaches of governments and climate resilience initiatives in our core operating jurisdictions of Australia, Canada and Chile

Our direct activities
Participating in government consultation processes and sharing our views in public forums, where relevant.

Our indirect activities
- Helping to shape the positions adopted by industry associations of which we are a member
- Working with other member companies to evolve and advance the initial three-year Climate Action Plan of the Minerals Council of Australia
- Working with civil society and other industry stakeholders to design and implement a program aimed at strengthening the climate resilience of communities near our operations in Chile, including engagement with relevant communal and regional authorities

Expected principal contribution
- Providing an industry view on decarbonisation pathways should help ensure relevant policy frameworks are as effective and efficient as possible
- Knowledge sharing to maximise the effectiveness of adaptation measures to contribute to the knowledge bank available to build broad-based climate resilience in society

The use of ESG-related performance standards to support global decarbonisation efforts

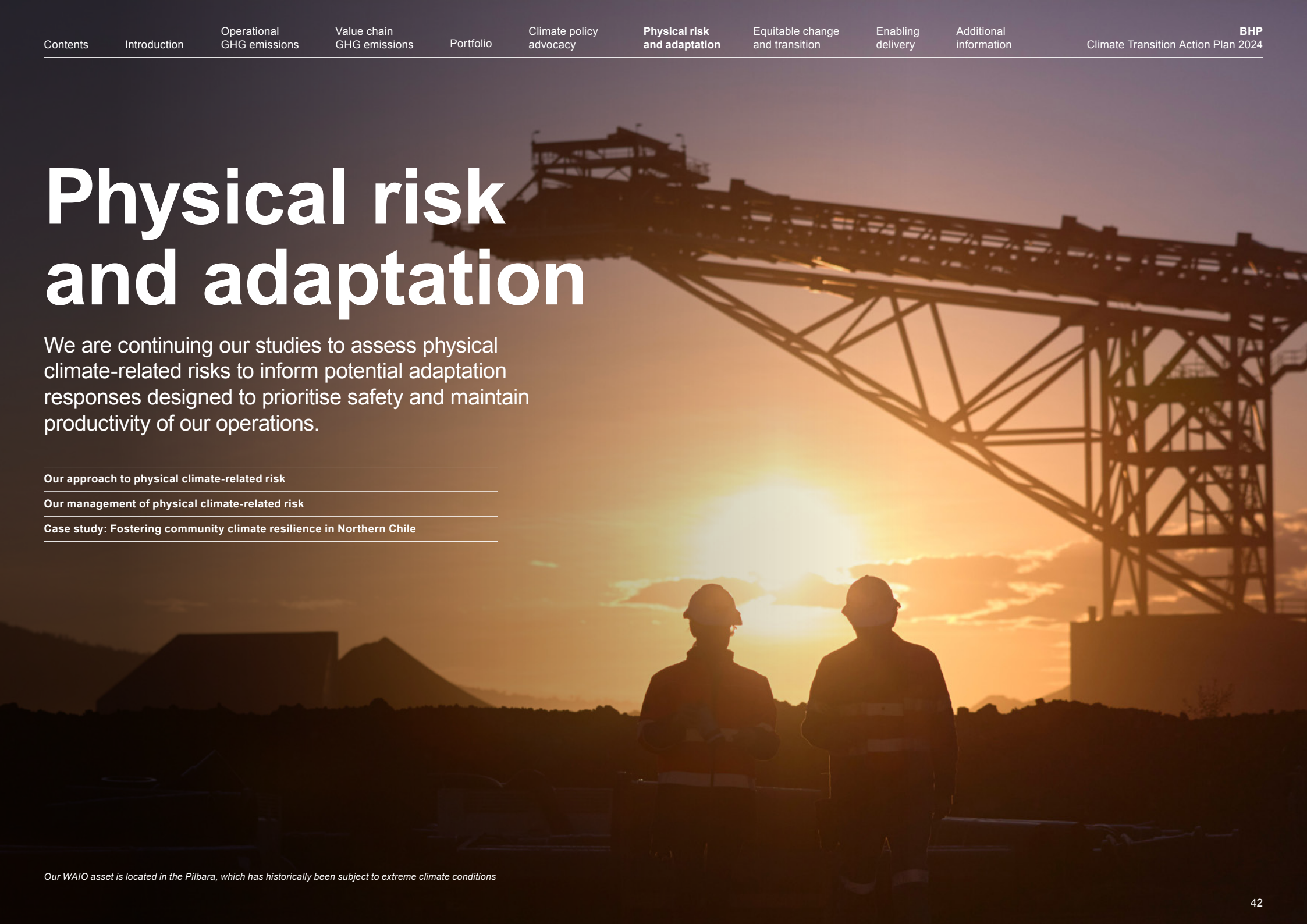
Our direct activities
Participating in government consultation processes and sharing our views in public forums, where relevant, to advocate for design and implementation of standardised, internationally-aligned requirements for climate-related disclosures.

Our indirect activities
- Engaging with civil society and other stakeholders, and helping to shape the positions adopted by industry associations of which we are a member

Expected principal contribution
- Providing a mining and multinational company view on the practicality and likely effectiveness of current and proposed standards

Physical risk and adaptation

We are continuing our studies to assess physical climate-related risks to inform potential adaptation responses designed to prioritise safety and maintain productivity of our operations.



Our WAIO asset is located in the Pilbara, which has historically been subject to extreme climate conditions

Our approach to physical climate-related risk

As the world is already experiencing the impacts of a changing climate, we must test our resilience and be prepared to adapt to enable the ongoing safety and productivity of our operations and the dependability of our value chain.

Risks

A changing climate can exacerbate and create physical climate-related risks, which include:

– **Acute physical climate-related risks**: Extreme climatic events, such as floods, cyclones and heatwaves, that may be more severe or more frequent because of a changing climate

– **Chronic physical climate-related risks**: The incremental worsening of conditions, such as the gradual increase in the number of extreme heat days over the years, or rising sea levels

The mining sector is exposed to both acute and chronic physical climate-related risks because of its remote outdoor operations with labour and physical capital exposed to the elements, and because of its dependency on global value chains. The long lives of mining assets mean they could encounter deteriorating conditions in later decades. Geographically dispersed sites and value chains increase the diversity of physical climate-related impacts we could encounter.

Assessment

We are undertaking studies to assess our exposure to physical climate-related risks that draw on science-based climate data (as discussed later on this page).

We are working to complete these studies and continue verification and review of results in FY2025.

Operated assets

Our approach to evaluating our operational physical climate-related risks is illustrated in Figure 5.1.

For many years, we have managed weather-related risks through our Risk Framework and business planning routines, including through the use of historical data (e.g. allowances for weather-related downtime in production planning and designing and upgrading infrastructure to improve weather-related resilience). To enhance our risk management approach, we are also drawing on a range of forward-looking scenarios.

For more information on how our Risk Framework supports our approach to physical climate-related risk, refer to **Enabling delivery – How we manage climate-related risk (threats and opportunities)** on page 52

Climate modelling

We commissioned WTW (one of our insurance advisors) to develop a climate dataset covering our operated assets and some key value chain locations, to develop a more holistic understanding of the potential parameters of our physical climate-related risk exposure and how it may change over time.

This climate dataset is based on the publicly available Shared Socioeconomic Pathways (SSP) scenarios used by the Intergovernmental Panel on Climate Change, and includes latest generation (Coupled Model Intercomparison Project Phase 6 (CMIP6)) and CMIP5 climate models, applied to our operated assets. The dataset covers more than 20 climate-related hazards potentially relevant to our global operations, such as average temperature, extreme precipitation, and cyclones, which can represent physical climate-related risks. Alongside this, we apply local observational climate data and other sources of climate projections. This approach allows us to develop a localised view of potential impacts, including changes in rainfall patterns, average and maximum temperatures and sea level rise.

The climate dataset includes a baseline (CY2001 to CY2020) and projections for three future time horizons (CY2026 to CY2045, CY2046 to CY2065, CY2066 to CY2085) for the following Intergovernmental Panel on Climate Change SSP-based GHG emission scenarios:[25]

– **Low-case**: Estimated average global temperature increase of 1.8°C by CY2100 (SSP1-2.6)

– **Mid-case**: Estimated average global temperature increase of 2.7°C by CY2100 (SSP2-4.5)

– **High-case**: Estimated average global temperature increase of 4.4°C by CY2100 (SSP5-8.5)

Our studies of physical climate-related risks are considering at least two of these scenarios for each of the potentially relevant climate-related hazard given the range of uncertainty inherent in climate modelling and the divergence of scenarios particularly later in the century.

Our planning range (i.e. our long-term view on demand, supply and price across our commodities) that we use for operational planning implies a projected global average temperature increase of around 2°C by CY2100. Our studies of physical climate-related risks are using a set of scenarios that are different to the scenarios we use to test the resilience of our portfolio against climate-related transition risks (including our 1.5°C scenario). This is due to higher temperature outcomes usually being associated with greater physical climate-related risks. The scenarios we are considering in our studies of physical climate-related risks are intended to help inform a risk-based approach rather than reflect any view on future climate outcomes.

For more information on our planning range, our 1.5°C scenario and how we test the resilience of our portfolio, refer to the **Portfolio** section on pages 31 to 38

Figure 5.1: Our approach to physical climate-related risk

Our approach to physical climate-related risk continued

Assessment continued

Risk quantification studies

We are undertaking our studies of physical climate-related risks to progressively identify, assess and quantify the potential future impacts to site operations, productivity and estimated cost for our operated assets.

The first stage of our analysis looks at our operated assets that are currently producing (excluding NSWEC and former OZ Minerals sites) and our Jansen potash project. We plan to include currently producing former OZ Minerals sites and to expand and adapt our approach to incorporate our legacy assets and NSWEC in FY2025.

Our studies are focusing on the climate scenario with the most significant potential impacts for the identified climate hazards (generally the high-case) and the scenario that most closely aligns to the world's current GHG emissions trajectory (the mid-case).[26] In certain circumstances, the low-case has also been assessed where it has the most significant potential impact (e.g. for certain extreme rainfall events at our Minerals Americas operations due to the complexities of climate modelling). Our studies, will support ongoing evaluation and maturation of our approach.

Table 5.1 shows the physical climate-related risks that our studies to date indicate could have potential impact for our operated assets (including via impacts in our value chain).[27]

Value chain

We are also in the process of conducting value chain-specific assessments to deepen our understanding of how physical climate-related risks may impact certain existing upstream and downstream risks. Our value chain assessments are using climate data to estimate potential downtime due to key climate-related hazards, both on an average annual basis and for certain extreme events.

We have also undertaken a preliminary assessment of compound risk, whereby multiple climate hazards could result in greater impact than the component individual events, or impacts could accumulate along the value chain. Potential opportunities to progress include:

- Reviewing related business continuity plans to identify whether there may be over-reliance on a few alternative suppliers or locations
- Exploring how we can encourage greater resilience in our value chain through engagement with suppliers and enhancements to procurement and contractual processes.

We are incorporating outputs of our value chain assessments into routine annual risk evaluations, as applicable, to determine if additional controls (including adaptation measures) are needed.

Community

Adaptation measures that we may implement can have broader social value benefits but need to be designed to avoid or minimise maladaptation risks. We are aiming to build our capability for future engagement with the communities where we operate on the topic of climate resilience.

We acknowledge the importance of an inclusive and equitable approach to community adaptation that seeks to incorporate Indigenous and local knowledge.

For a case study of a social investment-funded community climate adaptation project that prioritised the incorporation of Indigenous and local knowledge, refer to **Case study: Fostering community climate resilience in Northern Chile** on the next page

Table 5.1: Potential physical climate-related risks at our operated assets and in their value chains

Climate hazard	Potential operational site impacts	Potential productivity or operating cost impacts (for quantification)
Extreme precipitation and/or flooding	Inundation of mines and/or key production infrastructure	– Production disruption – Pumping and repair costs
	Disruption and/or damage to water supply infrastructure	– Production disruption – Repair costs
	Exacerbation of tailings storage facility failure risk	– Production disruption – Repair costs
Coastal hazards (including higher sea levels, cyclones, storm surge and changes in marine ecosystems)	Disruption and/or damage to port and coastal infrastructure and operations	– Production disruption – Repair costs
Extreme temperatures	Disruption and/or damage to electrical infrastructure	– Production disruption – Repair and additional maintenance costs
Changes in rainfall, temperature and/or evaporation patterns	Water shortages for operational activities	– Production disruption
Extreme weather events (including extreme heat, extreme precipitation and/or flooding, cyclones)	Workforce health and safety incidents	– Production disruption – Additional rostering costs
	Disruption in the supply of critical production inputs, and access to supply chain infrastructure	– Production disruption – Logistics disruption

Our management of physical climate-related risk

Risk controls and potential adaptation measures

We have a range of existing controls in place for extreme weather-related risks.

These controls are designed to prioritise safety at our operating sites, including weather detection monitoring, associated weather preparation, emergency management plans and personnel trained in emergency response.

We are also committed to conforming with the Global Industry Standard on Tailings Management, including its climate-related requirements.

To guard against potential equipment failure or inefficiencies we:

- aim to operate equipment in accordance with industry best practice
- have robust inspection and maintenance routines
- hold inventory of critical spares based on our risk appetite
- undertake contingency planning

We also maintain value chain-related contingency plans, which cover how we would respond to various scenarios that could impact our access to key markets, including physical disruptions to outbound logistics.

Completion of our risk quantification studies for our operated assets will enable us to identify and design, support or influence adaptation responses additional to existing controls, where appropriate.

Adaptation measures may include steps designed to maintain asset integrity, safe and productive operations and value chain resilience. Through our studies of climate-related risks we aim to identify opportunities to continue to protect value and enable growth, such as those shown in Table 5.2.

For more information on how we manage water and tailings-related risks, including those that are climate-related, refer to the Sustainability section of our website, available at bhp.com/sustainability

Key actions

As we build further upon our knowledge base and capability with respect to physical climate-related risks, our risk quantification studies will evolve and we will continue to refine how to assess, manage and monitor these risks.

Once the results of the risk quantification studies for our operated assets are completed, we propose to use the results to:

- inform updates to our risk profile, including new risk management activities
- inform corporate planning
- identify areas where we should focus our assessment of new or strengthened controls or adaptation responses
- assess the financial and social value of adaptation measures

Table 5.2: Examples of potential adaptation responses that could help to protect value and enable growth

	Acute physical climate-related risks	Chronic physical climate-related risks
Protect value: – Risk mitigation and prevention – Maintain productivity	**Improved safety for our people and communities:** – enhanced bushfire risk management **Reduced outage time:** – increased pumping capacity in pits – higher capacity spillways	**Supply chain resilience:** – ports resilient to sea-level rise – geographically diverse suppliers – larger inventory and stockpiles **Mitigate business interruption:** – extreme heat resilient rail and runways – increased raw water storage
Enable growth: – Continuous improvement – Competitive advantage	**Enhanced capital planning:** – tailored sustaining capital expenditure plans – more resilient mine plans **Increased reliability of critical infrastructure:** – power grid – rail and roads – ecosystem-based adaptation measures to reduce flood risk with environmental co-benefits **Insurance portfolio efficiency:** – targeted controls to preserve/optimise cover – deeper coverage for named risks	**Optimising returns on capital:** – adjusted truck scheduling in wet conditions to maximise productivity – climate informed predictive maintenance routines **Talent attraction:** – extreme heat resilient accommodation for fly-in fly-out workers **Social value:** – community initiatives on shared risks

Case study

Fostering community climate resilience in Northern Chile

In the Tarapacá region of Chile we are supporting community climate adaptation through an initiative called Kuskalla (“Together” in Quechua), funded by our voluntary social investment. The project has been co-developed with local communities, drawing on local knowledge to identify potential innovative technological and infrastructure responses that could support resilience to the impacts of a changing climate through improved water and energy security.

This includes the following initiatives in the communities of Mamiña, Iquiuca and Macaya:

- **Energy:** Installation of a solar microgrid (Mamiña) and solar photovoltaic system (Iquiuca)
- **Water:** Development of a water monitoring system supporting improved agricultural water management (Iquiuca and Macaya)
- **Waste:** Waste management pilot producing bio-fertilisers for local use from organic waste (Mamiña)

Kuskalla has been implemented by a multidisciplinary consortium comprising EBP Chile, SER Patrimonio, The Sustainable Minerals Institute at the University of Queensland and Power Ledger.

Kuskalla is one of three projects selected for social investment support through Súmate, BHP and Fundación Chile that sought to identify projects to help communities in Tarapacá and Antofagasta adapt to the impacts of a changing climate. The other two projects include:

- **Proyecto PURI,** which is installing grey water recycling technology in a kindergarten and social housing in Antofagasta, in order to irrigate and improve access to green spaces
- **AcuyMinAgro,** which aims to support fishing communities in the Antofagasta region, through the development of aquaculture facilities in marine management areas

All projects prioritise involvement of the local community in their design and implementation to support appropriateness and sustainability of the solutions.

Equitable change and transition

We aim to ensure change and transitions are equitable, and we are implementing our principles in working towards the planned closure of Mt Arthur Coal.

Our people involved in Mt Arthur Coal's operations and closure planning

Our approach to equitable change and transition

We recognise many of the communities where we operate rely on mining and associated activities to support their livelihoods.

We aim to ensure change and transitions are equitable and deliberately considered across the lifecycle of our business and for the communities where we operate.

We also acknowledge and consider that, while the energy transition is essential, the world's repositioning must be aligned with international human rights obligations and the United Nations Sustainable Development Goals.

Implementation

Our approach is grounded in our existing strategies, policies, standards and frameworks in relation to our people, the environment, communities and other stakeholders and partners.

As equitable change and transition is intrinsically founded in human rights standards, our Human Rights Policy Statement, Indigenous Peoples Policy Statement, and Inclusion and Diversity Position Statement help underpin our approach.

Our social value framework pillars provide opportunities to directly support equitable change and transitions, including for example:

- **Decarbonisation:** Opportunities for post-closure land use options that support the energy transition; nature-based mitigation projects; and adaptation measures with potential for wider benefits to ecosystems and communities
- **Healthy environment:** Opportunities for non-operational land to be under nature-positive management practices (i.e. conservation, restoration or regenerative practices), including projects in partnership with Indigenous peoples and local communities
- **Indigenous partnerships:** Enable or support Indigenous access and cultural practices in post-closure land use options
- **Thriving, empowered communities:** Co-designed transitions that deliver positive long-term economic, social and environmental outcomes beyond closure; targeted analysis of factors that may influence levels of vulnerability or adaptive capacity within communities where we operate to support climate resilience

Our *Closure and Legacy Management Global Standard*, *Community and Indigenous Peoples Global Standard, Climate Change Global Standard* and *Environment Global Standard* set out requirements aligned to our equitable change and transition principles. These *Global Standards* aim to achieve optimised closure outcomes and objectives, set minimum requirements for engagement and communication with stakeholders and partners, implement our commitments to human rights and Indigenous peoples' rights, and manage environmental risks, in addition to meeting compliance obligations.

For our approach to and reporting on our social value framework and the goals, metrics and milestones, refer to the Sustainability section of the latest BHP Annual Report available at bhp.com/investors/annual-reporting

Our Global Standards describe our mandatory minimum performance requirements and provide the foundation to develop and implement management systems at our operated assets. Public versions of our Global Standards are available at bhp.com/about/operating-ethically/corporate-governance

Our *Human Rights Policy Statement*, *Indigenous Peoples Policy Statement*, and *Inclusion and Diversity Position Statement* are available at bhp.com/local-communities and bhp.com/careers/inclusion-diversity

More information on our community-related insights, engagements and initiatives is available at bhp.com/local-communities

Spotlight

Our equitable change and transition principles

We have committed to principles that guide our approach to equitable change and transitions:

- **Create opportunity for meaningful engagement and co-designed processes:** We will seek to develop relationships with stakeholders and partners, including government, local businesses, community members, suppliers, Indigenous peoples and workers, that support understanding of the issues and co-creation of solutions. We will communicate transparently on the types of changes the business needs to make and enable active participation of those most impacted.
- **Recognise the economic, social and environmental dimensions of sustainable development are interrelated:** We will aim to avoid or mitigate adverse environmental impacts of change and transitions, while pursuing opportunities to build climate resilience and environmentally sustainable communities.
- **Recognise our responsibility to our workforce:** Where a major change in our business is expected to affect our workforce, we will engage in meaningful dialogue and support those impacted.
- **Recognise the impacts associated with gender, land connectedness and social and economic vulnerability:** We will not assume all people are affected similarly. We will seek to understand how impacts may be differently experienced, including for Indigenous peoples, and recognise plans and solutions must take into account the particular strengths of each community and tackle the unique impacts they experience.

Given change and transitions involve multiple stakeholders and partners, we seek to be a catalyst to bring people together and draw on our relationships to advocate for equitable change and transition in line with these principles.

Municipal governments, First Nations, Métis and local organisations visiting our Jansen asset to discuss progress and the path ahead

Case study

Equitable transition for our Mt Arthur Coal mine

Mt Arthur Coal is the mining operation of our NSWEC asset.

We are working to leave a positive legacy from our mining in the Hunter Valley as we transition to the planned closure of Mt Arthur Coal, an open-cut energy coal mine in New South Wales, Australia.

This includes working with employees, contractors, suppliers, the local community and other relevant stakeholders and partners to achieve sustainable landforms and land uses to contribute to supporting the needs of the Hunter region.

Pathway to 2030

In FY2022, we decided to retain Mt Arthur Coal, seek the relevant approvals to continue mining beyond the current consent that expires at the end of FY2026 and proceed with a managed process to cease mining by the end of FY2030, which we refer to as our 'Pathway to 2030'. This decision followed the review of our lower grade steelmaking and energy coal assets that resulted in divestment of our interests in Cerrejón and BHP Mitsui Coal in FY2022 and a trade sale process for NSWEC that did not result in a viable offer.

An important part of our Pathway to 2030 is to seek the relevant approvals to continue mining past expiry of the existing consent at the end of FY2026. This timeframe is intended to provide the opportunity to consult, prepare, plan and make considered decisions for the long-term future of our people and surrounding communities. We have applied to the New South Wales Department of Planning, Housing and Infrastructure for the extension. We expect additional maintenance capital spend of less than US$100 million will be required for the proposed life extension of Mt Arthur Coal from FY2027 through to the end of FY2030.

More information on our Pathway to 2030 and beyond, including our plan for mining at Mt Arthur Coal beyond FY2026 is available at bhp.com/pathway-2030

Workforce

Our 'Tomorrow, together' program aims to support our employees to identify and progress towards a career pathway that will be most appropriate for their circumstances post-closure of Mt Arthur Coal. The program is about understanding each individual BHP employee's future aspirations beyond FY2030 and how we can help support them to achieve these aspirations.

Key themes identified from these discussions have led us to offer free financial planning advice for all employees. Career advice sessions will also be available to enable individual career pathway plans for those who may decide to leave the mining industry as part of the planned closure.

We are also engaging in contractor and supplier forums and we are working on a plan to help support a transition for contractors and suppliers who depend on Mt Arthur Coal. We recognise individual needs are unique for each contractor and supplier and their workforces.

In FY2024, as part of our engagement with other regions undertaking a similar transition away from energy coal mining, our Mt Arthur Coal team members undertook a site visit to Collie in Western Australia. This provided an understanding of the State Government's Collie Just Transition Plan and how it is being implemented, which will see Collie's coal-fired power stations retired by CY2030.

Community

We recognise the importance of community self-determination as we prepare to cease mining at Mt Arthur Coal. BHP is listening to community members and other external stakeholders and partners to better understand their values and aspirations for the region.

Through our assessment of closure legacy expectations and a research project with the University of Newcastle, we have undertaken stakeholder interviews, community surveys and workshops to explore key issues and opportunities and understand how we can work in partnership to enable the continuation of a prosperous and diverse Upper Hunter region. It is anticipated these initiatives will help inform future plans and community investment programs.

Future land use options

Our rehabilitation strategy for Mt Arthur Coal is being progressively implemented as part of the current mining phase and will continue post-closure. Rehabilitation aims to improve the native ecosystem and enhance the native woodland habitat. Our strategy is supported by rehabilitation completion criteria and performance indicators, overseen by the New South Wales State Government.

We are engaging with multiple stakeholders and partners to seek ideas and feedback on the transition and closure of the Mt Arthur Coal mine. We have completed a land capability assessment for the site and we continue to explore opportunities to facilitate the ongoing use of the land at Mt Arthur Coal to enable alternative re-uses, such as recreation, large-scale renewable electricity generation, and land uses with high economic diversity and value.

There are a number of post-closure land use options that have the potential to generate social, cultural, environmental and economic benefit locally and regionally, as well as creating greater economic diversification for the Hunter Valley.

We will continue to work closely with key stakeholders and partners, including the community and government agencies, to determine the most appropriate land use options in closure. Most alternative land uses will require planning and approval by both BHP and government agencies.

Key actions

- Obtain a decision on government approval of our mining extension. The decision is expected in the first half of CY2025
- Continue to support employees in transition career planning, skill mapping and attainment of new skills
- Continue progressive environmental rehabilitation

Community-based events, like the Upper Hunter Great Cattle Dog Muster, give the Mt Arthur Coal team a chance to both listen and share about the mine's future

Enabling delivery

Our Commercial function seeks to maximise commercial and social value in our value chain

Our governance

Climate change and climate transition planning is a material governance and strategic issue for our Board and management.

Board reporting

The Board met 16 times during FY2024 with climate-related issues regularly on the agenda for Board meetings, including reviewing and approving public sustainability disclosures, reviewing progress against our climate change targets and goals, assessing corporate strategy and portfolio options, approving certain investment requests, risk and policy setting. The Board is informed through board papers, progress updates from management, material risks reports, presentations from external subject matters experts and reports from the chair of each Committee following Committee meetings. Climate-related topics are also incorporated into Director induction programs, ongoing training, external speakers and site visits to assist the directors in their oversight.

The Board will monitor and oversee progress against our GHG emissions targets and goals and the key commitments detailed in this CTAP. The Sustainability Committee, with assistance from the management-level Sustainability and ESG Steering Committee, will oversee BHP's implementation and performance against this CTAP and climate-related matters.

For more information on the Sustainability and ESG Steering Committee, refer to **Our management, remuneration and organisational capability** on the next page

Board and Committees

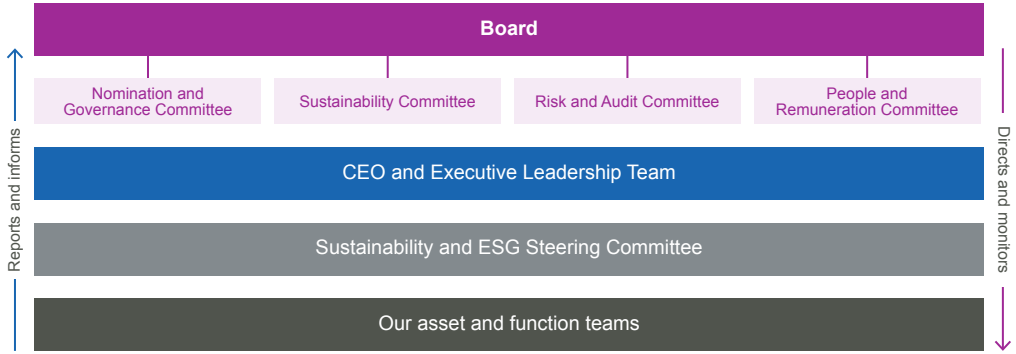
Climate change is a Board-level issue, including in relation to our strategic approach, risk management, public disclosures, annual budgets and business plans.

The Board is responsible for the approval and oversight of BHP's climate-related risks (threats and opportunities) and BHP's climate change strategy. The Board has four standing Committees to assist in the discharge of its responsibilities, including in relation to climate-related matters.

Each of these Committees reports to the Board on the key issues discussed, including, where applicable, climate-related issues:

- **The Board** approves BHP's significant social, community and sustainability policies (upon recommendation from the Nomination and Governance Committee), including those related to climate change and climate transition planning, public sustainability-related goals and targets (including for GHG emission reductions). The Board reviewed and approved BHP's climate-related targets and goals, and approved this CTAP.
- **The Nomination and Governance Committee** assists the Board with reviewing BHP's significant social, community and sustainability-related policies (including those related to climate change and climate transition planning), and reviews and makes recommendations to the Board on BHP's public sustainability-related targets and goals. The Nomination and Governance Committee reviewed and recommended this CTAP to the Board for approval. The Committee also assists with assessing the capability of the Board to deliver on BHP's strategy by regularly assessing the Board skills matrix and the collective skills, experience and knowledge of the Board to be able to discharge its duties, including on the strategic direction of BHP.
- **The Sustainability Committee** assists the Board with overseeing climate performance including monitoring implementation of BHP's climate strategy, policies and processes, and performance against public targets and goals, and reviews and reports to the Board on the Group's material climate risks. The Committee also makes recommendations to the People and Remuneration Committee on both setting climate performance measures and evaluating performance against those measures for the CEO and other members of the ELT.

Figure 7.1: Board and management governance of climate-related matters



- **The Risk and Audit Committee** oversees and assists the Board in reviewing the emerging and principal risks facing BHP. This includes business risk, financial reporting risk and climate risk. The Committee also reviews and recommends to the Board for approval public financial disclosures, including financial information related to sustainability matters and financial information contained in climate change reports and climate transition action plans. The Risk and Audit Committee reviewed the climate-related financial disclosures appearing in this CTAP and the Financial Statements in the BHP Annual Report 2024, both prior to the Board's approval.
- **The People and Remuneration Committee** assists the Board with reviewing performance measures and performance outcomes for the CEO and approves performance measures and assesses and determines performance outcomes against those performance measures for the ELT. In doing so, the Committee considers recommendations from the Sustainability Committee in relation to climate performance measures.

The responsibilities of the BHP Board and Board Committees are reflected in their respective charters available at bhp.com/about/operating-ethically/corporate-governance

Board skills

The Board maintains a skills matrix that identifies the skills and experience the Board needs for the next period of BHP's development, considering BHP's circumstances and the changing external environment. Skills in the current matrix related to the Board's capability to assess and monitor climate-related risk (threats and opportunities) and climate transition strategies include Sustainability and decarbonisation transition, Strategy, Operating risk, Commodity value chain and customers, Social value, Community and stakeholder engagement, Technology and Capital allocation and cost efficiency.

The Board collectively possesses the skills and experience set out in the skills matrix. The Directors also participate in an ongoing training and development program and receive updates on climate-related issues and reporting requirements, including from external experts on evolving climate-related developments where required.

The latest Board skills matrix is in the Corporate Governance Statement in the latest BHP Annual Report, available at bhp.com/investors/annual-reporting

Our management, remuneration and organisational capability

Management

Management's involvement in climate-related matters includes:

- **The CEO and ELT** execute climate-related policies and strategy approved by the Board and are accountable for performance and achievement of BHP's operational GHG emissions (Scopes 1 and 2 emissions from our operated assets) and value chain GHG emissions (Scope 3 emissions) targets and goals.
- **The Sustainability and ESG Steering Committee** facilitates direction, review and management decisions on cross-functional, asset and strategic issues relating to BHP's sustainability and ESG-related positions, including climate change and climate transition planning. The membership of the Sustainability and ESG Steering Committee includes the Chief Legal, Governance and External Affairs Officer, Chief Financial Officer, Chief Operating Officer, Chief Commercial Officer, President Minerals Australia and President Minerals Americas from the ELT, and sustainability and ESG leaders within BHP, including the Group Sustainability and Social Value Officer.
- **The Group Sustainability and Social Value Officer**, Dr Fiona Wild, is responsible for driving BHP's climate change strategy, including climate considerations in broader company strategy and portfolio evaluation, operational and value chain decarbonisation, physical climate-related risk and adaptation, equitable change and transition, stakeholder engagement and disclosure.

The ELT receives progress and performance reports on operational GHG emissions, operational and value chain GHG emission reduction activities, adaptation strategy-related activities and climate-related risks from our asset and functions teams.

Management is supported by BHP's asset and function teams:

- **The Group Sustainability and Social Value team** is responsible for collaborating with BHP's asset and function teams, external partners and industry to develop practical climate change solutions. The team regularly prepares information and advice for management-level and Board-level stakeholders and committees on climate-related strategy, risks (threats and opportunities) and performance against climate-related metrics. The team also uses key risk indicators to help monitor performance against our appetite for climate-related risks and monitors relevant signposts for emerging risks.
- **The Risk team** is responsible for providing expertise, support, monitoring and challenge on risk-related matters and our internal audit team is responsible for providing independent and objective assurance over the control environment (governance, risk management and internal controls) to the Board and ELT. Additional assurance may also be provided by external providers, such as our external auditor, in relevant circumstances.
- **The asset and function teams** are responsible for undertaking climate-related activities.

Management skills

Our CEO and other members of the ELT attend meetings and review papers and materials intended to provide them with new and additional knowledge, skills and competencies required to oversee our climate change strategy.

Our CEO and other members of the ELT also make use of regular, structured forums that provide detailed information on climate-related topics, including:

- **The Forum on Corporate Responsibility:** A forum we host that meets half-yearly and convenes external leaders in sustainability-related fields to discuss views on current and emerging trends and risks, including climate change.
- **The Quarterly Business Review:** An internal forum that meets quarterly to review and consider updates on strategic direction and tactical progress on operational GHG emission reduction.
- **Commodity and Market Outlook Review:** An internal forum that hosts discussions at least twice a year about new events and challenges affecting our forecasting of commodity demand, the global economy, financial markets and the overarching potential impact of climate change and the net zero transition globally.

Remuneration

CEO and ELT remuneration

Our executive remuneration framework is aligned with key drivers of our business strategy, to help deliver the short-, medium- and long-term success of BHP and create value for shareholders and other stakeholders and partners. Strategic drivers are reflected in incentive plan performance measures linking executive incentives to actual performance.

The amount of remuneration actually received by executives each year depends on the achievement of business and individual performance measures that generate sustained shareholder value. Before deciding on the final incentive outcomes for the CEO and other executives, the People and Remuneration Committee considers the achievement of pre-determined performance measures.

In FY2020, we strengthened the link between executive remuneration and the delivery of our climate change strategy, coinciding with the implementation of a revised remuneration framework, comprising fixed remuneration, the Cash and Deferred Plan (CDP) and Long Term Incentive Plan.

The CDP is an annual cash and equity award that encourages and focuses executives' efforts for the relevant financial year on the delivery of our strategic priorities, balancing financial and non-financial performance, to deliver short-, medium- and long-term success aligned to our purpose. For FY2025, the CDP scorecard includes performance measures related to safety and sustainability (25 per cent weighting), financial (50 per cent weighting) and group and personal objectives (25 per cent weighting). CDP awards are provided as cash and deferred shares vesting in two and five years, respectively. Vesting of five-year deferred shares under the CDP is underpinned by a holistic review of performance at the end of the five-year vesting period, including a review of safety and sustainability performance over the five-year period.

The safety and sustainability-related targets include significant health, safety, environment and community (HSEC) events, climate change and Indigenous partnerships. Climate change-related scorecard targets will represent 10 per cent weighting in the CDP scorecard for FY2025 and have been in place each year since FY2020. These performance measures seek to motivate executives to achieve and exceed internal targets, which support delivery of our GHG emissions targets and goals in this CTAP.

A CDP award is determined based on the assessment of each scorecard performance measure by the People and Remuneration Committee and the Board, with guidance provided by other relevant Board Committees, including the Sustainability Committee with respect to safety and sustainability targets and outcomes.

The latest information about our performance against our CDP climate change measures is available in the Remuneration Report in the latest BHP Annual Report, available at bhp.com/investors/annual-reporting

For FY2025, our CDP climate-related performance measures include:

- reduction in operational GHG emissions (Scopes 1 and 2 emissions from our operated assets)
- deliver the FY2025 actions in the approved climate adaptation work program
- inclusion of capital for mitigating/preventative controls for physical climate-related risks in future plans

Climate change measures, including reduction in operational GHG emissions, play a meaningful role in the determination of remuneration outcomes for our CEO and other ELT members.

Employee remuneration

We have a short-term incentive plan that applies to the majority of employees below the ELT level (excluding employees under industrial or enterprise agreements who have separate short-term incentive and bonus arrangements). A company scorecard used for this short-term incentive plan is similar to the CDP scorecard and includes climate change-related performance measures, including targets related to the reduction in our operational GHG emissions.

Employees who have specific climate-related responsibilities also have individual performance goals related to climate-related progress. The achievement of these goals is used to determine entitlement to short-term incentive outcomes.

Organisational capability

We conduct periodic capability reviews across our business for roles with climate-related accountabilities to help us design and deliver training to support capability improvement. Our training has completion required and monitored for certain roles.

How we manage climate-related risk (threats and opportunities)

Climate change creates new risks and influences the nature, scale and frequency of the potential impacts of many existing risks (not primarily caused by climate change) across our risk profile.

This CTAP has been developed to reflect the identification and management of climate-related risks (threats and opportunities) that we face.

We take an enterprise approach to risk management and operate to one Risk Framework for all risks including climate-related risks (threats and opportunities). Our Risk Framework requires the identification and management of risks to be embedded in business activities and provides requirements and guidance on the tools and processes to manage current and emerging risks.

Our mandatory minimum performance requirements for risk management and the *Climate Change Global Standard* set the minimum requirements to manage climate-related risks and apply across our operated assets, functions, and regional teams, and our decision-making processes for procurement, sales and marketing.

We interpret external signals associated with transition risk and physical climate-related risk, including material changes in climate-related political dynamics, policy and regulation, including legal developments, carbon pricing and markets, stakeholder sentiments, and industry developments. We also interpret external events and trends associated with transition and physical climate-related risk which may include, scientific, policy, legal, reputation and market developments. This supports the identification and management of climate-related risks at BHP.

Operational GHG emissions risk

We conduct annual long-term strategic planning for our operated assets, which includes detailed operational GHG emissions reduction planning. As part of this, we assess projects using criteria such as technology readiness, operational risk and overall risk associated with likelihood of progression. We also consider project success at the planned scale of implementation required to meet our medium-term target and achieve our long-term net zero goal.

Impacts to our operational GHG emissions are included in our investment risk management framework for minor projects, major capital projects, transactions, and greenfield exploration projects. Project teams are required to identify a potential investment's operational GHG emissions profile and the availability of GHG emission abatement solutions to assess the impact on our operational GHG emissions medium-term target and long-term net zero goal.

We then use this planning process to prioritise and accelerate the delivery of our operational GHG emission reduction strategy where possible. This typically includes a focus on technologies and GHG emission sources that are not as well progressed or that do not have as high a level of technology or commercial readiness. We continue to study and identify options to accelerate our strategy, including by working with our suppliers, others in the industry and our innovation and BHP Ventures teams to source new ideas or gain access to new technologies.

Table 7.1: How we address BHP's risk factors and climate-related risk (threats and opportunities) in this CTAP, as identified for FY2024

		Our risk factors, as identified for FY2024 and where relevant to this CTAP						
Climate-related risk factors	**Sections in this CTAP**	**Operational events**	**Significant social or environmental impacts**	**Low-carbon transition**	**Adopting technologies and maintaining digital security**	**Optimising growth and portfolio returns**	**Accessing key markets**	**Inadequate business resilience**
Transition risk (climate-related) Predominantly BHP company-wide risks that are influenced or exacerbated by the global transition to net zero, but where climate change is not the sole driver. The transition to a net zero global economy has the potential to influence these risks by driving, amplifying or accelerating one or more risk scenarios or causes.	Operational GHG emissions, from page 10	●	●	●	●		●	●
	Value chain GHG emissions, from page 19		●	●	●		●	
	Portfolio, from page 31		●	●		●	●	●
	Climate policy advocacy, from page 39		●	●				
	Equitable change and transition, from page 46		●	●				
Physical climate-related risk Risks where the potential physical impacts of a changing climate, chronic and acute, are the main driver, and which largely materialise through potential impacts to infrastructure and operations at our operated assets and in our value chain, and may affect the communities where we operate.	Physical risk and adaptation, from page 42	●	●				●	●

How we manage capital

Decision evaluation and capital allocation

Our Capital Allocation Framework is a fundamental mechanism for determining the amount and timing of investment in the progression of our climate change strategy and the delivery of this CTAP, while remaining well-positioned to maximise shareholder returns.

As shown in Figure 7.2, our framework provides an overarching hierarchy for the potential uses of surplus operating cash and is used to guide short-, medium- and long-term business decision-making and planning processes. Capital is prioritised from a portfolio perspective consistent with our long-term strategy, to enable maximum value and returns.

Operational GHG emissions

Operational GHG emission reduction projects are considered as part of the maintenance capital category within this framework, along with other forms of risk reduction, asset integrity, compliance, and major, minor and sustaining projects intended to preserve the ability to generate value at our operated assets. This enables consideration of a risk assessment across qualitative and quantitative criteria relevant to each capital allocation decision. However, an important principle within the framework prioritises operational GHG emission reduction projects where they are critical in supporting the achievement of our operational GHG emissions medium-term target and long-term net zero goal.

Individual operational GHG emission reduction projects must justify the investment based on abatement efficiency, technology readiness, maturity, operational impact and relative economics compared with other maintenance capital projects in the portfolio.

Operational GHG emission reduction projects are incorporated into our corporate planning processes that includes review of our mine plans, which are critical to creating alignment across BHP. These processes guide the development of plans, targets and budgets to help us decide where to deploy our capital and resources.

We have a number of Investment Review Committees that assist our decision-makers with review of proposed investments. The appropriate Investment Review Committee, based on investment size and any complexity elements, provides endorsement for whether to progress operational GHG emission reduction projects based on qualitative and quantitative measures.

Our Quarterly Business Review forum also reviews and updates strategic direction and tactical progress on operational GHG emission reduction.

For more information on the Quarterly Business Review forum, refer to **Our management, remuneration and organisational capability** on page 51, earlier in this section

Execution is monitored through periodic reporting to senior leaders and project sponsors on key performance indicators.

Value chain GHG emissions

Value chain GHG emission reduction projects are usually considered and prioritised using similar criteria to compliance and risk reduction projects.

For steelmaking-related projects (including our steelmaking customer partnerships), our Investment Review Committees operate in the same manner as described for operational GHG emission reduction projects.

Carbon pricing

We embed carbon prices, as shown in Table 7.2, within our planning range and planning cases that inform asset planning, asset valuations and operational decision-making, including the prioritisation of operational GHG emission reduction projects.

Our carbon price forecasts are also used along with other qualitative and quantitative metrics in assessing investments and informing our portfolio strategy and investment decisions.

Our internal carbon price for a region is based on existing and forecast carbon taxes or GHG emission allowance prices known as a 'compliance carbon price'. In regions where there is currently no regulated carbon pricing method in place, we assume the implementation of these measures taking into consideration national or regional circumstances, including current and announced government climate-related policies, targets and goals (including net zero) and societal factors, such as public acceptance and demographics.

Figure 7.2: Our Capital Allocation Framework

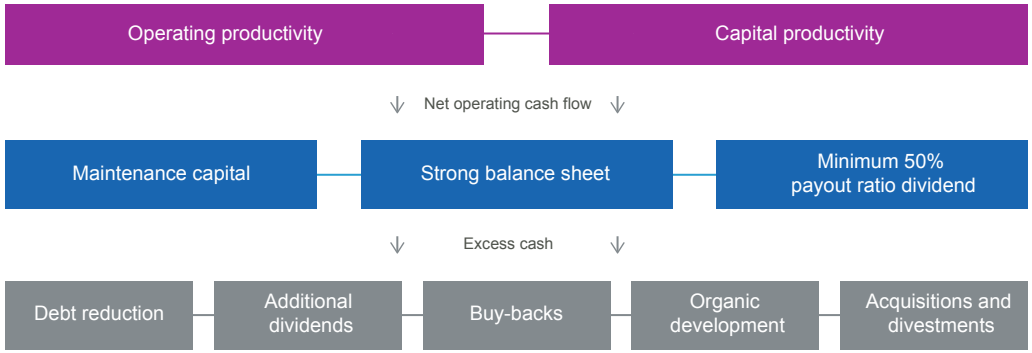


Table 7.2: Our planning range's forecast ranges of regional carbon prices for major BHP operational countries and key customer countries

	July 2024 US$ real per tCO_2			
	FY2030 low-case	FY2030 high-case	FY2050 low-case	FY2050 high-case
Australia	28	83	166	248
Brazil	6	55	138	221
Chile	9	44	166	248
Canada	71	110	221	248
Key customer countries[28]	1	193	28	276

As climate ambition differs by country or region and will likely evolve over time, we use regional carbon price trajectories from today to FY2050.

The carbon price forecast for our operational countries and customer countries aligns with our planning range framing and associated regional net zero ambitions.

For more information about our planning range and planning cases, refer to the **Portfolio – Our planning range – what it is and how we use it** on page 32

How we manage carbon credits

How we may use carbon credits

Our plan is to meet our operational GHG emissions medium-term target through structural GHG emissions abatement instead of offsetting our operational GHG emissions. However, if there is an unanticipated shortfall in our pathway to our medium-term target, we may need to use voluntary carbon credits that meet our integrity standards to close the performance gap.

Our approach to the use of carbon credits for offsetting for our other GHG emissions targets and goals varies and continues to evolve.

For more information on:
- how we may use carbon credits to support the achievement of our operational GHG emissions target and goal
- how we and our value chain may use carbon credits to support the achievement of our value chain GHG emissions targets and goals

refer to **Additional information – Definitions and key details for our GHG emissions targets and goals** on pages 57 to 60

Types of carbon credits

Where commercially feasible, we prioritise carbon credits from nature-based projects as they may unlock the potential to bring wider benefits to ecosystems and communities, in conservation and restoration of carbon sequestration.

In the future, we may consider the sourcing and use of natural (e.g. forest-related) and technological (e.g. direct air capture) carbon credits if there is a satisfactory increase in technology and commercial readiness, and they are supported by robust carbon crediting methodologies.

Voluntary carbon credits

We undertake risk-based screening and/or due diligence to test that carbon credits sourced by BHP meet our integrity standards.

Our integrity standards are designed to align to global best practice for high-integrity carbon credits (such as the International Carbon Reduction and Offsetting Alliance's accreditation Code of Best Practice and its list of endorsed carbon crediting standards, and the Integrity Council for the Voluntary Carbon Market's Core Carbon Principles). We will review and update alignment over time as best practices on carbon credit integrity evolve.

Carbon credits we intend to source go through a review process that includes technical, governance, legal and stakeholder aspects, carried out by internal and external subject matter experts.

We apply the following integrity standards to voluntary carbon credits that we source:

- **Registered under an internationally recognised standard:** Independent verification and issuance of voluntary carbon credits and/or satisfaction of national standards for regulatory carbon credits. Carbon credits we source are predominantly issued under Verra's and Gold Standard's respective standards.
- **Adheres to a robust GHG emissions reduction accounting methodology:** Assurance of the volume of atmospheric carbon that is reduced by a project.
- **Demonstrates that the GHG emission reductions are additional:** GHG emissions would not have been reduced in the absence of a carbon market.
- **Has a high likelihood of permanence:** GHG emissions reduction is ongoing and not reversed (e.g. for forestry projects, the trees are not cut down or destroyed by a natural disaster).
- **Provides robust mitigation against leakage:** Does not increase GHG emissions elsewhere (e.g. for forestry projects, another forest area is not destroyed).
- **Demonstrates high environmental and social integrity:** Does not cause broader social or environmental harm (e.g. for forestry projects, no community displacement occurs) and appropriate engagement is undertaken with local communities and Indigenous groups, and the findings incorporated into project design (e.g. equitable benefit sharing is defined).
- **Restricts early vintage years:** Not retiring credits with a vintage greater than five years to avoid concerns regarding unsophisticated methodologies, non-additionality and inadequate benefit sharing.

In some cases, the integrity standards of carbon credits may be set and monitored by certain government agencies (e.g. Australian Carbon Credit Units (ACCUs)). Where the principles underpinning their integrity standards are broadly aligned to our own, we do not apply our review process.

Regulatory carbon credits

We are subject to the Australian Government's Safeguard Mechanism, under which facilities we operate are required to maintain their Scope 1 emissions at or below progressively declining legislated baselines (e.g. by surrendering carbon credits from eligible sources). ACCUs can be used to comply with the Safeguard Mechanism. The principles underpinning the ACCU Scheme align to our own integrity standards for the carbon credits we source. The Australian Clean Energy Regulator is responsible for approving and issuing ACCUs to projects according to those principles. We do not apply a vintage restriction to purchases of ACCUs because the additionality of projects is rigorously assessed.

We anticipate needing to source eligible carbon credits to comply with the Safeguard Mechanism given its applicability to Scope 1 emissions only. Although we prioritise structural GHG emissions abatement for our operational GHG emissions, many of the technologies and solutions we need to abate Scope 1 emissions (e.g. electric mining equipment/vehicles and fugitive methane emissions prevention and mitigation) are not yet ready to be deployed. Accordingly, our need for eligible carbon credits may grow over time to support compliance.

While the Safeguard Mechanism in Australia is currently the primary regulatory driver of our requirement for regulatory carbon credits, we are subject to other regulations that may require mandatory carbon credit surrender in the future.

We will continue to evaluate our approach as the regulatory environment evolves, including in other regions where we operate.

Additional information

Our Transition Plan Taskforce alignment

When developing this CTAP, we considered the voluntary UK Transition Plan Taskforce Disclosure Framework that was published in October 2023. The disclosure framework aims to support companies to develop high-quality, consistent and comparable transition plan disclosures.

The disclosure framework has three guiding principles:

1. Ambition
2. Action
3. Accountability

As shown in Table 8.1, we have mapped where our disclosures in this CTAP seek to align with the disclosure framework.

The Transition Plan Taskforce Disclosure Framework is available at transitiontaskforce.net

We acknowledge there are areas of the disclosure framework that this CTAP does not address or substantially align with, the most significant of which are:

- **Targets associated with governance engagement, business activity, operational matters and financial metrics:** The disclosure framework requires publicly disclosed targets in each of these areas. We actively monitor a range of climate-related metrics in these areas and adjust our strategy and actions where necessary.
- **Absolute gross Scope 3 emissions reduction target:** We are not currently in a position to commit to a new absolute gross target for any part of our value chain GHG emissions, given achievement of our value chain GHG emissions long-term net zero goal is uncertain, particularly given the challenges of a net zero pathway for our customers in steelmaking, and we cannot ensure the outcome alone.
- **Impacts and dependencies that have been identified with respect to nature:** We acknowledge the interdependencies between climate and nature. Although not contained within this CTAP, we do disclose information on our strategies to manage land, water and biodiversity in the BHP Annual Report and on our website.

For more information on our land, water and biodiversity strategies, refer to the latest BHP Annual Report, available at bhp.com/investors/annual-reporting and our website, available at bhp.com/sustainability

Table 8.1: Transition Plan Taskforce Disclosure Framework and our aligned disclosures in this CTAP (unless otherwise specified)

Ambition: Foundations

Operational GHG emissions
- Our target and net zero goal for operational GHG emissions (Scopes 1 and 2 emissions), on pages 11 to 13
- Spotlight: Influences on our operational GHG emissions target- and goal-setting, on page 18

Value chain GHG emissions
- Our net zero goal for value chain GHG emissions (Scope 3 emissions), on pages 20 and 21
- Steelmaking: Our Scope 3 emissions goal to support capability for GHG emissions intensity, on pages 24 and 25
- Direct suppliers: Our Scope 3 emissions net zero target for direct suppliers' operational GHG emissions, on page 28
- Shipping: Our Scope 3 emissions goal to support GHG emissions intensity reduction and net zero target, on pages 29 and 30

Portfolio
- Resilience in our 1.5°C scenario, on page 34
- Copper, nickel, uranium and potash in our 1.5°C scenario, on pages 35 and 36
- Steelmaking, iron ore and steelmaking coal in our 1.5°C scenario, on pages 37 and 38

Physical risk and adaptation
- Our approach to physical climate-related risk, on pages 43 and 44

Equitable change and transition
- Our approach to equitable change and transition, on page 47

Enabling delivery
- How we manage capital, on page 53

Action: Implementation and engagement strategy

Introduction
- Our climate change strategy and this CTAP at a glance, on pages 8 and 9

Operational GHG emissions
- Spotlight: How we plan operational GHG emission reductions in a dynamic environment, on page 14
- Our areas of focus to reduce operational GHG emissions, on pages 15 to 17

Value chain GHG emissions
- Our net zero goal for value chain GHG emissions (Scope 3 emissions), on pages 20 and 21
- Steelmaking: Longer-term industry pathways, on pages 22 and 23
- Steelmaking: Our Scope 3 emissions goal to support capability for GHG emissions intensity, on pages 24 and 25
- Case studies: Steelmaking GHG emissions intensity reduction projects, on pages 26 and 27
- Direct suppliers: Our Scope 3 emissions net zero target for direct suppliers' operational GHG emissions, on page 28
- Shipping: Our Scope 3 emissions goal to support GHG emissions intensity reduction and net zero target, on pages 29 and 30

Portfolio
- Our portfolio strategy, on page 32
- Spotlight: Our planning range – what it is and how we use it, on page 32

Portfolio continued
- Spotlight: Our 1.5°C scenario – what it is and how we use it, on page 33

Policy advocacy
- Our approach to policy advocacy, on page 40
- Our recent and planned policy engagements, on page 41

Physical risk and adaptation
- Our management of physical climate-related risk, on pages 45

Equitable change and transition
- Spotlight: Our equitable change and transition principles, on page 47
- Case study: Equitable change and transition at Mt Arthur Coal, on page 48

Enabling delivery
- How we manage climate-related risk (threats and opportunities), on page 52
- How we manage capital, on page 53

Additional information
- Our 1.5°C scenario assumptions and the signposts we monitor, on page 61
- Our 1.5°C scenario compared to benchmarks, on page 62

Accountability: Metrics and targets, and governance

Introduction
- Our portfolio changes and highlights of our climate change strategy delivery so far, on page 7

Enabling delivery
- Our governance, on page 50
- Our management, remuneration and organisational capability, on page 51
- How we manage carbon credits, on page 54

Additional information
- Definitions and key details for our GHG emissions targets and goals, on pages 57 to 60

BHP Annual Report
- We publish our climate-related metric, targets and goals as part of our annual climate change disclosures in the BHP Annual Report, available at bhp.com/investors/annual-reporting

Definitions and key details for our GHG emissions targets and goals

We have published a detailed description of how our measurement of GHG emissions aligns with the GHG Protocol series of methodology standards and relevant guidance in the latest BHP GHG Emissions Calculation Methodology. We have published GHG emission data for recent prior year periods in the latest BHP ESG Standards and Databook.

The latest BHP GHG Emissions Calculation Methodology and BHP ESG Standards and Databook are available at bhp.com/climate

Table 8.2: Operational GHG emissions (Scopes 1 and 2 emissions from our operated assets) medium-term target and long-term net zero goal definitions, assumptions, adjustments and additional key details

Medium-term target	Long-term net zero goal
– **Description:** Reduce operational GHG emissions by at least 30 per cent from FY2020 levels by FY2030 – **Baseline year:** FY2020 – **Period:** FY2020 to FY2030 – **Type:** Absolute – **Reduction:** Gross; at least 30 per cent	– **Description:** Achieve net zero operational GHG emissions by CY2050 – **Reference year:** FY2020. FY2020 is used as a reference year to track progress towards our goal, but is not a baseline year for achieving our goal. – **Period:** FY2020 to CY2050 – **Type:** Absolute – **Reduction:** Net; 100 per cent (where we currently estimate up to around an 85 per cent gross operational GHG emissions reduction against FY2020 levels by CY2050 without the use of carbon credits for offsetting)
– **Inventory boundary:** Scopes 1 and 2 emissions: Operational control – **Exclusions:** Non-operated assets and equity investments (included in our value chain GHG emissions (Scope 3 emissions) long-term net zero goal) – **GHGs included:** CO_2, CH_4, N_2O, HFC, PFC, SF_6	
– **Offsetting:** Our plan is to achieve our medium-term target through structural GHG emissions abatement instead of offsetting our operational GHG emissions. We will not use regulatory carbon credits (i.e. those used for compliance under regulatory schemes, such as the Australia's Safeguard Mechanism) to meet our target. In our projected pathway, we have not planned to use voluntary carbon credits to meet our medium-term target, but if there is an unanticipated shortfall in our pathway, we may use voluntary carbon credits that meet our integrity standards to close the performance gap	– **Offsetting:** Planned, to close the performance gap beyond our current estimate of up to around an 85 per cent gross operational GHG emissions reduction against FY2020 levels by CY2050 without the use of carbon credits for offsetting
– **Measurement approach:** Scope 1 emissions are calculated using emission factors and methodologies required under mandatory local regulatory programs where BHP operates, including the National Greenhouse Energy and Reporting (NGER) scheme for Australian operations, Green Tax legislation (referencing Intergovernmental Panel on Climate Change (IPCC) emission factors) for Chilean operations and Canadian Greenhouse Gas Reporting Program (referencing IPCC emission factors) for our Jansen potash project. In the absence of mandatory local regulatory programs, the Australian NGER scheme emission factors and methodology is used. Scope 2 emissions are calculated using the market-based method using electricity emission factors sourced directly from the supplier where available, as evidenced by Renewable Energy Certificates and/or supplier-provided documentation. Where supplier-specific emission factors are not available, a default location-based emission factor for electricity, as published in local regulations or industry frameworks, is used – **Key adjustments made to our baseline year, reference year and subsequent data:** Baseline year (for our target) and reference year (for our goal) and performance data have been adjusted for divestment of our interest in BMC (completed on 3 May 2022), divestment of our Petroleum business (merger with Woodside completed on 1 June 2022), BMA's divestment of the Blackwater and Daunia mines (completed on 2 April 2024), our acquisition of OZ Minerals (completed on 2 May 2023) and for methodology changes (use of IPCC Assessment Report 5 (AR5) Global Warming Potentials and the transition to a facility-specific GHG emission calculation methodology for fugitives at Caval Ridge and Saraji South) – **Performance, adjusted:** FY2020: 13.6 $MtCO_2$-e | FY2021: 13.8 $MtCO_2$-e | FY2022: 10.2 $MtCO_2$-e | FY2023: 9.1 $MtCO_2$-e | FY2024: 9.2 $MtCO_2$-e	
– **Target/goal setting method:** Our target is measured on a cumulative GHG emission basis against an overall carbon budget. The target percentage reduction was established in FY2020 by applying the same rate of reduction to BHP's GHG emissions as the rate at which the world's GHG emissions would have to contract in order to meet the Paris Agreement goal to hold global average temperature increase to well-below 2°C above pre-industrial levels (known as the 'absolute contraction method') – **Target/goal derived using a sectoral decarbonisation approach:** No, our target was derived using the absolute contraction method specified earlier. At the time of setting the target, there were no mining sector-specific pathways for jurisdictions where we operate	– **Target/goal setting method:** Our goal was developed with the ambition to achieve net zero for our operational GHG emissions by CY2050. Our progress against this goal will be measured on an absolute basis – **Target/goal derived using a sectoral decarbonisation approach:** No, however our goal is consistent with the global net zero ambition
– **Processes for reviewing the setting of our target/goal:** The Board approves BHP's significant social, community and sustainability policies (upon recommendation from the Nomination and Governance Committee), including those related to climate change and climate transition planning, public sustainability goals and targets (including for GHG emission reductions). We review our GHG emissions targets and goals as part of the periodic development of an updated CTAP, or more frequently if required – **Processes for monitoring progress towards our target/goal:** Monitored on an annual basis through our business planning processes, which forecast operational GHG emissions and identify planned, proposed or potential GHG emission reduction projects out to CY2050. As part of this process, an internal GHG emissions target is set for the relevant financial year, and monitored through our annual reporting processes, with progress reviewed by management and the Board as part of publication of our annual reporting disclosures, or more frequently if required. Our target is also monitored on a six-monthly basis through our social value scorecard framework, with progress reviewed by management and the Board as part of publication of our half-year results (as well as annual reporting disclosures), or more frequently if required – **Third-party validation of our target/goal:** No, but we obtain reasonable assurance over our externally reported performance against our target and goal	
– **Carbon budget for our target/goal period:** 126.9 $MtCO_2$-e (FY2020 to FY20230). This reflects a linear reduction between our baseline year and the target year. In the interim years before FY2030, we periodically refer to our carbon budget to assess our cumulative GHG emissions against our carbon budget to FY2030. This enables us determine if we are on track to achieve our medium-term target or whether we anticipate potential use of voluntary carbon credits to close any performance gap by FY2030 (which we do not currently anticipate)	– **Carbon budget for our target/goal period:** For the period FY2020 to FY2030, refer to the carbon budget for our target. We do not currently use a carbon budget for the period beyond FY2030
– **Expected progression:** Progress towards our target and goal is expected to be non-linear and affected by organic changes in our production of commodities	

Definitions and key details for our GHG emissions targets and goals continued

Table 8.3: Value chain GHG emissions (Scope 3 emissions) medium-term goals definitions, assumptions, adjustments and additional key details

Steelmaking medium-term goal	Shipping medium-term goal

– **Description:** Support industry to develop steel production technology capable of 30 per cent lower GHG emissions intensity relative to conventional blast furnace steelmaking, with widespread adoption expected post-CY2030
– **Reference year:** CY2020 (global average GHG emissions intensity for conventional blast furnace steelmaking as at CY2020, being 2.2 tonnes of CO_2 per tonne of crude steel. Source: IEA Iron and Steel Technology Roadmap (October 2020)). CY2020 is used as a reference year to assess the potential of collaborative partnerships and venture capital investments to which we may commit funding (refer to 'measurement approach' later in this table), but is not a baseline year for achieving our goal
– **Period:** FY2020 to CY2030
– **Type:** Not applicable
– **Reduction:** Not applicable
– **Boundary:** Not applicable
– **Exclusions:** Not applicable
– **GHGs included:** Not applicable
– **Offsetting:** Not applicable
– **Measurement approach:** Committed funding (US$) for collaborative partnerships and venture capital investments with the aim to support industry to develop steel production technology capable of 30 per cent lower GHG emissions intensity relative to conventional blast furnace steelmaking
– **Key adjustments made to our baseline year, reference year and subsequent data:** Not applicable
– **Performance:** FY2022: US$75 million | FY2023: US$114 million | FY2024: US$140 million
– **Goal setting method:** Qualitative. Tracked based on the funding (US$) we commit in collaborative partnerships and venture capital investments with the aim to support industry to develop steel production technology capable of 30 per cent lower GHG emissions intensity relative to conventional blast furnace steelmaking
– **Goal derived using a sectoral decarbonisation approach:** Not applicable
	– **Description:** Support 40 per cent emissions intensity reduction of BHP-chartered shipping of BHP products.
	– **Baseline year:** CY2008 (reflecting International Maritime Organisation (IMO) objectives for the shipping industry)
	– **Period:** CY2008 to CY2030
	– **Type:** Intensity
	– **Reduction:** Gross; 40 per cent
	– **Boundary:**
	  – GHG emissions from maritime transportation not owned or operated by BHP, but chartered and paid for by BHP, where the transportation was of BHP-produced products sold by BHP. In some cases, the goal's boundary may differ from the boundaries under mandatory reporting
	  – Inventory boundary: Scope 3, Category 4, shipping of BHP products only
	– **Exclusions:**
	  – GHG emissions from maritime transportation owned, operated and/or chartered and paid for by a third party, where the transportation was of BHP-produced products sold by BHP
	  – GHG emissions from maritime transportation not owned or operated by BHP, but chartered and paid for by BHP, where the transportation was of third-party-produced products sold by BHP (pursuant to our third-party-trading activity)
	  – GHG emissions from maritime transportation not owned or operated by BHP, but chartered and paid for by BHP or a third party, where the transportation was of products purchased by BHP
	– **GHGs included:** CO_2, CH_4, N_2O
	– **Offsetting:** Not planned but will be periodically assessed
	– **Measurement approach:** Average gCO_2-e per deadweight tonne per nautical mile (gCO_2-e/dwt/nm), weighted based on IMO defined vessel size ranges utilised by BHP during the time period, using a well-to-wake CO_2-e emission factor from EU Regulation 2023/1805
	– **Key adjustments made to our baseline year, reference year and subsequent data:** Baseline year and performance data have been adjusted to only include voyages associated with the transportation of commodities currently in BHP's portfolio due to the data availability challenges of adjusting by asset or operation for CY2008 and subsequent year data. GHG emissions intensity calculations currently include the transportation of copper, iron ore, steelmaking coal, energy coal, molybdenum, uranium and nickel. Baseline year and performance data have also been adjusted for a methodology change to use maritime transport emission factors from EU Regulation 2023/1805, after The British Standards Institution EN 16258 standard (the source of the emission factors we previously used) was withdrawn in CY2023
	– **Performance, adjusted:** CY2008: 5.8 gCO_2-e/dwt/nm | FY2023: 3.5 gCO_2-e/dwt/nm | FY2024: 3.4 gCO_2-e/dwt/nm
	– **Goal setting method:** Set as a point in time, i.e. with the specific date of 'by CY2030' for our goal to support a 40 per cent GHG emissions intensity reduction of BHP-chartered shipping of BHP products, while reflecting the challenges and uncertainty and our inability (as BHP alone) to ensure Scope 3 emission reductions. As a result, the goal is not based on a trajectory and does not imply a specific carbon budget, and so Scope 3 emissions may fluctuate (with some increases and/or non-linear decreases) during the period before the goal date
	– **Goal derived using a sectoral decarbonisation approach:** No, although our goal is generally consistent with the IMO's CY2030 emissions intensity goal for the international shipping sector and we selected CY2008 as our goal's baseline year to align with the base year for the IMO's CY2030 goal and its corresponding reasoning and strategy

– **Processes for reviewing the setting of the goal:** The Board approves BHP's significant social, community and sustainability policies (upon recommendation from the Nomination and Governance Committee), including those related to climate change and climate transition planning, public sustainability goals and targets (including for GHG emission reductions). We review our GHG emissions targets and goals as part of the periodic development of an updated CTAP, or more frequently if required – **Processes for monitoring progress towards our goal:** Monitored on a six-monthly basis through our social value scorecard framework, with progress reviewed by management and the Board as part of publication of our half-year results and annual reporting disclosures, or more frequently if required – **Third-party validation of our goal:** No, but we obtain limited assurance over our externally reported performance against our goals	
– **Carbon budget for our goal period:** Not applicable – **Expected progression:** Not applicable	– **Carbon budget for our goal period:** Our goal is not based on a trajectory and does not imply a specific carbon budget – **Expected progression:** Progress towards our goal is expected to be non-linear and affected by organic changes in our production of commodities and associated increases in vessel chartering, due to the dependence on the availability of GHG emission reduction solutions more broadly across the shipping industry

Definitions and key details for our GHG emissions targets and goals continued

Table 8.4: Value chain GHG emissions (Scope 3 emissions) long-term net zero targets and goal definitions, assumptions, adjustments and additional key details

Value chain long-term net zero goal	Shipping long-term net zero target	Suppliers long-term net zero target
– **Description:** We have a long-term goal of net zero Scope 3 GHG emissions by CY2050. Achievement of this goal is uncertain, particularly given the challenges of a net zero pathway for our customers in steelmaking, and we cannot ensure the outcome alone	– **Description:** Target net zero by CY2050 for the GHG emissions from all shipping of BHP products. Ability to achieve the target is subject to the widespread availability of carbon neutral solutions to meet our requirements, including low to zero GHG emission technologies, fuels, goods and services	– **Description:** Target net zero by CY2050 for the operational GHG emissions of our direct suppliers. Ability to achieve the target is subject to the widespread availability of carbon neutral solutions to meet our requirements, including low to zero GHG emissions technologies, fuels, goods and services
– **Reference year:** FY2020. FY2020 is used as a reference year to track progress towards our targets and goal, but is not a baseline year for achieving our targets or goal – **Period:** FY2020 to CY2050 – **Type:** Absolute – **Reduction:** Net; 100 per cent		
– **Boundary:** – Total reported Scope 3 emissions are estimated on an equity basis for downstream GHG emissions. For the upstream GHG emissions component, the boundary is defined on a category-by-category basis due to data limitations – Inventory boundary: Scope 3 emissions – **Exclusions:** Refer to exclusions for our shipping and suppliers targets – **GHGs included:** Defined by the available data, which differs by Scope 3 emissions category. We intend to continue to improve our GHG emission calculations over time to encompass specific greenhouse gases as data becomes available	– **Boundary:** – GHG emissions from maritime transportation not owned or operated by BHP where the transportation was of BHP-produced products sold by BHP. May be BHP-chartered or third-party-chartered. In some cases, the target's boundary may differ from the boundaries under mandatory reporting – Inventory boundary: Scope 3 emissions, Categories 4 and 9, shipping of BHP products only – **Exclusions:** – GHG emissions from maritime transportation not owned or operated by BHP, but chartered and paid for by BHP, where the transportation was of third-party-produced products sold by BHP (pursuant to our third-party-trading activity) – GHG emissions from maritime transportation not owned or operated by BHP, but chartered and paid for by BHP or a third party, where the transportation was of products purchased by BHP – **GHGs included:** CO_2, CH_4, N_2O	– **Boundary:** – Scopes 1 and 2 emissions of our direct suppliers included in BHP's reported Scope 3 emissions reporting categories of purchased goods and services (including capital goods), fuel- and energy-related activities, business travel and employee commuting. In some cases, the target's boundary may differ from the boundaries under mandatory reporting – Inventory boundary: Scope 3 emissions, Categories 1, 3, 6 and 7 (subset) emissions are being used as a proxy for the Scopes 1 and 2 emissions of our direct suppliers – **Exclusions:** Scope 3 emissions (for our direct suppliers) associated with our purchased goods and services (including capital goods), fuel- and energy-related activities, business travel and employee commuting – **GHGs included:** Defined by the available data, which differs by Scope 3 emissions category. We intend to continue to improve our GHG emission calculations over time to encompass specific greenhouse gases as data becomes available
– **Offsetting:** We anticipate offsetting by our customers, suppliers and other third parties will play a role in meeting our long-term net zero goal (and potentially our long-term net zero targets), particularly for residual GHG emissions in steelmaking which are not currently expected to reach zero by CY2050. Where third parties offset their GHG emissions that appear in our reported Scope 3 emissions inventory, we plan to recognise and report the net GHG emissions after offsetting. Carbon credits sourced by third parties in our value chain and associated with GHG emissions that appear in our reported Scope 3 emissions inventory would need to be high-integrity before we recognised that offsetting in our reporting.		
– **Measurement approach:** Description of the calculation methodology used for each Scope 3 emissions category can be found in the BHP GHG Emissions Calculation Methodology 2024, available at bhp.com/climate – **Key adjustments made to our baseline year, reference year and subsequent data:** Category 1, Category 3, Category 4 (maritime component), Category 9 (maritime component), Category 10, Category 11 and Category 15 GHG emissions in reference year and performance data have been adjusted for the divestment of our interest in Cerrejón (with an effective economic date of 31 December 2020), divestment of our interest in BMC (completed on 3 May 2022), divestment of our interest in the Rhourde Ouled Djemma (ROD) Integrated Development (completed in April 2022), divestment of our Petroleum business (merger with Woodside completed on 1 June 2022), BMA's divestment of the Blackwater and Daunia mines (completed on 2 April 2024), and acquisition of OZ Minerals (completed on 2 May 2023). The remaining categories have not been adjusted due to their immateriality to our long-term net zero goal – **Performance, adjusted**: FY2020: 352.0 $MtCO_2$-e | FY2021: 356.3 $MtCO_2$-e | FY2022: 364.1 $MtCO_2$-e | FY2023: 371.6 $MtCO_2$-e | FY2024: 377.0 $MtCO_2$-e	– **Measurement approach:** Vessel- and voyage-specific GHG emissions calculated using maritime transport emission factors from EU Regulation 2023/1805 – **Key adjustments made to our baseline year, reference year and subsequent data:** Category 4 (maritime component) and Category 9 (maritime component) GHG emissions in reference year and performance data have been adjusted for a methodology change to use maritime transport emission factors from EU Regulation 2023/1805, after The British Standards Institution (BSI) EN 16258 standard (the source of the emission factors we previously used) was withdrawn in CY2023, and have been adjusted for the divestment of our interest in BMC (completed on 3 May 2022), divestment of our Petroleum business (merger with Woodside completed on 1 June 2022), BMA's divestment of the Blackwater and Daunia mines (completed on 2 April 2024) and acquisition of OZ Minerals (completed on 2 May 2023) – **Performance, adjusted:** FY2020: 6.6 $MtCO_2$-e | FY2021: 7.2 $MtCO_2$-e | FY2022: 7.1 $MtCO_2$-e | FY2023: 6.4 $MtCO_2$-e | FY2024: 6.2 $MtCO_2$-e	– **Measurement approach:** As a proxy for measurement of the Scopes 1 and 2 emissions of our direct suppliers, progress is currently measured using Categories 1, 3, 6 and 7 emissions data using a mix of spend-based and activity-based methodology – **Key adjustments made to our baseline year, reference year and subsequent data:** Category 1 and Category 3 GHG emissions in reference year and performance data have been adjusted for the divestment of our interest in BMC (completed on 3 May 2022), divestment of our Petroleum business (merger with Woodside completed on 1 June 2022), BMA's divestment of the Blackwater and Daunia mines (completed on 2 April 2024) and acquisition of OZ Minerals (completed on 2 May 2023). Categories 6 and 7 were not adjusted due to their immateriality to our long-term net zero target – **Performance, adjusted:** FY2020: 11.6 $MtCO_2$-e | FY2021: 11.7 $MtCO_2$-e | FY2022: 11.5 $MtCO_2$-e | FY2023: 13.0 $MtCO_2$-e | FY2024: 14.3 $MtCO_2$-e

Definitions and key details for our GHG emissions targets and goals continued

Table 8.4: Value chain GHG emissions (Scope 3 emissions) long-term net zero targets and goal definitions, assumptions, adjustments and additional key details continued

Value chain long-term net zero goal	Shipping long-term net zero target	Suppliers long-term net zero target
– **Target/goal setting method:** Set as a point in time, i.e. with the specific date of 'by CY2050' to reach the target or goal of net zero, while reflecting the challenges and uncertainty and our inability (as BHP alone) to ensure Scope 3 emission reductions. As a result, the target or goal is not based on a trajectory and does not imply a specific carbon budget, and Scope 3 emissions may fluctuate (with some increases and/or non-linear decreases) during the period before the target or goal date – **Target/goal derived using a sectoral decarbonisation approach:** No – **Processes for reviewing the setting of our target/goal**: The Board approves BHP's significant social, community and sustainability policies (upon recommendation from the Nomination and Governance Committee), including those related to climate change and climate transition planning, public sustainability goals and targets (including for GHG emission reductions). We review our GHG emissions targets and goals as part of the periodic development of an updated CTAP, or more frequently if required – **Processes for monitoring progress towards our target/goal:** Monitored on a yearly basis through our annual reporting processes, with progress reviewed by management and the Board as part of publication of our annual reporting disclosures, or more frequently if required – **Third-party validation of our target/goal:** No, but we obtain limited assurance over our externally reported performance against our targets and goal – **Carbon budget for our target/goal period:** Our targets and goal are not based on trajectories and do not imply specific carbon budgets – **Expected progression:** Progress towards our targets and goal is expected to be non-linear and affected by organic changes in our production of commodities		

Our 1.5°C scenario assumptions and the signposts we monitor

Table 8.5: Our 1.5°C scenario key assumptions and signposts we monitor

		Our 1.5°C scenario assumptions	Signposts we monitor to assess the likelihood of our 1.5°C scenario eventuating
Steel	**Policy**	– Carbon pricing in developing Asia grows significantly from CY2030 to CY2050 – Strong policy pushes to phase out GHG emission-intensive steelmaking technologies and introduces incentives to switch to the decarbonised end state	– Carbon pricing in developing countries – Country-level policies restricting blast furnace investment or operations
	Technology	– Rapid roll-out of steel decarbonisation technologies synchronised to technical and commercial readiness: CCUS beginning in mid-2020s; hydrogen-based direct reduced iron from the mid-2030s; and electrolysis technologies from the 2040s	– Regional investment, roll-out, and company preferences for steel decarbonisation technologies – Technology progress on near zero emissions steelmaking, ironmaking and supporting infrastructure, such as hydrogen and bioenergy
	Circularity	– Policies incentivise higher scrap metal collection and a faster turnover of GHG-emitting capital stock, which leads to greater global scrap consumption	– Steel stock-in-use for regions and lifetime of existing capital stock – Policies and technologies related to the enhanced domestic and international trade of scrap materials
Power and end-use electrification	**Policy**	– Virtually all unabated coal and gas-fired power generation banned at a global level in the 2040s – Countries progressively ban the sale of light and heavy duty internal combustion engine vehicles	– Country-level policies directed at decarbonising the power and transport sectors
	Technology	– Significant electrification of end-use sectors. Road transportation fleet is fully decarbonised by CY2050 – Large-scale roll-out of renewables and batteries, with nuclear, long-duration storage, and new power transmission all required for last-mile decarbonisation	– Progress made in cost reduction for renewables, lithium-ion batteries and nuclear technologies – Battery chemistry technology evolution (cathodes, anodes and electrolytes)
	Circularity	– Higher collection and recovery rates from growing stock of electric vehicles, as well as traditional sources of metal scrap (buildings, power cables, internal combustion engine vehicles, consumer durables) – Copper substitution and thrifting occurs due to prices rising materially above the cost curve during periods of supply-demand imbalance	– Metals stock-in-use for regions in electrified end-use technologies; recovery and collection trends – Substitution and thrifting trends over time
Land use and agriculture	**Policy**	– Policy mandates drive demand for sustainable (including low to zero GHG emissions) aviation fuels – Ramp-up of carbon pricing leads to more demand of nature-based carbon avoidance and removal credits	– Carbon policy frameworks and the development of nature-based carbon credit markets – Policies related to the uptake of bioenergy
	Technology	– First generation biofuels (e.g. corn, soybean feedstocks) grow early on, but are displaced by second generation biofuels (e.g. agricultural waste feedstocks) – Higher land-use and agriculture productivity required to accommodate nature-based carbon removals, distributed power sector and growing low to zero GHG emission fuel sectors	– Bioenergy feedstock evolution – Precision agriculture technological development – Developments that would allow for lower land footprint for the energy transition, such as negative GHG emission technologies
	Circularity	– Food waste, vegetarianism and veganism assumptions consistent with historical levels	– Behavioural trends as they relate to food waste and vegetarianism and veganism

Table 8.6: Macroeconomic assumptions and carbon budget in our 1.5°C scenario

	Value
Population	0.7% compound annual growth rate from CY2021 to CY2050
GDP (purchasing power parity)	3% compound annual growth rate from CY2021 to CY2050
Carbon budget	500 $GtCO_2$ from CY2020 to CY2100
Global energy-related CO_2 emissions peak	Mid-2020s
Net zero CO_2 emissions	CY2050

Table 8.7: Carbon prices in our 1.5°C scenario (January 2023 US$ real per tCO_2)

	CY2030	CY2040	CY2050
Global weighted average (by GHG emissions)	59	142	275
Australia	70	174	275
Brazil, Chile, China, Mexico	57	160	275
Canada	104	228	275
Emerging and developing economies (including India)	20	84	275

Our 1.5°C scenario compared to benchmarks

Table 8.8: Key metrics in CY2050 in our 1.5°C scenario versus our CY2020 1.5°C scenario and other 1.5°C scenarios

	Energy requirement (demand)				Electrification					Hard-to-abates			CO_2 removals		
Scenario[i]	Energy efficiency (EJ[ii] per unit of GDP[iii] versus. CY2019)	Primary fossil fuel demand (EJ[ii])	Total final energy consumption (EJ[ii])	Total primary energy demand (EJ[ii])	Power share of total final energy consumption	Electricity share of transport	Wind and solar capacity (TW[ii])	Wind and solar share of power	Nuclear share of power	CCUS (Gt[ii] capture)	Hydrogen share of total final energy consumption[iv]	Biomass share of total primary energy demand	Energy sector cumulative emissions (CY2020 to CY2050)	CO_2 removals[v] required for 1.5°C	BECCS[ii] and DAC[ii] (Gt capture)
BHP 1.5°C FY2024 ('our 1.5°C scenario')	39%	200	392	615	50%	62%	24.8	72%	7%	8.0	5%	15%	663	163	2.2
BHP VIVID (CY2020)[vi] ('our CY2020 1.5°C scenario')	42%	284	407	558	35%	39%	12.2	45%	15%	4.3	2%	16%	596	96	1.3
LGIM (CY2022)	42%	225	402	583	43%	29%	19.5	69%	–	7.3	10%	19%	–	–	–
IEA NZE (WEO CY2023)	36%	88	343	541	53%	51%	26.3	71%	8%	7.8	5%	18%	498	2	1.7
IEA NZE (CY2021)	34%	96	337	532	52%	48%	23.7	71%	8%	6.2	10%	19%	464	-36	1.5
NGFS Net Zero avg. (CY2023)	46%	125	413	517	54%	40%	28.3	81%	6%	7.0	7%	19%	536	36	3.8
Shell Sky (CY2023)	46%	200	430	642	50%	38%	25.8	74%	5%	5.9	7%	12%	768	268	1.9
Shell Sky (CY2021)	60%	375	549	828	43%	18%	22.3	48%	10%	5.3	2%	13%	995	495	1.7
BP NZ (CY2023)	34%	116	335	630	51%	44%	20.2	68%	10%	6.0	10%	10%	625	125	1.3
BP NZ (CY2022)	33%	122	351	653	51%	42%	20.9	69%	10%	6.0	8%	10%	639	139	1.2
Equinor Bridges (CY2022)	38%	99	308	446	51%	49%	12.7	65%	8%	6.5	10%	12%	431	-69	2.0
S&P Global CCS (CY2023)	45%	192	376	578	43%	38%	27.1	67%	11%	6.4	9%	14%	630	130	2.5
S&P Global Multitech (CY2023)	42%	110	344	531	43%	38%	28.6	75%	10%	1.2	11%	13%	630	130	0.9
Wood Mackenzie 1.5°C (CY2021)	44%	172	374	481	–	48%	17.3	61%	7%	6.5	13%	–	625	125	1.3
BNEF Net Zero Scenario	42%	169	404	558	45%	53%	28.3	76%	9%	7.3	10%	12%	537	37	0.8
IPCC SSP1-1.9 avg.	36%	217	394	508	48%	23%	14.9	63%	8%	8.8	6%	22%	571	71	4.5
IPCC SSP1-2.6 avg.	41%	365	466	591	38%	9%	11.7	52%	7%	5.5	1%	14%	870	370	2.2
IPCC AR6[vii] Q1 avg.	37%	97	336	458	42%	11%	15.1	41%	3%	3.9	2%	16%	431	-69	1.1
IPCC AR6[vii] Q2 avg.	45%	140	391	515	50%	21%	22.3	61%	5%	6.3	5%	20%	515	15	3.7
IPCC AR6[vii] Q3 avg.	49%	195	428	573	54%	28%	30.2	71%	9%	9.3	6%	24%	552	52	5.7
IPCC AR6[vii] Q4 avg.	54%	287	500	695	62%	38%	40.9	81%	20%	17.8	12%	32%	661	161	11.3
IPCC AR6[vii] min.	31%	42	243	301	33%	2%	8.2	28%	1%	0	0%	11%	357	-143	0
IPCC AR6[vii] max.	58%	415	555	808	68%	60%	51.9	96%	29%	23.5	25%	47%	886	386	21.0
Average total sample	42%	182	391	557	48%	36%	22.6	66%	9%	7.0	7%	17%	596	-96	2.8
Median total sample	42%	182	393	558	50%	38%	23.6	69%	8%	6.5	7%	16%	596	-96	2.0

i. All columns refer to output in CY2050 unless otherwise indicated. Blank cells are due to data unavailability. Deltas are percentage points where the data are shares summing to 100 per cent, and otherwise cells show the percentage change.
Avg. = average. Min. = minimum. Max. = maximum. Average total sample and median total sample only include most recent scenario update. S&P Global was formerly known as IHS. LGIM = Legal and General Investment Management. IEA = International Energy Agency.
NGFS = Network for Greening the Financial System. BNEF = BloombergNEF. IPCC SSP = Intergovernmental Panel on Climate Change Shared Socioeconomic Pathways. IPCC AR = Intergovernmental Panel on Climate Change Assessment Report.

ii. EJ is Exajoule; TW is Terawatt; CCUS is carbon capture utilisation and storage; Gt is Gigatonnes; BECCS is biomass plus carbon capture and storage; DAC is direct air capture.

iii. GDP is based on what has been reported for particular scenarios; the use of different weighting mechanisms means that the denominators of the efficiency metric are not all directly comparable across scenarios.

iv. Only includes gaseous hydrogen in total final energy consumption for ease of comparison. Additional hydrogen-based fuels are included in most scenarios. In IEA NZE, hydrogen's share grows to 13 per cent of total final energy consumption when aggregating gaseous and liquid hydrogen-based fuels.

v. CO_2 removals required to stay within a 1.5°C carbon budget. Calculated by subtracting cumulative GHG emissions from the energy sector from CY2020 to CY2050 (for many scenarios, annual GHG emissions are linearly extrapolated from decade intervals). Cumulative GHG emissions are subtracted from the Intergovernmental Panel on Climate Change's carbon budget of ~500 Gt for 1.5°C for CY2021 to CY2100. Unless explicitly stated in the scenario, we assume non-energy-related GHG emissions linearly decline out to CY2050 in each of the benchmarks. A larger negative number implies the need to remove a greater amount of CO_2 from the atmosphere over the forecast period.

vi. Refer to the BHP Climate Change Report 2020 available at bhp.com for information about this scenario and its assumptions (referred to in this CTAP as 'our CY2020 1.5°C scenario').

vii. IPCC AR6 refers to all scenarios from the Intergovernmental Panel on Climate Change Sixth Assessment report that are classified as 1.5°C with no or limited overshoot. Q1, Q2, Q3 and Q4 refer to the average of each metric quartiles.

Independent assurance report

Independent Limited Assurance Report to the Management and Directors of BHP Group Limited

Our Conclusion:
Ernst & Young ('EY', 'we') were engaged by BHP Group Limited ('BHP') to undertake a limited assurance engagement as defined by International Auditing Standards, hereafter referred to as a 'review', over the BHP Climate Transition Action Plan 2024. Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe the BHP Climate Transition Action Plan 2024 has not been prepared, in all material respects, in accordance with the Criteria (as defined below).

What our review covered (the 'Subject Matter')

Ernst & Young ('EY') was engaged by BHP to provide limited assurance over the BHP Climate Transition Action Plan (2024) ('CTAP') in accordance with the Criteria (as defined below).

Criteria

In preparing the CTAP, BHP applied:

- The Recommendations of the Task Force on Climate-related Financial Disclosures
- The Task Force on Climate-related Financial Disclosure Recommendations *Principles for Effective Disclosures*
- The Task Force on Climate-related Financial Disclosure Guidance on *Scenario Analysis for Non-Financial Companies*
- The UK Financial Conduct Authority Listing Rule 14.3.24R
- BHP Scopes 1, 2, and 3 GHG Emissions Calculation Methodology 2024, as informed by the *National Greenhouse and Energy Reporting (Measurement) Determination 2008* for scope 1 and scope 2 GHG data, and the World Resource Institute/World Business Council for Sustainable Development *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard*, including the *GHG Protocol: Scope 2 Guidance and the Corporate Value Chain Scope 3 Accounting and Reporting Standard* for scope 3 GHG data.

In preparing the CTAP, BHP also used the below list of principles to inform the approach to disclosing its 1.5°C scenario analysis; and the assumptions and claims supporting BHP's planned actions and climate-related goals and targets:

- *Completeness* –
  - that the assumptions, approach and inputs forming the basis of BHP's 1.5°C scenario analysis, as presented within the CTAP, do not omit relevant, well-established and publicly available inputs that could reasonably be expected to affect decisions of the intended users made on the basis of that CTAP information
  - that the assumptions, approach and inputs forming the basis of BHP's planned actions and climate-related goals and targets, as presented within the CTAP, do not omit relevant, well-established and publicly available inputs that could reasonably be expected to affect decisions of the intended users made on the basis of that CTAP information, and incorporate BHP's decarbonisation approach across its self-identified climate related risks and opportunities.
- *Reasonableness*, including:
  - *Transparency* – that the CTAP details BHP's approach to decarbonisation across its publicly stated climate-related targets, goals, and commitments
  - *Neutrality* – that the CTAP neither overstates, nor understates the impact
  - *Defensibility* – that BHP's approach to decarbonisation as set out in the CTAP is achievable, subject to the assumptions, limitations and uncertainties described therein, and does not contradict credible external climate scenarios.

The standards, recommendations, guidance, rules, BHP documents and principles referenced above in this Criteria section together constitute the 'Criteria', which is what we assured the CTAP against.

Key responsibilities

BHP's responsibility
BHP's management is responsible for selecting the Criteria, and for presenting the CTAP in accordance with that Criteria, in all material respects. This responsibility includes establishing and maintaining internal controls, maintaining adequate records and making estimates that are relevant to the preparation of the CTAP, such that it is free from material misstatement, whether due to fraud or error.

EY's responsibility and independence
Our responsibility is to express a conclusion on the CTAP based on our review.

We have complied with the independence and relevant ethical requirements, which are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

The firm applies Auditing Standard ASQM *1 Quality Management for Firms that Perform Audits or Reviews of Financial Reports and Other Financial Information*, or *Other Assurance or Related Services Engagements*, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Our approach to conducting the review

We conducted this review in accordance with the International Auditing and Assurance Standards Board's *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 12 March 2024. That standard requires that we plan and perform our engagement to express a conclusion on whether anything has come to our attention that causes us to believe that the CTAP is not prepared, in all material respects, in accordance with the Criteria, and to issue a report.

Summary of review procedures performed
A limited assurance engagement consists of making enquiries, primarily of persons responsible for preparing the CTAP and related information and applying analytical and other review procedures.

The nature, timing, and extent of the procedures selected depend on our professional judgement, including an assessment of the risk of material misstatement, whether due to fraud or error. The procedures we performed included, but were not limited to:

- Evaluating the suitability of the Criteria and that the Criteria have been applied appropriately to the CTAP
- Interviewing select BHP personnel to understand the reporting process at group, business, asset, and site level, including management's processes to identify BHP's material climate-related risks and opportunities for the purposes of identifying existence and understanding completeness of reported information
- Checking the CTAP to understand how BHP's self-identified material climate-related risks and opportunities are reflected within the qualitative disclosures, and considering whether this is consistent with the principles specified in the Criteria
- Reviewing data, information and obtaining explanations, undertaking analytical procedures, and reperforming calculations to support the climate-related performance data and statements included within the CTAP
- Reviewing information on a sample basis, based on our professional judgement, to support BHP's stated actions towards BHP's publicly stated climate-related targets and goals
- Reviewing evidence underpinning BHP's portfolio disclosures including checking that the material assumptions and inputs into BHP's 1.5°C scenario analysis are substantiated and are benchmarked to credible sources, and where they deviate, are transparently justified
- Reviewing quantitative and qualitative information within the CTAP for consistency and alignment across the CTAP and across BHP's annual reporting disclosures.

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

Inherent limitations

Procedures performed in a review (i.e., 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.

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.

The greenhouse gas quantification process is subject to scientific uncertainty, which arises because of incomplete scientific knowledge about the measurement of greenhouse gases. Additionally, greenhouse gas procedures are subject to estimation and measurement uncertainty resulting from the measurement and calculation processes used to quantify emissions within the bounds of existing scientific knowledge.

Climate-related risk management is an emerging area, and often uses data and methodologies that are developing and subject to a higher degree of uncertainty. The CTAP contains forward looking statements, including climate-related scenarios, targets, assumptions, climate projections, forecasts, statements of future intentions and estimates and judgements that have not yet occurred and may never occur. We do not provide assurance on the achievability of this prospective information.

Other matters
We have not performed assurance procedures in respect of any information relating to prior reporting periods, including those presented in the CTAP.

Use of our Assurance Report

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

Ernst & Young
Melbourne, Australia
27 August 2024

Mathew Nelson
Partner

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Notes

1 Includes achievement of the following targets set by BHP: Reduction in the GHG emissions intensity of our operations by 10 per cent between FY1995 and FY2000; reduction in the GHG emissions intensity of our operations by 5 per cent between FY2002 and FY2007; maintaining operational GHG emissions below our FY2006 baseline by FY2017, while growing our business; and the target described in endnote 2.

2 Our operational GHG emissions short-term target was, by FY2022, to maintain operational GHG emissions (Scopes 1 and 2 emissions from our operated assets) at or below FY2017 levels while we continue to grow our business. We exceeded this target with a 15 per cent decrease in operational GHG emissions from our adjusted FY2017 baseline. The FY2017 baseline was adjusted for divestments and methodology changes.

3 With widespread adoption expected post-CY2030.

4 From a CY2008 baseline, reflecting International Maritime Organisation objectives for the shipping industry.

5 Future GHG emission estimates are based on current annual business plans. Includes former OZ Minerals Australian assets and plans. Excludes Blackwater and Daunia (divested on 2 April 2024). FY2020 to FY2024 GHG emissions data has been adjusted for acquisitions, divestments and methodology changes. 'Other changes' refers to changes in GHG emissions from energy consumption other than electricity. 'Organic growth' represents increase in GHG emissions associated with planned activity and growth at our operations. 'Other' refers to GHG emissions from fugitive CO_2 and methane emissions, natural gas, coal and coke, fuel oil, liquefied petroleum gas or other sources. GHG emissions calculation methodology changes may affect the information presented in this chart. 'Range of uncertainty' refers to higher risk options currently identified that may enable faster or more substantive decarbonisation, but which currently have a relatively low technology readiness level or are not yet commercially viable.

6 Future GHG emissions estimates are based on current annual business plans. Includes former OZ Minerals Australian assets and plans. Excludes Blackwater and Daunia (divested on 2 April 2024). FY2020 to FY2024 GHG emissions data has been adjusted for acquisitions, divestments and methodology changes. 'Organic growth with no GHG emissions reduction' represents business as usual GHG emissions forecast without abatement projects. 'Our GHG emissions reduction pathway' represents planned decarbonisation activities to reach our operational GHG emissions medium-term target and long-term net zero goal. 'Range of uncertainty' refers to higher risk options currently identified that may enable faster or more substantive decarbonisation, but which currently have a relatively low technology readiness level or are not yet commercially viable (noting that activities to FY2030 comprise our projected pathway and activities beyond FY2030 comprise our potential pathway, reflecting the degree of certainty in our plans). 'Negative GHG emission solutions' include carbon credits (avoidance, reductions or removals), or other technologies that result in GHG emission reductions; this shows the requirement in order to reach net zero if decarbonisation at the lower line of the 'range of uncertainty' were achieved (but does not reflect probability). GHG emissions calculation methodology changes may affect the information presented in this chart. 'Fugitives' (methane emissions) estimated in accordance with the Australian National Greenhouse and Energy Reporting measurement methodology and does not reflect the tendency for methane density to increase as coal mines deepen, due to current uncertainty with respect to future opportunities to manage methane at our BMA mines. Western Australia Nickel milestones have been removed to reflect the temporary suspension of operations, and a Jansen potash project milestone has been removed to reflect deferral of studies.

7 Samarco Sustainability Report 2023, available at samarco.com.

8 The indicators presented (primary reactor technology readiness, raw material flexibility, steel grade flexibility, and integration with existing plants) are the key factors that influence the timing, speed, and scale at which these technologies could propagate through the steel sector. Reactor technology readiness demonstrates the technologies already established (blast furnace and electric arc furnace indicated by the full dark blue bar) relative to those that are emerging and are yet to achieve commercial readiness (electric smelting furnace and electrolysis). These factors influence expected time to market. Raw material flexibility indicates whether the process route can use variable iron ore and scrap grades (indicated by the full dark blue bar) or is sensitive to ore and scrap quality (for example electric arc furnace). Steel grade flexibility indicates whether the process route can be used to produce a range of steel grades (such as the blast furnace and electric smelting furnace) or produces a narrower range of products (such as the electric arc furnace). We expect technologies with wider raw material and steel grade flexibility to be more attractive options for steelmakers. Integration with existing plants reflects the ability for these process routes to use or be retrofitted to existing steelmaking infrastructure.

The blast furnace process route GHG emissions intensity 'today' value has been calculated using a baseline reference of 2.2 tonnes of CO_2-e per tonne of crude steel, as sourced from IEA Iron and Steel Technology Roadmap (October 2020). The 'end state' value assumes a blast furnace basic oxygen furnace steel plant with electrolytic hydrogen injection, top gas recycling and CCUS applied to key point sources (coke ovens underfiring, blast furnace hot stoves and on-site power plant), utilising raw materials typically available in Asia markets and a 15 per cent scrap rate in the basic oxygen furnace.

The electric arc furnace route GHG emissions intensity 'today' value is sourced from an average of a sample of natural gas-based direct reduced iron electric arc furnace sites utilising up to 25 per cent scrap in CY2023, as well as the CRU Steel Cost Model and BHP analysis.

All other GHG emissions intensity values are sourced from BHP analysis.

9 Wood Mackenzie analysis. Seaborne iron ore exports containing greater than 67.5 per cent Fe and less than 3.5 per cent gangue impurities (alumina and silica).

10 Distinct industry partners refers to individual corporate entities participating in our steelmaking projects to support GHG emissions intensity reduction.

11 Global steel production sourced from World Steel in Figures 2024, World Steel Association.

12 Estimated co-investment includes the funding we committed from FY2020 to FY2024 (refer to endnote 13 for more information) and our additional funding planned from FY2025 to FY2029 (refer to endnote 14 for more information), totalling around US$215 million. It also includes our estimate of actual and anticipated funding and in-kind contributions from strategic partners for a number of the projects under our steelmaking decarbonisation program from FY2020 to FY2029 totalling around US$205 million. Where all the partners (including BHP) to a program project have agreed to share costs equally, our estimate assumes that each of our strategic partners has contributed or will contribute equivalently (through funding and/or in-kind contribution) to our committed and budgeted funding for that project. The estimate also assumes projects that require final approval at a future tollgate will be approved by all partners.

13 Funding committed by BHP in the past five years is made up our investments and contractual funding commitments for our steelmaking decarbonisation program from FY2020 to FY2024, including BHP Venture investments, research and development funding and collaborative partnerships (such as with our steelmaking customers).

Notes continued

14 Funding planned by BHP in the next five years is our budgeted funding for our steelmaking decarbonisation program from FY2025 to FY2029 but excluding funding we have contractually committed but not yet spent (refer to endnote 13 for more information).

15 GHG emissions intensity reduction/abatement potential has been calculated relative to a baseline reference of 2.2 tonnes of CO_2-e per tonne of crude steel, as sourced from IEA Iron and Steel Technology Roadmap (October 2020).

16 Technology readiness levels (TRLs) are a globally accepted and widely used metric for benchmarking, tracking progress and supporting development of technologies through from basic concept (i.e. TRL 1) to an actual, fully working system that has performed successfully across the full range of expected operating conditions (i.e. TRL 9). A technology with a high TRL does not mean it has been commercially deployed. We assess TRLs as a way of measuring the maturity of the technologies that form part of our steelmaking decarbonisation program.

17 The International Maritime Organisation has not defined 'zero' or 'near zero', although we consider this to mean technologies, fuels and/or energy sources capable of 90 per cent ('near zero') to 100 per cent ('zero') lower GHG emissions intensity (gCO_2-e/joule) on a well-to-wake basis compared to conventional fossil fuels used in shipping.

18 Biodiesel GHG emission reduction calculations based on certified fuel product with the fuel certificates provided by biodiesel suppliers.

19 Estimated co-investment for the period from FY2021 to FY2024 includes our spend on initiatives under our shipping decarbonisation strategy and assumed third-party spend. The vast majority of our estimated co-investment figure is made up of our actual and committed future spend on the Global Centre for Maritime Decarbonisation (GCMD) and the actual and committed future spend on the GCMD by its other five founding partners and the Singapore Maritime and Port Authority, together with assumed third-party spend based on our estimated value of five new dual-fuelled LNG chartered vessels and one wind propulsion device of the kind retrofitted to a BHP-chartered vessel in a trial with Pan Pacific Copper and Norsepower. We estimated the value of the five dual-fuelled LNG chartered vessels with reference to the resale value (as a proxy for new build cost) at the date of the maiden voyage of the first of the five vessels by BHP, as sourced from an external shipping research portal.

20 Energy-related CO_2 emissions only. It does not include CO_2 emissions from agriculture, forestry and other land use.

21 Pathways giving at least 50 per cent probability based on current knowledge of limiting global warming to below 1.5°C are classified as 'no overshoot'. Page 24 of Summary for Policymakers. In: Global Warming of 1.5°C. IPCC, CY2018. GHG emissions in our 1.5°C scenario are constrained to a carbon budget of 500Gt CO_2-e (on a net GHG emissions basis) between CY2020 and CY2050, and is modelled to have a global warming trajectory that temporarily overshoots 1.5°C before returning to below 1.5°C by CY2100, on the basis of the median of probabilities.

22 Our 1.5°C scenario assumes the sectoral total GHG emissions in CY2050 compared to CY2021 declines as follows: For the power sector there is a decline of 105 per cent; for the transport sector there is a decline of 98 per cent; for the building sector there is a decline of 57 per cent; and for all other industry there is a decline of 74 per cent.

23 We consider an industry association membership to be material if: (1) our annual base membership fee is equal to or greater than US$100,000; and/or (2) there is significant stakeholder interest in the advocacy of the association (as determined by whether the association was listed on InfluenceMap's ranking of industry associations).

24 Engagements on climate policy are as at the publication of this CTAP on 27 August 2024.

25 Table SPM.1, Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. IPCC, CY2021.

26 Figure 8, Nationally determined contributions under the Paris Agreement: Synthesis report by the secretariat, United Nations Framework Convention on Climate Change, CY2023.

27 In accordance with the BHP Risk Framework, the Maximum Foreseeable Loss (MFL) is the estimated impact (including financial, health and safety, environmental, community or reputational) to BHP in a worst-case scenario without regard to probability and assuming all controls, including insurance and hedging contracts, are ineffective.

28 Maximum low and high values found across China, India, European Union, United States, Japan, Korea, Indonesia, South Africa, Other Latin and Central America and Other Asia.

Glossary

Abbreviations

ACCU	Australian Carbon Credit Unit
AR	Assessment Report
BMA	BHP Mitsubishi Alliance
BMC	BHP Mitsui Coal
CH_4	Methane
CO_2	Carbon dioxide
CO_2-e	Carbon dioxide equivalent
CCS	Carbon capture and storage
CCUS	Carbon capture, utilisation and storage
CDP	Cash and Deferred Plan
CEO	Chief Executive Officer
CMIP	Coupled Model Intercomparison Project Phase
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CTAP	Climate Transition Action Plan
ELT	Executive Leadership Team
ESG	Environmental, Social, Governance
GCMD	Global Centre for Maritime Decarbonisation
GDP	Gross Domestic Product
GHG	Greenhouse gas
GWP	Global warming potential
HFC	Hydrofluorocarbon
IAR	Industry Association Review
IEA	International Energy Agency
IMO	International Maritime Organisation
IPCC	Intergovernmental Panel on Climate Change
ISSB	International Sustainability Standards Board
LNG	Liquified natural gas
MCA	Minerals Council of Australia
$MtCO_2$-e	Million tonnes of carbon dioxide equivalent
N_2O	Nitrous oxide
NDC	Nationally Determined Contribution
NF_3	Nitrogen trifluoride
NGER	National Greenhouse and Energy Reporting
NSWEC	New South Wales Energy Coal
PFC	Perfluorocarbon
SEC	Securities and Exchange Commission
SF_6	Sulphur hexafluoride
SSP	Shared Socio-economic Pathway
TRL	Technology readiness level
WAIO	Western Australia Iron Ore

Terms

ACCU Scheme

A scheme established under the Australian Commonwealth Carbon Credits (Carbon Farming Initiative) Act 2011 and Carbon Credits (Carbon Farming Initiative) Rule 2015.

Adjusted/unadjusted (with respect to GHG emissions data)

Adjusted means calculated to present the GHG emissions data for a time period (such as a baseline year or reporting year) as though relevant changes took effect from the start of that period even though they occurred during or not until after the end of the period. Unless expressly stated otherwise, relevant changes are all acquisitions, divestments and/or GHG emission calculation methodology changes.

For example, when we adjust the FY2020 baseline year for our operational GHG emission medium-term target and long-term net zero goal to compare our adjusted FY2024 performance data against it:

1. the FY2020 data is presented with our Scopes 1 and 2 emissions for operated assets that have been acquired or divested by BHP added or removed (respectively), and applying methodology changes that took effect, between 1 July 2019 and 30 June 2024
2. the FY2024 data is then presented as though any acquisitions, divestments and/or methodology changes that occurred during the year took effect from the start of the year

This enables a 'like for like' comparison that provides the information most relevant to assessing progress against our GHG emissions targets and goals.

Unadjusted means calculated to present the GHG emissions data for a reporting year so that any relevant changes that occurred during the year (including acquisitions, divestments and/or methodology changes) are applied only from the date they took effect.

Adjustments (with respect to our GHG emissions targets and goals)

Calculations to present GHG emissions data on an adjusted basis.

Assets (in relation to BHP)

A set of one or more geographically proximate operations (including open-cut mines and underground mines). Assets include our operated assets and non-operated assets.

Base case

One of three planning cases in our planning range, being the 'most likely' base case in our planning range. Refer to the definition of our planning range.

Baseline/baseline year (with respect to GHG emissions targets and goals)

A year used as a basis to compare and measure performance of subsequent years.

BHP

BHP Group Limited and its subsidiaries.

Bioenergy

Energy produced from renewable biological sources, such as biomass.

Biofuel/biodiesel

A fuel, usually a liquid fuel, produced from renewable biological feedstock sources, such as plant material, vegetation or agricultural waste.

Biomass

Plant material, vegetation, or agricultural waste used as a fuel or energy source. This could be in solid, liquid or gaseous form.

Carbon budget (for BHP)

A total quantity of GHG emissions from FY2020 to FY2030 equivalent to our cumulative operational GHG emissions (Scopes 1 and 2 emissions from our operated assets) being at or below a hypothetical straight line between our adjusted baseline in FY2020 and a 30 per cent reduction to that baseline in FY2030, despite our pathway being non-linear.

For how our carbon budget relates to our medium-term target, refer to Table 8.2 in **Definitions and key details for our GHG emissions targets and goals** on page 57, earlier in this section

Carbon budget (for the global economy, transition or future, or similar)

The total net amount of greenhouse gases measured in CO_2-equivalent tonnes that can be emitted while limiting global warming to a specified level.

Glossary continued

Carbon capture
The process of separation of carbon dioxide from industrial and energy-related sources.

Carbon capture and storage
The process of carbon capture and the subsequent transport of captured carbon to a storage location where it is isolated from the atmosphere long-term. Refer to the definition of carbon capture.

Carbon capture, utilisation and storage
The process of carbon capture and subsequently either the use of captured carbon to create other commercial products or services or the transport of captured carbon to a storage location where it is isolated from the atmosphere long-term. Refer to the definition of carbon capture.

Carbon credit
The reduction or removal of carbon dioxide, or the equivalent amount of a different greenhouse gas (GHG), using a process that measures, tracks and captures GHGs to compensate for an entity's GHG emissions exuded elsewhere. Credits may be generated through projects in which GHG emissions are avoided, reduced, removed from the atmosphere or permanently stored (sequestration). Carbon credits are generally created and independently verified in accordance with either a voluntary program or under a regulatory program. The purchaser of a carbon credit can 'retire' or 'surrender' it to claim the underlying reduction towards their own GHG emissions reduction targets or goals or to meet legal obligations, which is also referred to as carbon offsetting or offsetting.

We define regulatory carbon credits to mean carbon credits used to offset GHG emissions for regulatory compliance in our operational locations (such as the Australia's Safeguard Mechanism).

We define voluntary carbon credits to mean carbon credits generated through projects that reduce or remove GHG emissions outside the scope of regulatory compliance (including Australian Carbon Credit Units not used for regulatory compliance).

Carbon neutral
Making or resulting in no net release of GHG emissions into the atmosphere, including as a result of offsetting. Includes all those greenhouse gas emissions as defined for BHP reporting purposes.

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

Climate Transition Action Plan (CTAP)
'This Climate Transition Action Plan' or 'this CTAP' refers to this document, published on 27 August 2024. Our 'previous Climate Transition Action Plan', 'previous CTAP' or 'Climate Transition Action Plan 2021' refers to our CTAP published on 14 September 2021.

Co-investment
Our estimation of the potential combined impact of funding by us and funding and/or in in-kind contributions from third parties under our steelmaking decarbonisation program and/or as a consequence of our shipping strategy. These figures seek to illustrate the opportunity to leverage our funding and approach for broader impact. They are not forecasts and rely on estimation that is limited by available information and our assumptions.

Electrolytic hydrogen/ammonia
Hydrogen produced by splitting water into hydrogen and oxygen using renewable or other low to zero GHG emissions electricity, commonly referred to as 'green hydrogen'.

Ammonia produced by synthetically combining nitrogen with low to zero GHG emission hydrogen (ammonia synthesis) using renewable or other low to zero GHG emissions electricity commonly referred to as 'green ammonia'.

Emission factor
A factor that converts activity data into greenhouse gas emissions data (e.g. kgCO_2-e emitted per GJ of fuel consumed, kgCO_2-e emitted per KWh of electricity used).

Energy (in relation to BHP)
All forms of energy products where 'energy products' means combustible fuels, heat, renewable energy, electricity or any other form of energy from operations that are owned or controlled by BHP. The primary sources of energy consumption come from fuel consumed by haul trucks at our operated assets, as well as purchased electricity used at our operated assets.

Executive Leadership Team
The team that 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.

Fugitive methane emissions
Methane emissions that are not physically controlled but result from the intentional or unintentional releases of methane from coal mining.

Functions
Functions operate along global reporting lines to provide support to all areas of the organisation. Functions have specific accountabilities and deep expertise in areas such as finance, legal, governance, technology, human resources, corporate affairs, health, safety and community.

Future-facing commodity
A commodity that BHP determines to be positively leveraged in the energy transition and broader global response to climate change, with potential for decades-long demand growth to support emerging megatrends like electrification and decarbonisation. Currently, the major commodities in the BHP portfolio that qualify within this criterion include copper, nickel and potash.

GHG Protocol
Globally recognised and standardised frameworks to measure and manage greenhouse gas emissions from private and public sector operations, value chains and mitigation actions.

Global warming potential
A factor describing the radiative forcing impact (degree of harm to the atmosphere) of one unit of a given greenhouse gas relative to one unit of CO_2. BHP currently uses GWP from the Intergovernmental Panel on Climate Change Assessment Report 5 (AR5) based on a 100-year timeframe.

Goal (for BHP with respect to GHG emissions)
An ambition to seek an outcome for which there is no current pathway(s), but for which efforts are being or will be pursued towards addressing that challenge, subject to certain assumptions or conditions. Such efforts may include the resolution of existing potential or emerging pathways.

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

Greenhouse gas
For BHP reporting purposes, these are the aggregate anthropogenic carbon dioxide equivalent emissions of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6). Nitrogen trifluoride (NF_3) GHG emissions are currently not relevant for BHP reporting purposes. GHG emissions in this CTAP are presented in tonnes CO_2-e or its multiples, unless otherwise stated.

Intergovernmental Panel on Climate Change
The United Nations body for assessing the science related to climate change.

Legacy assets
Those BHP operated assets, or part thereof, located in the Americas that are in the closure phase.

Glossary continued

Lower carbon feedstock/fuel (for steelmaking)
A steelmaking reductant feedstock and/or fuel source capable of lower CO_2 emissions intensity than the use of steelmaking coal in the blast furnace process route (e.g. hydrogen, coke syngas, biomass and recycled fuels). The degree of emissions intensity reduction varies significantly by source.

Lower GHG emission(s) (for shipping)
Capable of between 5 per cent to 80 per cent lower GHG emissions intensity (gCO_2-e/joule) on a well-to-wake basis compared to conventional fossil fuels used in shipping.

Lower GHG emission(s) (other than shipping fuels)
Capable of lower absolute GHG emissions or GHG emissions intensity than the current state or the conventional or incumbent technology, as applicable.

Low to zero GHG emission(s) (for shipping)
Capable of between 81 per cent to 100 per cent lower GHG emissions intensity (gCO_2-e/joule) on a well-to-wake basis compared to conventional fossil fuels used in shipping.

Low to zero GHG emission(s) (for energy products other than shipping fuels)
Capable of between 90 per cent to 100 per cent lower GHG emissions intensity during generation and/or combustion (as applicable) compared to conventional fossil fuel generation and/or combustion.

Maladaptation
Where adaptation measures intended to create resilience to physical climate-related risk unintentionally have the opposite of the intended effect, increasing vulnerability or causing new vulnerabilities or other harmful impacts.

Market-based method/reporting (for GHG emissions data)
Scope 2 emissions based on the generators (and therefore the generation fuel mix from which the reporter contractually purchases electricity and/or is directly provided electricity via a direct line transfer).

Mining peers
Other major diversified mining companies.

Nature-based
Actions that protect, sustainably manage or restore natural or modified ecosystems.

Near zero emissions (for steelmaking or ironmaking)
0.40 tonnes of CO_2-e per tonne of crude steel for 100 per cent ore-based production (no scrap), as defined by the International Energy Agency (IEA) and implemented in ResponsibleSteel International Standard V2.0 ('near zero' performance level 4 threshold). IEA (2022), Achieving Net Zero Heavy Industry Sectors in G7 Members, IEA, Paris, License: CC BY 4.0, which also describes the boundary for the emissions intensity calculation (including in relation to upstream emissions).

Net negative
A state in which more greenhouse gases (as defined in this Glossary) are removed from the atmosphere than are going into the atmosphere.

Net zero (for a BHP GHG emissions target, goal or pathway, or similar)
Includes the use of carbon credits as governed by our approach to carbon offsetting.

Our approach to carbon offsetting is available at bhp.com/climate

Net zero (for industry sectors, the global economy, transition or future, or similar)
A state in which the greenhouse gases (as defined in this Glossary) going into the atmosphere are balanced by removal out of the atmosphere.

Non-operated asset/non-operated joint venture
Non-operated assets/non-operated joint ventures are our interests in assets that are owned as a joint venture but not operated by BHP. References in this CTAP 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.

Offsetting (with respect to GHG emissions)
The use of carbon credits. Refer to the definition of carbon credit.

Operated assets
Operated assets are our assets (including those under exploration, projects in development or execution phases, sites and operations that are closed or in the closure phase) that are wholly owned and operated by BHP or that are owned as a BHP-operated joint venture. References in this CTAP 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 GHG emissions
Scope 1 emissions and Scope 2 emissions from our operated assets.

Operations (for BHP and the mining sector)
Open-cut mines, underground mines and processing facilities which, in the case of BHP are within our operated assets.

Organic changes/production growth
Changes that comes from a company's existing asset base.

Our 1.5°C scenario
Our 1.5°C scenario we developed in FY2024 and presented in this CTAP.

For the key metrics comparing our 1.5°C scenario against the CY2020 1.5°C scenario, refer to **Our 1.5°C scenario compared to benchmarks** on page 62, earlier in this section

Our CY2020 1.5°C scenario
A 1.5°C scenario we developed in CY2020 and presented in the BHP Climate Change Report 2020.

For the key metrics comparing our CY2020 1.5°C scenario against our 1.5°C scenario (presented in this CTAP), refer to **Our 1.5°C scenario compared to benchmarks** on page 62, earlier in this section

Our planning range
Our long-term forecast for demand, supply and price across our commodities. It is comprised of three unique independent planning cases: a 'most likely' base case, and an upside case and downside case that provide the range's boundaries.

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

Physical risk/physical climate-related risk
Acute risks that are event-driven, including increased severity and frequency of extreme weather events and chronic risks resulting from longer-term changes in climate patterns.

Planning cases
The three unique independent planning cases: a 'most likely' base case, and an upside case and downside case that provide the boundaries of our planning range.

Power purchase agreement
An agreement between a vendor and purchaser for the sale of electricity, which may be wholly or partially renewable or other low to zero GHG emission energy and either physically supplied directly to the purchaser or for supply from an electricity grid.

Reference year (for a BHP GHG emissions target or goal)
A year used to track progress towards GHG emissions targets and goals. It is not a baseline year for GHG emissions targets and goals.

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

Scope 2 emissions
Indirect greenhouse gas 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 unless otherwise specified.

Glossary continued

Scope 3 emissions
All other indirect greenhouse gas emissions (not included in Scope 2 emissions) that occur in the reporting company's value chain. For BHP, these are primarily greenhouse gas 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 greenhouse gas emissions (on an equity basis) from our non-operated joint venture assets.

Short-term/medium-term/long-term (for a BHP GHG emissions target or goal)
Short-term refers to the target we set for our operational GHG emissions between FY2018 and FY2022.

Medium-term refers to our current operational GHG emissions target for FY2030 and value chain GHG emissions goals for CY2030.

Long-term refers to our current operational GHG emissions goal and value chain GHG emissions goals and targets for CY2050.

Short-term/medium-term/long-term (with references other than with respect to a BHP GHG emissions target or goal)
Short-term is defined as zero to two years, medium-term is defined as two to five years, and long-term is defined as five to 30 years (or longer in certain cases).

Social value
Our positive contribution to society through the creation of mutual benefit for BHP, our shareholders, Indigenous partners and the broader community.

Steelmaking coal
Metallurgical coal of a sufficient high quality (grade) that it is suitable for use in steelmaking.

Structural GHG emissions abatement
Actions taken at a source of GHG emissions to avoid generating GHG emissions. For BHP, this includes contractual power purchase agreements.

Sustainability (including sustainable and sustainably)
We describe our approach to sustainability and its governance in the BHP Annual Report. Our references to sustainability (including sustainable and sustainably) in this CTAP and our other disclosures do not mean we will not have any adverse impact on the economy, the environment or society, and do not imply we will necessarily give primacy to consideration of, or achieve any absolute outcome in relation to, any one economic, environmental or social issue (such as zero GHG emissions or other environmental effects).

Target (for BHP with respect to GHG emissions)
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.

Task Force on Climate-Related Financial Disclosures
The task force created by the Financial Stability Board to improve and increase reporting of climate-related financial information, which has released recommendations designed to help companies provide better information to investors and others about how they think about and assess climate-related risks and opportunities.

Transition Plan Taskforce Disclosure Framework
Disclosure framework developed by the UK Transition Plan Taskforce that aims to be the gold standard for robust and credible transition plan disclosures.

Transition risk (climate-related)
Risks that arise from existing and emerging policy, regulatory, legal, technological, market and other societal responses to the challenges posed by climate change and the transition to a net zero global economy.

Value chain GHG emissions
Scope 3 emissions in our reported GHG emissions inventory.

Well-to-wake
Inclusive of the GHG emissions across the entire process of fuel production, delivery and use onboard vessels.

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