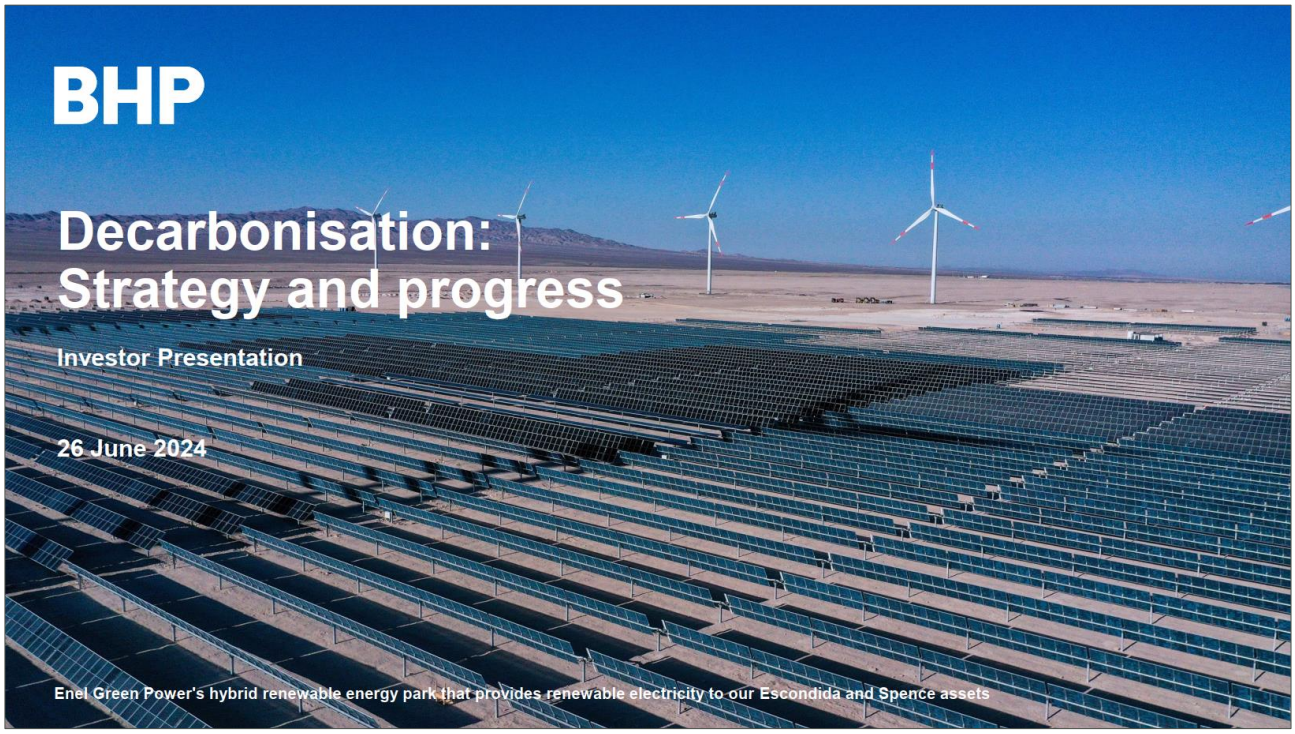
Decarbonisation roundtable

26 June 2024



Camille Simeon, Practice Lead ESG, Investor Relations

Welcome everyone and thank you for joining us today. My name is Camille Simeon, and I am ESG Lead for Australia & Asia in Investor Relations.

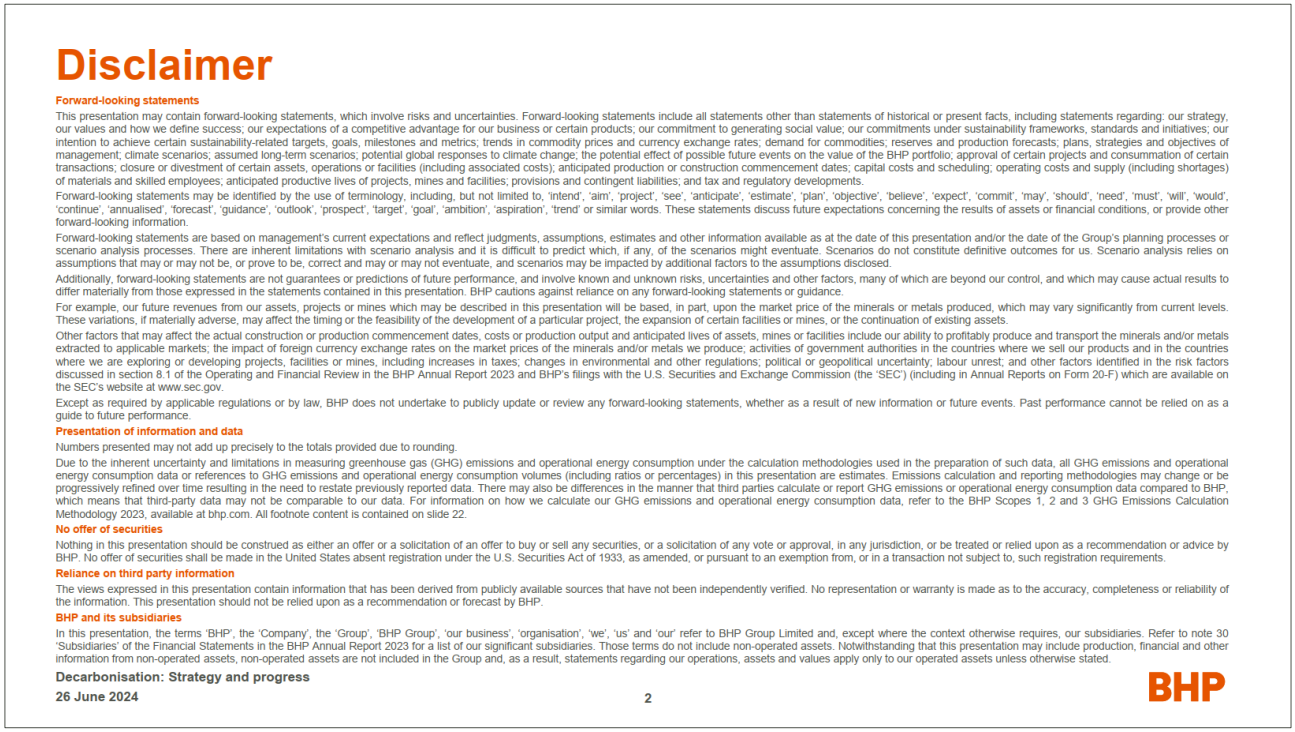
I would like to start today's session acknowledging that globally BHP operates on or near traditional lands of First Nations peoples. I extend my respect to Elders past and present and to all First Nations people joining us today. I am honoured to be in Melbourne and on the lands of the Wurundjeri Woi-wurrung and Bunurong/Boon Wurrung peoples of the Kulin Nation.

Today we will be covering BHP's progress on decarbonisation in our operations and in our value chain in steelmaking and shipping.

I am joined by Graham Winkelman, Vice President Climate, Dan Heal, Vice President Operational Decarbonisation, Minerals Australia, Nigel Tame our Head of Steel Decarbonisation Partnerships and Ashima Taneja, Head of Maritime Safety, Sustainability and Technical.

So, we're in good hands. After the presentation, which will run for around 35 minutes, you'll have an opportunity to ask questions. To do that you will need to dial in to the teleconference, with the details in the invitation.

I would point out that we are still in Financial Year 2024 and so performance data will be for FY2023 or was provided in our Half Year Results released in February 2024. We are developing our Climate Transition Action Plan 2024 that will be released later this year and so we will be limited in what we can say in response to any questions on the specifics of that topic.



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Other factors that may affect the actual construction or production commencement dates, costs or production output and anticipated lives of assets, mines or facilities include our ability to profitably produce and transport the minerals and/or metals extracted to applicable markets; the impact of foreign currency exchange rates on the market prices of the minerals and/or metals we produce; 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; changes in environmental and other regulations; political or geopolitical uncertainty; labour unrest; and other factors identified in the risk factors discussed in section 8.1 of the Operating and Financial Review in the BHP Annual Report 2023 and BHP's filings with the U.S. Securities and Exchange Commission (the 'SEC') (including in Annual Reports on Form 20-F) which are available on the SEC's website at www.sec.gov.

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Due to the inherent uncertainty and limitations in measuring greenhouse gas (GHG) emissions and operational energy consumption under the calculation methodologies used in the preparation of such data, all GHG emissions and operational energy consumption data or references to GHG emissions and operational energy consumption volumes (including ratios or percentages) in this presentation are estimates. Emissions calculation and reporting methodologies may change or be progressively refined over time resulting in the need to restate previously reported data. There may also be differences in the manner that third parties calculate or report GHG emissions or operational energy consumption data compared to BHP, which means that third-party data may not be comparable to our data. For information on how we calculate our GHG emissions and operational energy consumption data, refer to the BHP Scopes 1, 2 and 3 GHG Emissions Calculation Methodology 2023, available at bhp.com. All footnote content is contained on slide 22.

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But before we get into the detail, please note the disclaimer slide.

I'd like to highlight that some aspects of this presentation involve forward looking statements – and this is an area that is rapidly changing – so it's not a guarantee or prediction of future performance.

I'd also like to flag the importance of the additional information presented in the footnotes on slide 22, which should be considered with each corresponding slide.

With that, I'll hand over to Graham.

Dr Graham Winkelman, Vice President Climate

Thanks, Camille, and thanks to all of you for your interest in our business and our decarbonisation strategy and progress.

Decarbonisation in our operations and value chain

BHP is working with global partners and other stakeholders in the value chain

On track to reduce our operational GHG emissions (Scopes 1 and 2 from our operated assets) by at least 30% by FY2030 from FY2020 levels

We have a goal to achieve net zero operational GHG emissions by CY2050

- To succeed, we know that **technology must advance** rapidly
- The pathway to **net zero will be non-linear** as we organically grow our business
- We are using our **Capital Allocation Framework to maximise the returns** on our GHG emissions abatement

We are pursuing **the long-term goal of net zero Scope 3 emissions by CY2050**[1]

- To support this goal, we have made strong progress on our strategy in the areas of **steelmaking and maritime decarbonisation** via partnerships, trials and pilots

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Let’s start with a few key points.

We are on track to deliver our credible FY2030 target of at least a 30% reduction in operational GHG emissions in FY2030 against a FY2020 baseline, and we have an aspirational goal to achieve net zero operational GHG emissions by CY2050. Our medium-term target and long-term goal are both related to Scopes 1 and 2 emissions from our operated assets, or ‘operational’ GHG emissions.

As we grow to meet increasing demand for our commodities, the pathway to net zero for our operational emissions will not be a straight line. Our pathway reflects the dynamic nature of the assets we operate and the availability and readiness of decarbonisation solutions.

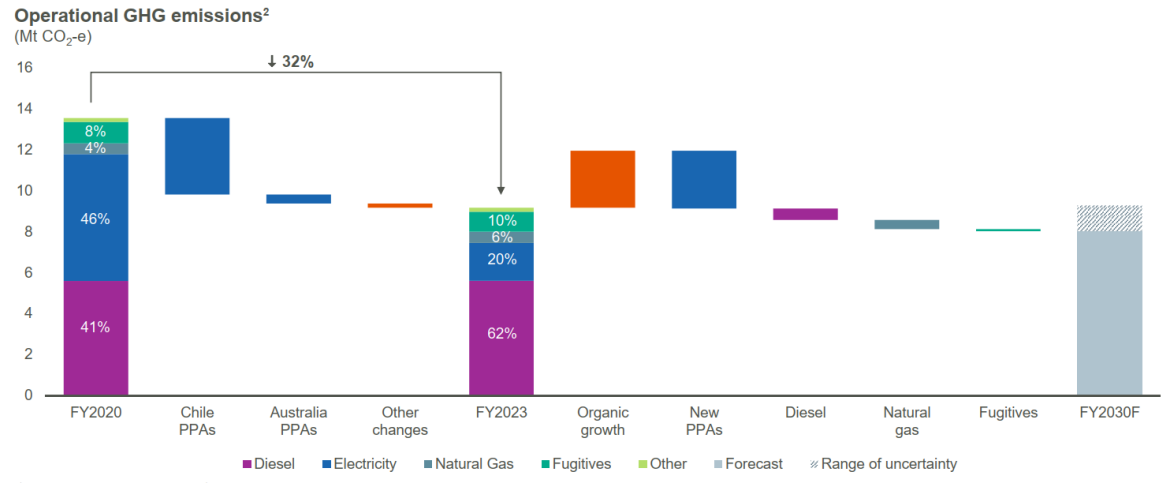
We are also pursuing the long-term goal of net zero Scope 3 emissions by CY2050, despite its uncertainty and the extent of the challenge.

We have made considerable progress on our strategy to partner with others in the value chain, including customers, mining peers and academic institutions, to develop, evaluate and trial the solutions that can make a difference to Scope 3 emissions.

Orderly, methodical, and capital efficient decarbonisation is an important part of our overall company strategy. It helps us build an increasingly sustainable and more resilient business, both of which are key to growing long-term value for our shareholders.

Progress towards our FY2030 operational GHG emissions target

We are firmly focused on reducing operational GHG emissions and have made good progress to date



Note: PPAs – Power Purchase Agreements.

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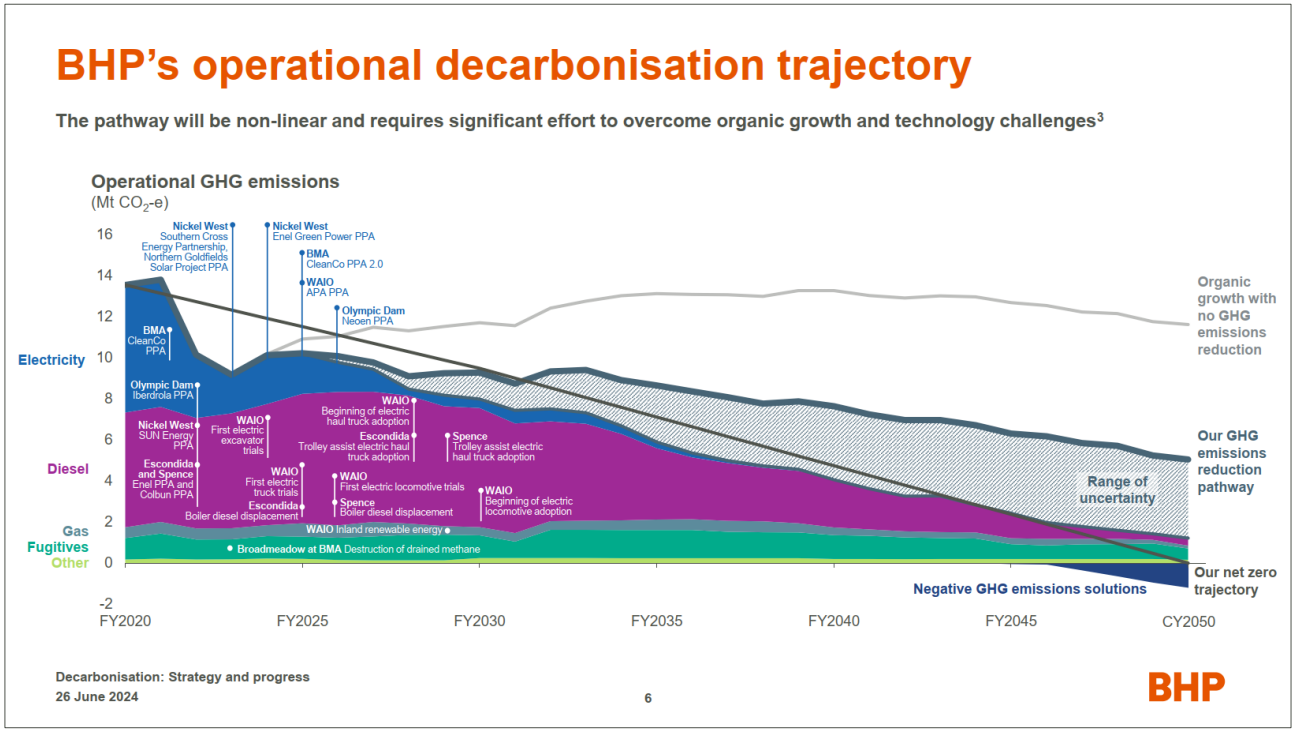
In FY2023, our operational GHG emissions were 32% below the adjusted FY2020 baseline, after re-baselining for recent acquisitions and divestments.

This performance has been achieved primarily through introducing renewable electricity via Power Purchase Agreements, or PPAs, at many of our operated assets – notably in Chile.

Our current GHG emissions profile is weighted towards diesel and has been for a couple of years now. And while technology solutions for diesel displacement are emerging, many are not yet mature and available at the scale required.

In addition, our business activity is expected to grow to FY2030 and beyond. Under the current circumstances, this would lead to some organic growth in GHG emissions. Consistent with this, our reported operational GHG emissions for FY2024, which is not yet concluded, will likely reflect a small increase on FY2023 levels – an outcome consistent with the GHG emissions data presented in our half-year results in February 2024.

Our projected GHG emissions increase to FY2030 is shown in the orange column labelled ‘Organic growth’ in this chart. To counter this increase from our business growth, we plan additional deployment of renewable electricity before FY2030, and further effort to deliver some level of abatement across GHG emissions from the use of diesel and natural gas, and for fugitive methane.



Our potential future operational GHG emissions reduction pathways to CY2050 are summarised in this chart, including some of the planned and achieved decarbonisation milestones and projects.

Every year we update our plans and our evaluation of the optimised pathway towards our targets and goals, with related impacts upon our decarbonisation project portfolio, range of uncertainty and capital expenditure profile.

Let me explain what is in front of us here. First, we offer visibility of our organic growth with no GHG emissions reduction. This is the grey line and represents the expected emissions pathway associated with our increasing production if we didn't implement any future decarbonisation projects.

Beneath that line is our 'GHG emissions reduction pathway', the blue-grey line tracing the upper boundary of the hatched area. This decarbonisation pathway includes all planned structural abatement projects and planned growth. Progress along this line allows us to reach our FY2030 medium-term target.

You will see that the key milestones on our pathway to FY2030 include commencement of three new Power Purchase Agreements or PPAs that we have signed, and a range of on-site trials to progress future diesel displacement.

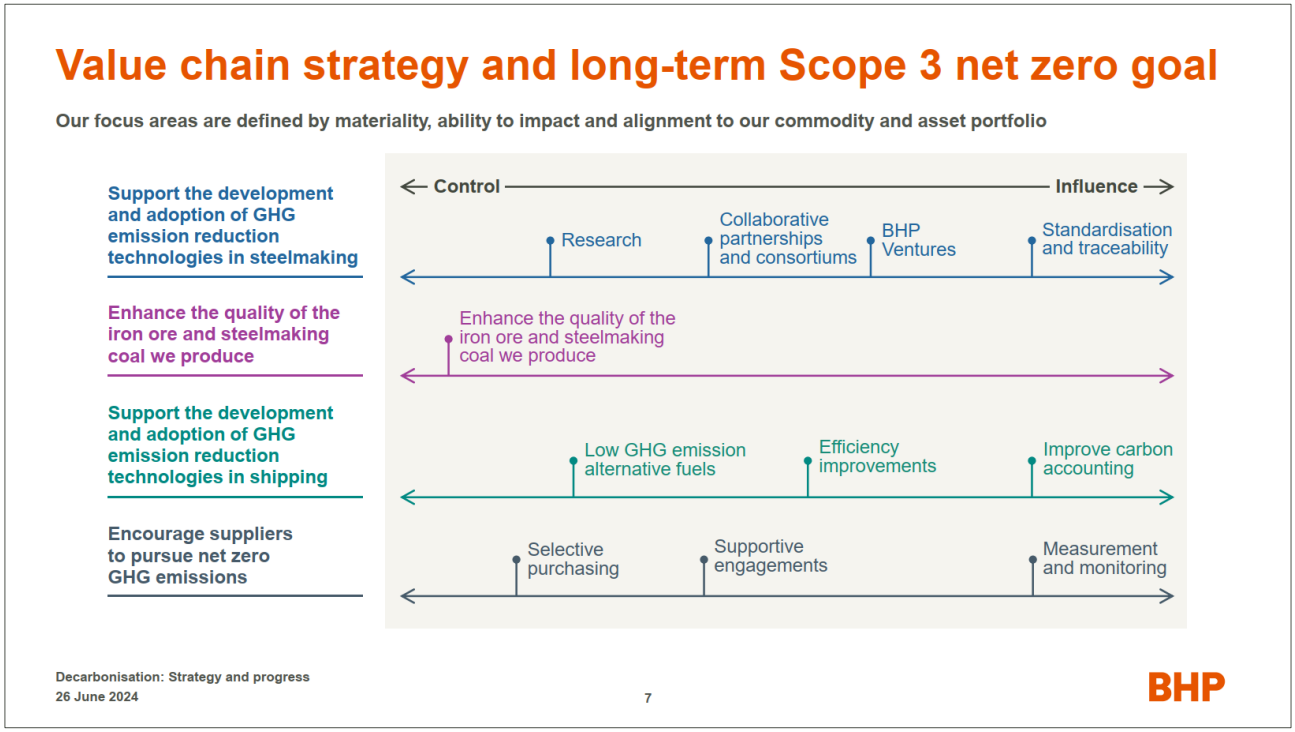
To abate emissions beyond a 30% reduction on the adjusted FY2020 levels in FY2030, we will be reliant on technology still under development. On the chart, we have labelled this potential abatement the "Range of uncertainty" – the hatched area in grey in the chart.

If technology develops as we believe it can, we expect the first electric truck fleet adoption by FY2028, and in FY2030, the first of multiple future electric locomotive deployments.

Milestones after FY2030 primarily consist of greater adoption of electrification across materials movement.

And while we do not plan for the use of offsetting to meet our FY2030 target, we do anticipate the need for some carbon credits to deliver on our net zero goal by CY2050. We are likely to source and relinquish carbon credits in coming years to meet compliance obligations under Australia's Safeguard Mechanism. But, to be clear, we would not count those regulatory carbon credits towards achievement of our FY2030 target.

The path ahead of us remains consistent with our operational GHG emissions target and goal and we continue to progress toward them.



I want to shift our attention from operational GHG emissions strategy to value chain GHG emissions for a moment. BHP's total reported Scope 3 emissions is significantly greater than our reported operational GHG emissions, and our focus areas are set with consideration of materiality, the level of impact we can achieve, and the alignment to our portfolio strategy. We have four primary focus areas:

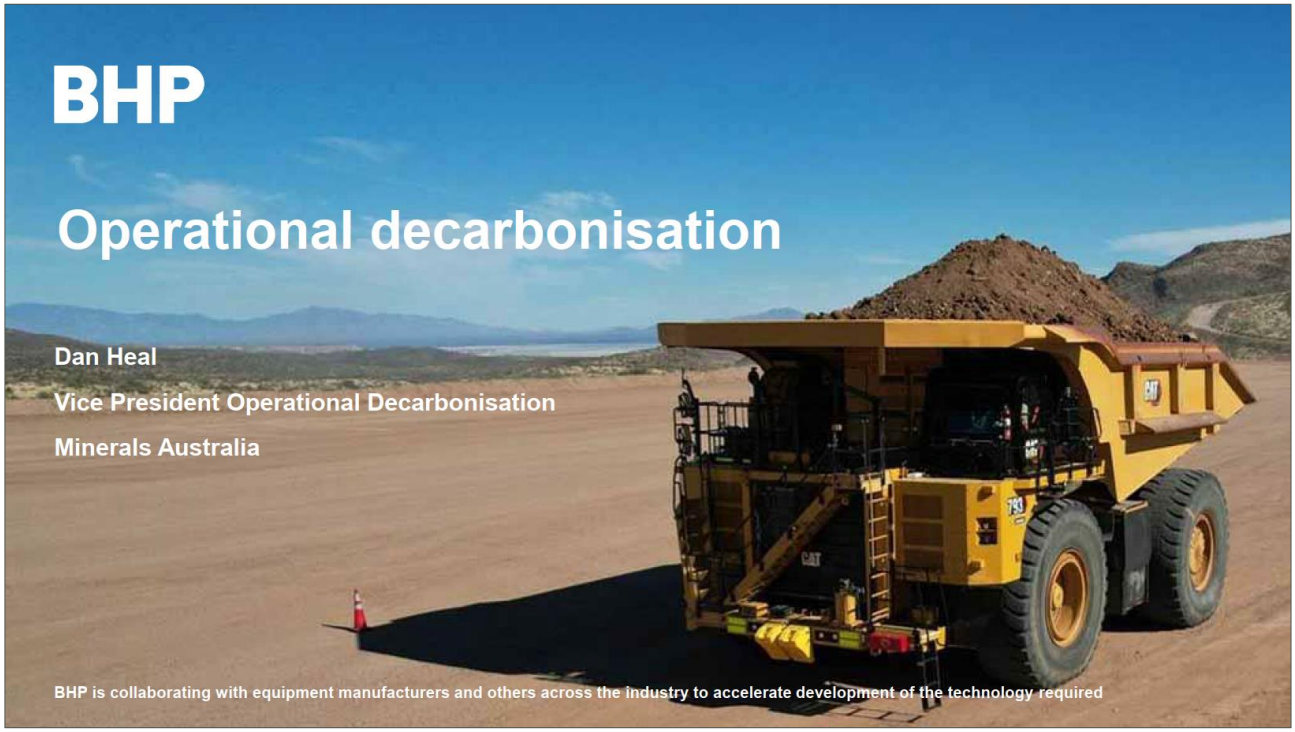
1. Support the development and adoption of GHG emission abatement technologies in steelmaking.
2. Enhance the quality of the iron ore and steelmaking coal we produce.
3. Support the development and adoption of GHG emission abatement technologies in shipping.
4. Encourage suppliers to pursue net zero GHG emissions.

Steelmaking emissions from the sale and use of both iron ore and metallurgical coal represent approximately 85% of our reported Scope 3 emissions inventory, and BHP is also one of the world's largest dry bulk charterers. Accordingly, today we will focus much of the Scope 3 discussion on our efforts to support the development of new steelmaking technology and shipping.

So, in summary, our approach to decarbonisation across operational and value chain GHG emissions is delivering good outcomes. We will spend the remainder of the presentation providing further details of our progress.

Let's start with operational GHG emissions progress and outcomes.

With that, I'll hand over to you, Dan.



Dan Heal, Vice President Operational Decarbonisation

Thanks, Graham and hello everyone.

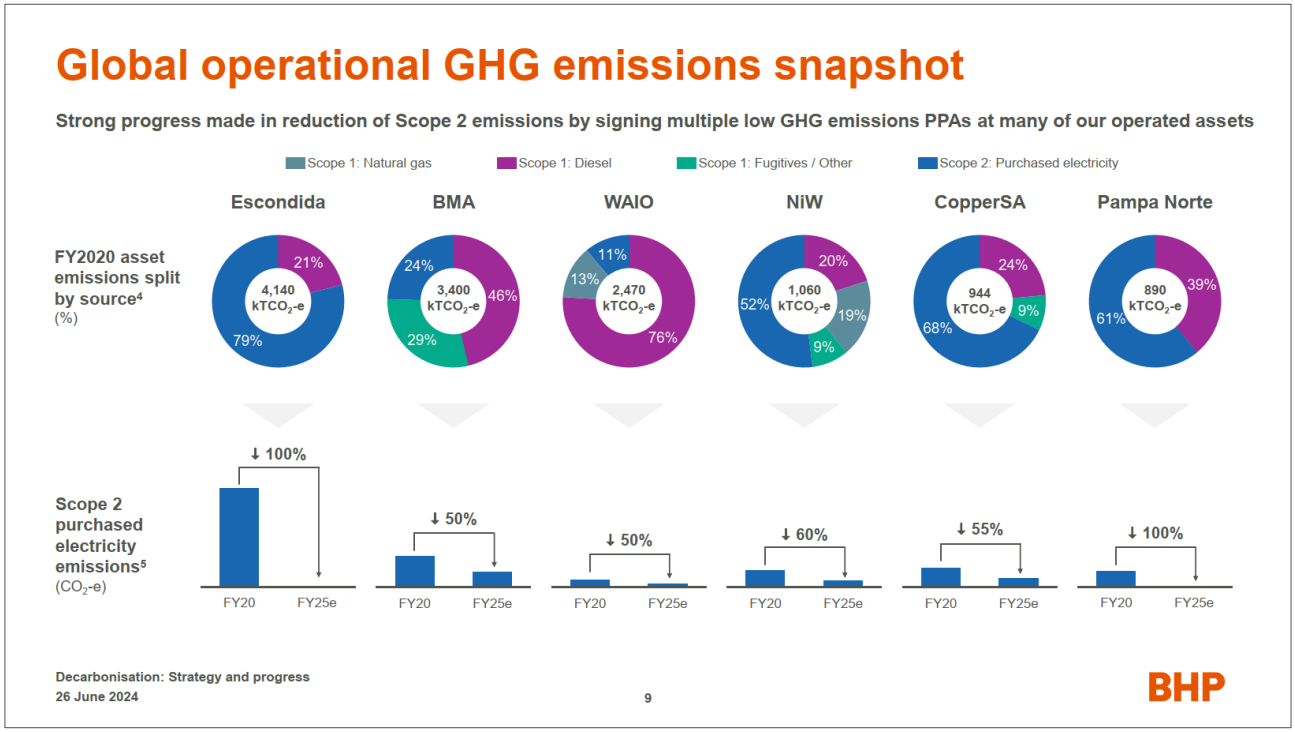
A quick introduction as this is my first decarbonisation briefing. I've recently started in this role as Vice President Operational Decarbonisation in Minerals Australia. Prior to this, I was General Manager at two of our iron ore mines in the Pilbara in Western Australia, and before that I spent time in mine operations manager roles at our copper assets in both Australia and Chile. As a result, I bring a strong operational view to our decarbonisation challenge.

Today I am going to share some of the decarbonisation work we have underway across our global operations.

I will cover some of the biggest technical challenges we are working on, including:

- How we are working with our partners to accelerate the development of diesel displacement technology
- The complex transformation required at our mines as we move to electrification
- How we are thinking about fugitive methane emissions in our production of steelmaking coal

But before I talk about these specifics, let’s take a moment to touch on the sources of our operational GHG emissions, and the work we have done already to reduce them.



On this slide you can see a breakdown of our global operational GHG emissions.

The charts across the top display the source of greenhouse gas emissions in our baseline year for these assets, ordered from left to right by most to least emissions. We haven't included two of our assets here although they are included in our FY2020 baseline – NSW Energy Coal is being managed to proposed closure in CY2030 and Jansen Potash is not yet operational. And we also include our legacy assets in the FY2020 baseline.

It shouldn't be surprising that these charts look different given that our operated assets produce different commodities, using different mining methods and move different volumes of material. And as a result, the way we decarbonise, and what we prioritise, will be different at each asset.

Let's start with purchased electricity, or Scope 2 emissions, which, as you can see, is something common to all these assets.

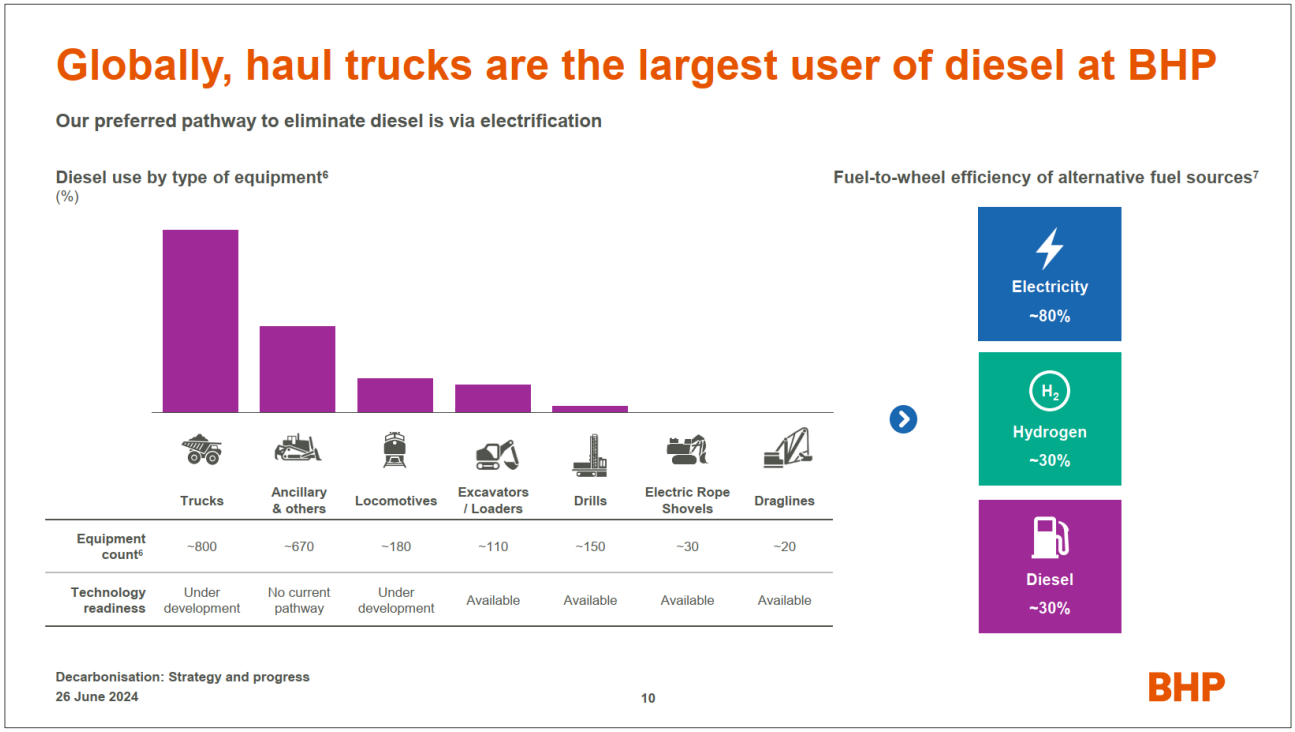
Across our Australian and Chilean operations, we have made good progress leveraging renewable and other low emission PPAs to reduce Scope 2 emissions in a capital efficient manner. As the charts along the bottom show, these agreements have us on our way to at least a 50 per cent reduction by FY2025 in most grid connected operations based on currently forecast electricity consumption. Escondida and Spence have already transitioned to 100 per cent renewable energy, ahead of schedule, and achieved full use of renewable electricity in CY2023.

We do not have specific renewable energy targets, but our aim is to 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.

In Western Australia Iron Ore, our inland Pilbara operations are not connected to an existing grid and so we cannot purchase power through the market. Renewable technologies such as wind and solar are available, but the Pilbara is remote, so we are working through the best way to introduce large volumes of renewable energy, or other sources of low to zero emissions power, while keeping power running 24/7, 365 days a year.

By the end of this decade, we plan to have up to 500MW of wind, solar and battery storage assets available in the Pilbara, backed up by firm power from our highly efficient Yarnima gas fired power station.

We also expect significant demand growth to occur post FY2030, with diesel displacement increasing the amount of electricity required at some of our operated assets by up to four times. This means securing a reliable supply of renewable and other low to zero emission energy into the future remains a significant priority.



Each year, our global operations use roughly 1,850 mega litres of diesel in over 1,500 pieces of equipment.

As the chart here shows, almost half of this is used in our truck fleets.

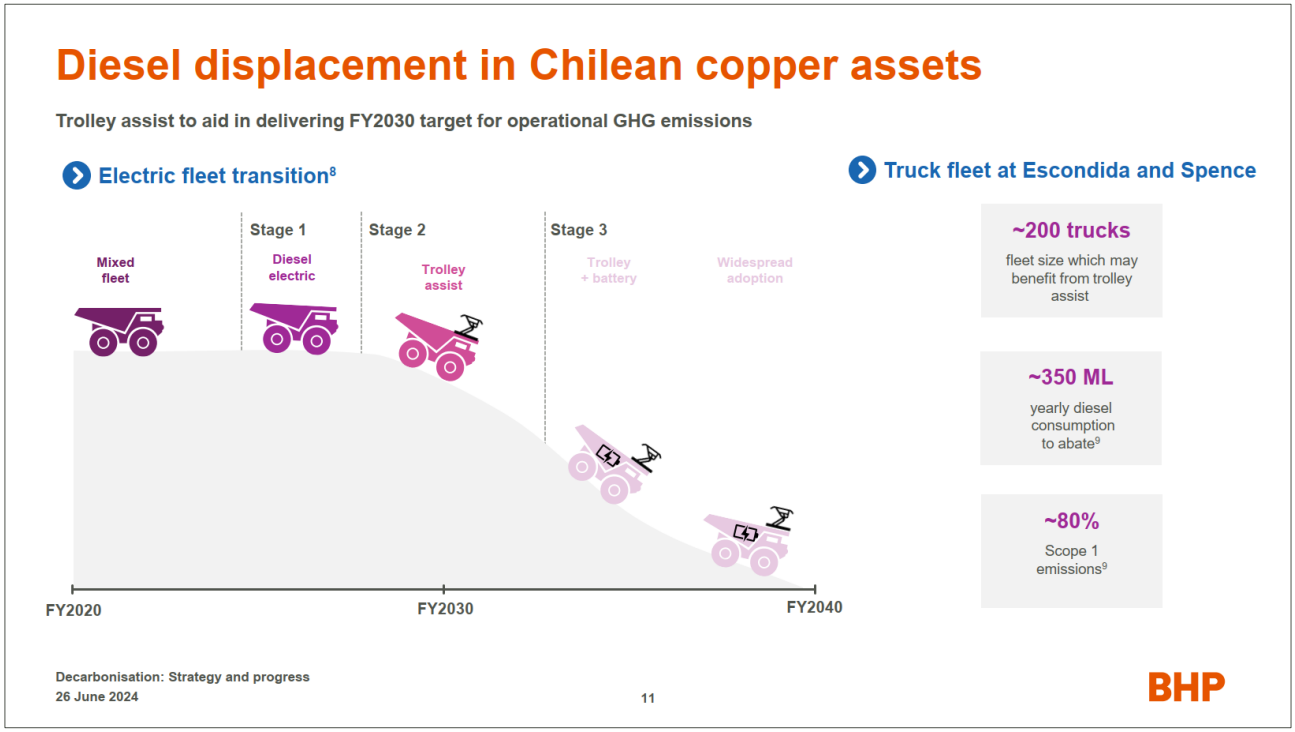
We spoke to the pathways to eliminate diesel at our Operational Decarbonisation briefing last June. We continue to believe that an electrified mining fleet will be more economic than hydrogen. This is primarily driven by the overall efficiency of an electrified pathway, compared to other fuels, as shown on the right side of this slide.

Some of our core mining equipment is already available in an electrical configuration. For example, both BMA and Escondida operate electric shovels, and Escondida has had electric drills for many years.

Electrification can also lead to improved maintenance performance, the elimination of diesel particulate matter, and reduction in noise and vibrations.

We consider alternative fuels such as biofuels as a backup option if electrification is delayed or unsuccessful, and we continue to monitor developments in this area. This is informed by a trial that concluded last year that provided us valuable insights into using hydrotreated vegetable oil in multiple types of mining equipment. The trial also identified some of the challenging commercial and social concerns associated with these fuels.

Replacing diesel will require us to develop a whole new operational ecosystem to surround the fleet and every part of the mine will be touched by this change.



In our operated assets in Chile, we continue to study trolley assisted haul trucks, to reduce diesel consumption but also as a key enabler for future rollout battery electric haul trucks.

The figure on the left shows the electric fleet transition we hope to achieve at Escondida and Spence.

We will approach trolley assist in three stages.

Firstly, over the coming years we will be progressively replacing our current mechanical drive haul trucks with electric drive ones.

Then, we will implement trolley assist. This electrical infrastructure works like an electric tram or train network. Trucks connect to it while moving and receive electricity directly to power their electric drives, reducing diesel use. We will soon begin testing diesel-electric trolley assist at Escondida, followed by Spence, with implementation of the first stage expected to start in FY2028 and FY2029, respectively.

And finally, next decade, we will expand the trolley infrastructure to assist a transition from diesel-electric to battery electric haul trucks. This will allow the energy to go straight to charging the truck's batteries while operating, reducing the time that the truck would need to stop to be charged.

Once trolley and battery electric trucks are proven, we're planning a widespread adoption across our operated assets in Chile.

Diesel displacement in Minerals Australia

Operational trials and collaboration to accelerate development are critical to success

Partners	Operating prototype	BHP operating trial	BHP target deployment[10]
CATERPILLAR	2022[11]	2024	From 2028[12]
KOMATSU	2021	~2026	
Progress Rail	2022	2025	From 2029
Wabtec	2021	2025	
LIEBHERR	-	2024	From 2027

9400E electric excavator on site at Yandi mine in February 2024

Note: Years shown are calendar years. All dates are approximate and subject to change.

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For diesel displacement in Australia, we are working through key areas including:

- the way we plan and operate our mines;
- how and when we charge our equipment;
- how we manage power supply and demand;
- the skills and people we will need;
- and, critically, the additional safety considerations these changes will bring.

We are collaborating with equipment manufacturers and others across the industry to accelerate development of the technology required. As can be seen on this slide, we have a comprehensive program of trials underway or set to start in the coming years. You may see that some of these dates have shifted a little since we presented this table last year, but that is not surprising given the complexity of developing new technology at this scale. Despite this, we still anticipate our first battery-electric truck sites and locomotives to be in operation from late this decade – assuming our trials are successful.

We currently have the first Caterpillar battery electric haul truck enroute to our WAIO Jimblebar mine, which we are incredibly excited about. Earlier this month I visited Caterpillar's Proving Ground in Tucson Arizona to witness the very first Caterpillar 793 battery electric truck in action.

In terms of performance, we are expecting it to be on par or even superior to an equivalent diesel truck. Fully loaded to its rated capacity, the Caterpillar battery electric truck achieved the same top speed as a diesel equivalent truck and travelled 1 kilometre up a 10% grade at the same pace as a diesel truck. A battery electric truck will need to be charged more often than a diesel truck is currently refuelled, but we expect to be able to counter that in some places using dynamic energy transfer, such as trolley systems like I spoke to earlier. Furthermore, when receiving electricity directly through a dynamic energy transfer system, we expect a battery truck could outperform a current diesel truck uphill and, on a downhill grade, the truck captures the energy that would normally be lost to heat and returns it to the battery.

Our planned site trials will gather real data to help firm up modelling assumptions, inform the investment business cases and provide greater certainty to our plans.

A great example of this can be seen in the picture on the right. This is our Liebherr 9400E electric excavator, one of the first in Australia, which has been operating in a trial since early 2024 at our Yandi operations in West Australia Iron Ore.

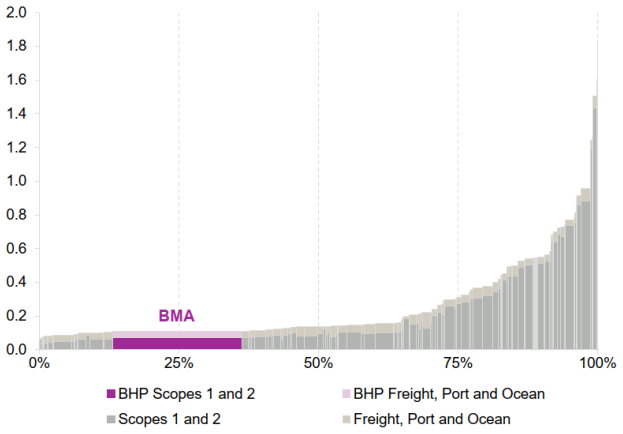
Our current and planned trials represent an important step on BHP's operational decarbonisation journey, and the technical outcomes could help to inform how we approach these challenges in future.

Approach to methane emissions

BMA's higher quality metallurgical coal can help steel mills reduce their own GHG emissions intensity

- BMA had one of the lowest GHG emissions intensity footprints among our global coal competition in CY2022.
- Our current open-cut mines now employ direct, site-specific industry best practice measurement of their fugitive emissions.
- Our aim is to identify the potential for emerging technologies to improve measurement.
- At our only underground steelmaking coal mine, Broadmeadow, drainage methane is captured and flared.
- For open cut mines, we are working to determine the optimal use of the gas as well as any operational challenges pre-drainage may create.
- Proven solutions will not address 100 per cent of fugitive methane emissions, so it is likely that a residual amount will remain untreated if there is no significant technological progress.

CY2022 GHG emissions intensity of export metallurgical coal mines[13]
(Tonnes CO_2-e per tonne of exported coal)



Source: Skarn Associates and BHP.

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To finish my section on operational decarbonisation, I wanted to speak to methane emissions.

Methane accounted for around one third of BMA's and 8% of BHP's operational GHG emissions in our FY2020 baseline

Our most recent analysis, covering the period of CY2022, suggests BMA is positioned in the lower quartile of GHG emissions intensity as you can see in the chart on the right here.

This is because our assets are naturally lower methane intensity resources relative to other mines, and our emissions performance is also due to our active management of methane at our underground mine.

At our current open-cut mines, we now employ direct measurement of fugitive emissions, known as 'Method 2' under Australia's National Greenhouse and Energy Reporting Act. Recently, we have worked with researchers and service providers in the field of 'top-down' atmospheric monitoring using satellite, aerial and ground-based sensing. Our aim is to identify the potential for these emerging technologies to improve our understanding of real-time relationships between fugitive methane emission levels and mining activities, and we remain open to their future development.

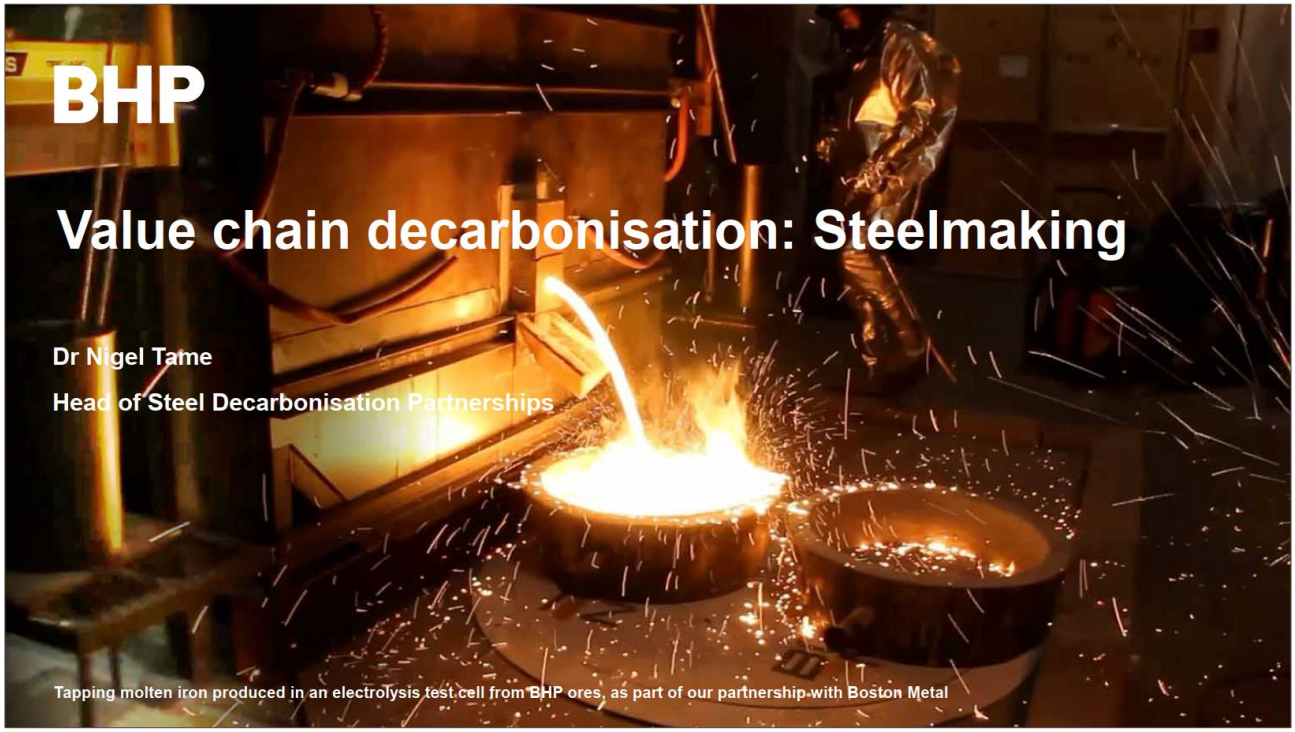
Whilst at our Broadmeadow underground mine, drainage methane is capture and flared. In open cut mines, it's not quite as straightforward. Methane is currently released as the coal seams are uncovered so in the future we need to explore options to pre-drain and extract this before we mine. In theory this can be done, although it is not common practice across the industry and requires significant pre-planning.

We have recently completed early phase studies for two of our mines, Goonyella and Saraji, to understand how much methane could be extracted and managed.

Once extracted, methane can be flared, used for relatively lower GHG emission power generation, compared to traditional sources, or sold for other industrial processes. Any residual methane that we cannot extract will need to be offset to reach our net zero goal.

In wrapping up, it is clear we face real challenges across our decarbonisation portfolio, but we do not believe these are insurmountable. We will continue to work at pace, invest in creating solutions, and collaborate with others to set ourselves up for a lower emissions future.

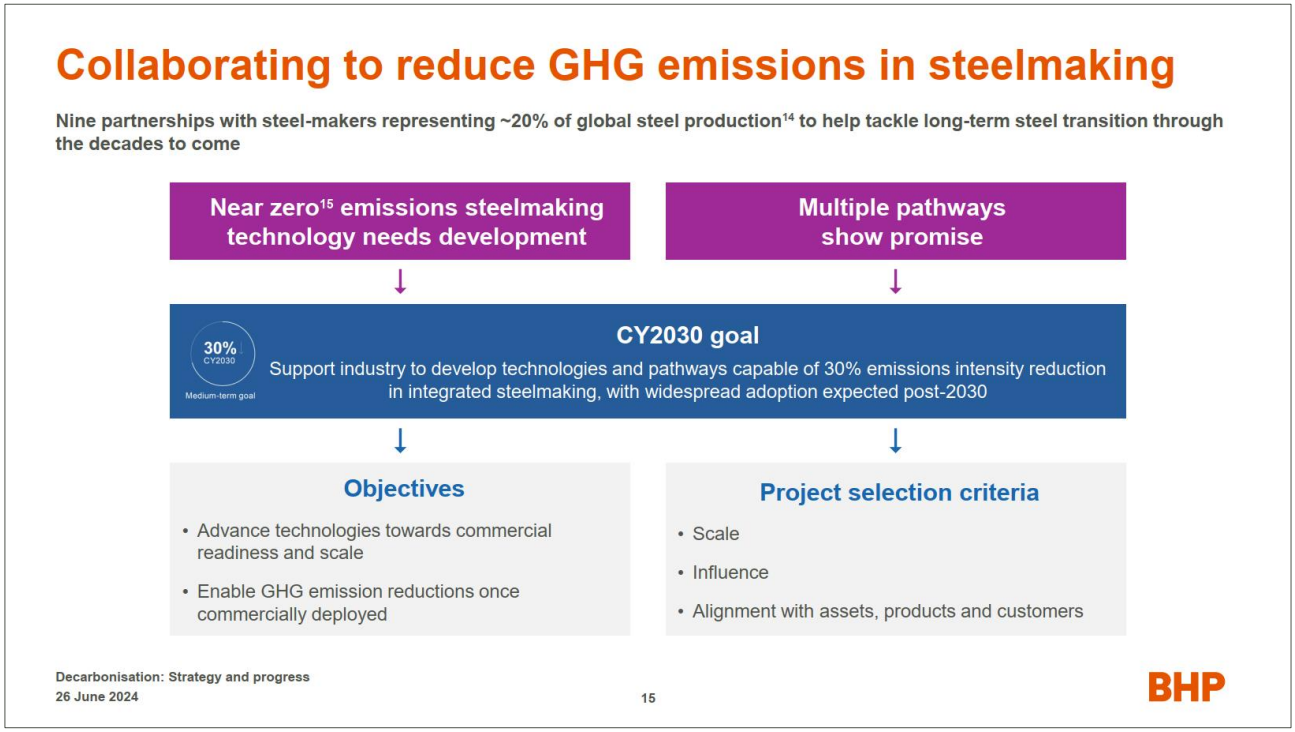
I will now hand over to Nigel, Head of Steel Decarbonisation Partnerships



Dr Nigel Tame, Head of Decarbonisation Partnerships

Thank you, Dan.

I'll now cover decarbonisation in the steel value chain, sharing a bit about our objectives, our strategy and how they connect to the actions we are taking to support industry in addressing this material component in BHP's downstream Scope 3 emissions inventory.



For the world to achieve a net zero transition, widespread deployment of “near zero” emission steelmaking technology is needed, given steel contributes around 7-9% of global GHG emissions, noting “near zero” for steelmaking is specifically defined. However, there are no near zero emissions technologies for ore-based steelmaking currently feasible for widespread adoption.

There is no single decarbonisation pathway for the sector and the reality is, on current settings, it will take multiple decades for our steelmaking customers to transition. Emissions reduction must be achieved both in the current blast furnace process and through the introduction of new technologies and process routes. Our strategy is to assist multiple process routes to reach technical and commercial readiness to provide the flexibility needed for deployment and emission reductions with global steelmakers using our products.

To meaningfully participate in decarbonisation of the steel sector, our goal is to “Support industry to develop technologies and pathways capable of 30 per cent emissions intensity reduction in integrated steelmaking, with widespread adoption expected post-CY2030.”

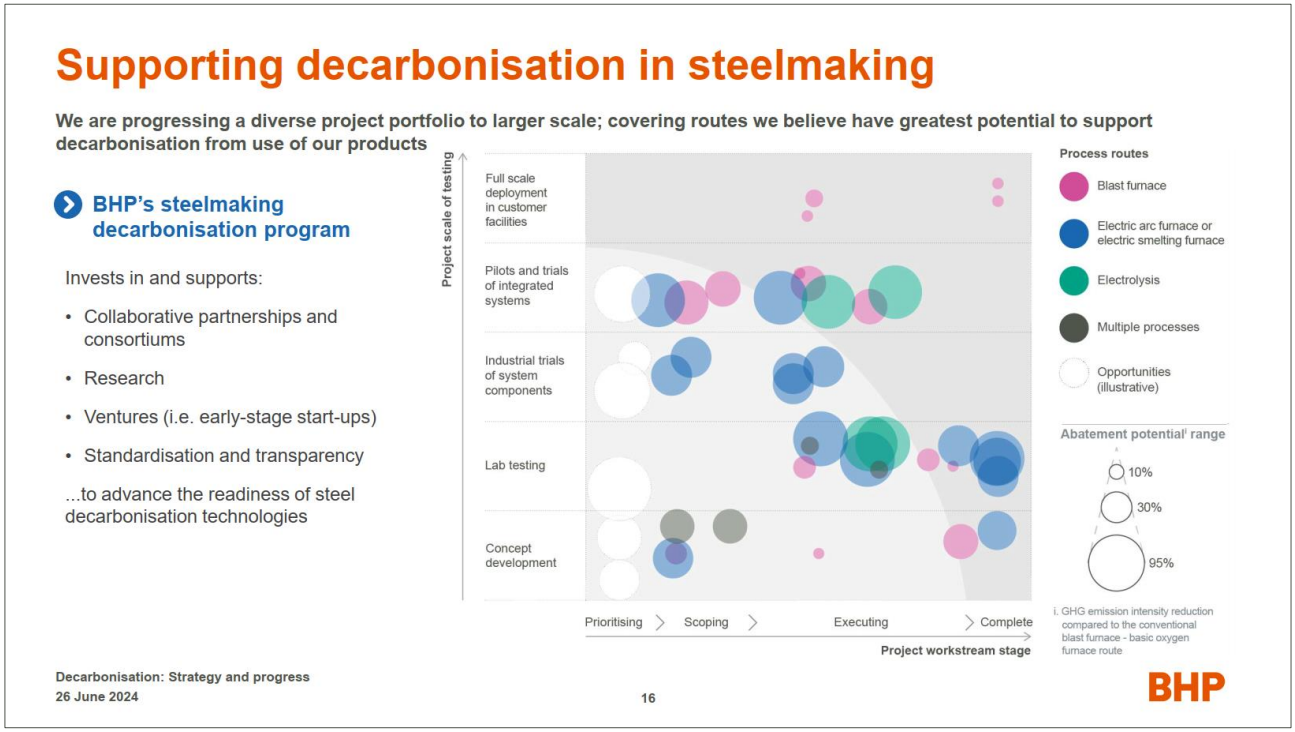
We structure our program around the process routes with potential to achieve near zero emission steel from our products, which we presented in the last ESG Roundtable in November and can be found online in our BHP Insights blog.

And we use three criteria to prioritise our projects:

- Firstly, materiality. The extent of possible emissions reduction, the speed to market, and how broadly it could be adopted across the industry.
- Secondly, influence. The ability for BHP to have a tangible impact on the development and propagation of the technology.
- And finally, but critically, alignment to our assets, products, and customers and fit in the wider technology landscape.

Since the commencement of our program in FY2020 we have committed and budgeted more than US$200M for past, present and future initiatives and we are making real progress, in projects directed towards our CY2030 goal since our last Climate Transition Action Plan in 2021. We have partnerships with steelmakers – who represent around 20% of reported global steelmaking production – plus R&D and other ecosystem participants.

We have clear knowledge and information sharing principles built into each project, meaning that many customers, and the industry more broadly, can receive benefits from this program, multiplying the potential impact well beyond our direct financial contributions.



Our strategic approach involves establishing initiatives, including partnerships and consortiums, with our customers, research, and venture capital investments to advance the readiness of steel decarbonisation technologies.

We have built and are progressing a diverse portfolio of projects which covers the pathways we believe have the greatest potential to play a role in decarbonising steelmaking for our products. The bubble chart shown on this slide displays the portfolio and project collaborations we have developed to support progress towards near zero steelmaking. Each project is represented by a bubble and the associated abatement potential by the bubble size. The vertical axis you see indicates the production scale we are testing at, and the horizontal is where we are in project progress.

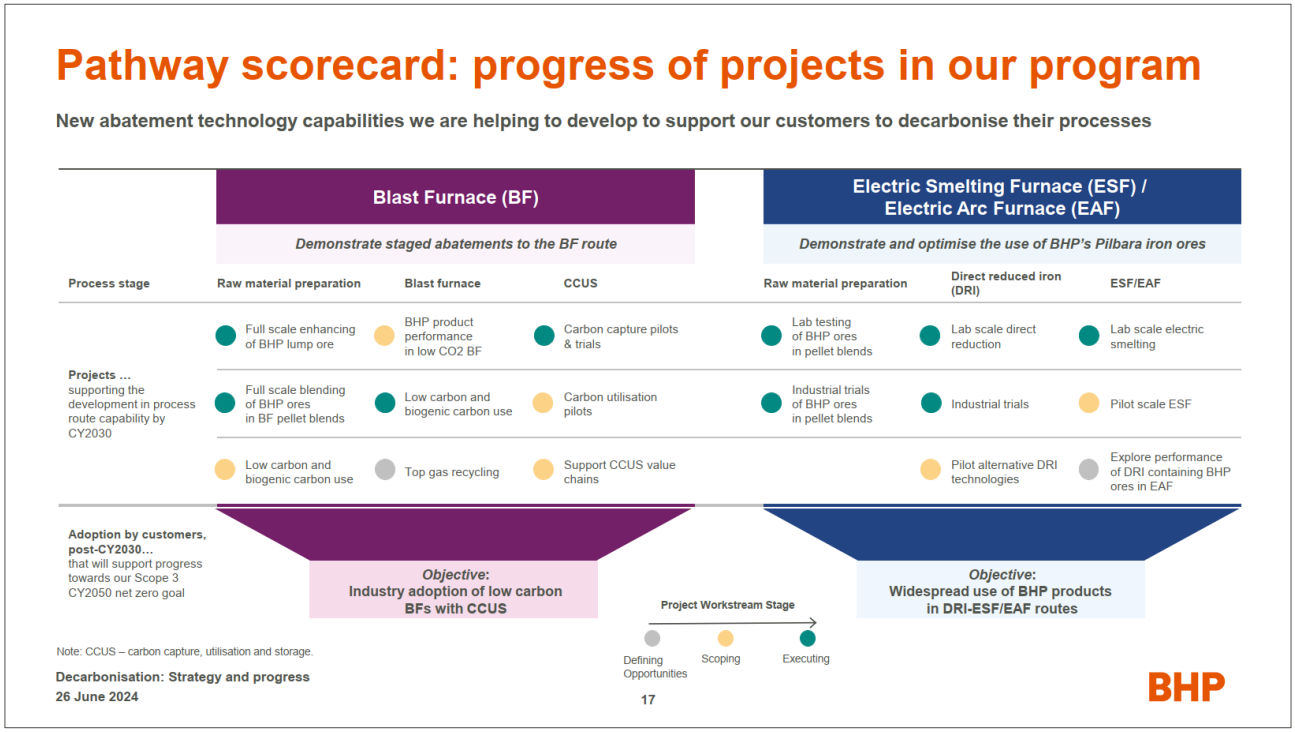
In simple terms, we want to see projects covering all the process routes, we want them moving from left to right as they progress from scoping into execution. And we want them to be higher up on the vertical axis – indicating the outcomes are being demonstrated at larger industrial scale versus in the lab.

The unshaded bubbles indicate we have a pipeline of project options that are under development.

We determine the abatement potential of each project using robust modelling, based on mass and energy balances, engineering estimates and informed by academic research, technical studies, industrial pilots and plant trials, and we adjust these as our knowledge develops.

You can see in the chart that more than half of the projects under our program have reduction potential of greater than 30% relative to the average GHG emissions intensity of the existing blast furnace process. And we are seeing more projects move through study and R&D phases into execution of pilots and industrial trials.

I'll talk a bit more now about how the underlying milestones in these projects link to technical objectives we are aiming to progress towards.



Here we show how the individual projects, represented by the bubble chart in the previous slide, relate to technical objectives in two of the key process routes for our products:

- On the left, the modified blast furnace or 'BF', and
- On the right, Direct Reduce Iron or 'DRI', electric smelting furnace or 'ESF' and electric arc furnace or 'EAF'

With a large evolving portfolio of initiatives, we use this scorecard to conceptualise how each project or milestone within quite technical areas contributes to the strategy we have shared.

The slide shows how projects accumulate to larger objectives for the Blast Furnace and the DRI-ESF and EAF, process routes, which in turn would contribute to progress towards our CY2030 and CY2050 goals.

While it's not practical to detail each step now, I'll walk you through at a high level.

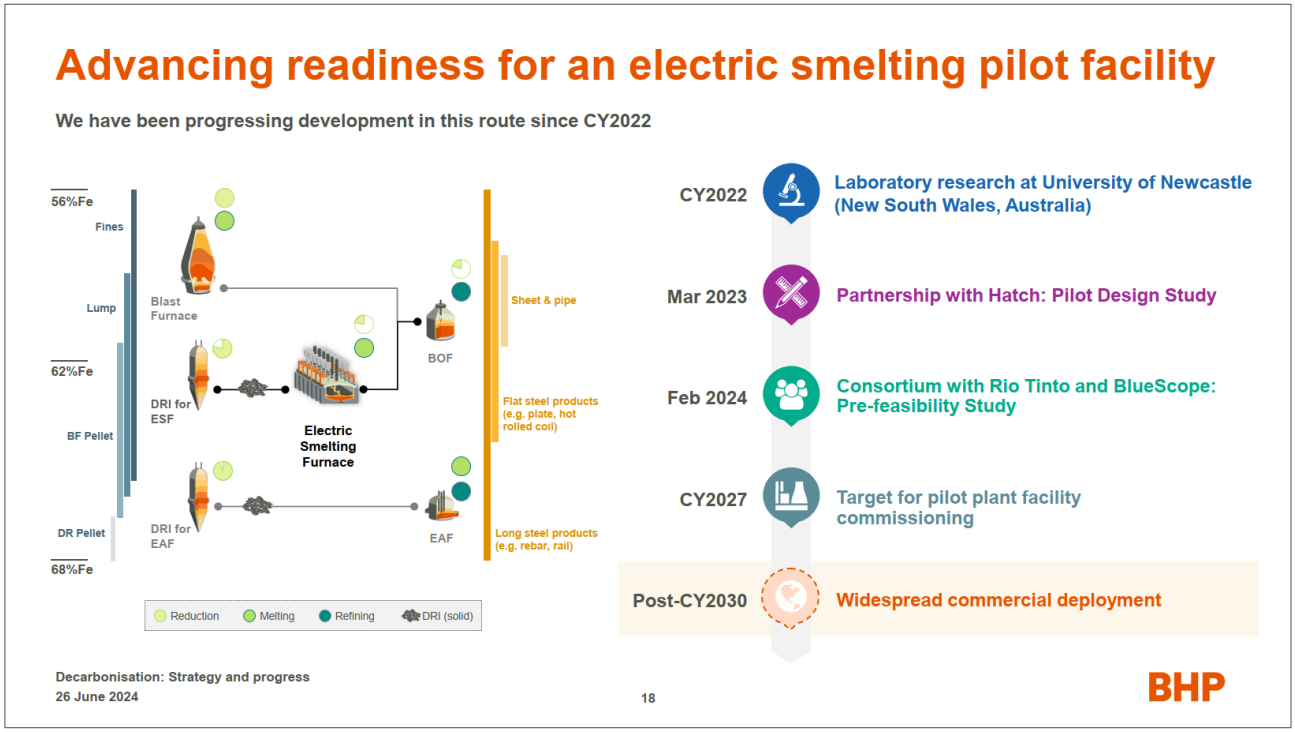
For the blast furnace route on the left hand side, we aim to demonstrate the potential for reductions in CO2 emissions intensity at scale through trials or pilots of developing technology, such as carbon capture. The steel industry regards carbon capture, utilisation and storage, or CCUS, as a critical abatement option for existing blast furnaces, and 9 out of 10 of the largest steel producers with net zero goals include CCUS in their roadmaps.

For the blast furnace, we believe that emissions reduction options can be combined to achieve, and well exceed, the 30% emissions intensity reduction capability of our CY2030 goal, and head towards near zero.

Now moving onto the DRI-ESF/EAF process route on the right, the focus of these projects is demonstrating the use of our iron ores in each process step. Our objective is to establish and optimise the performance of our ores in the raw material preparation and DRI steps, and we are well on the way. For example, we are seeing growing use of our ores in pelletising in China, and we recently commenced DRI production trials with two customers also in China.

The next step in this process is the electric smelting furnace step (or ESF). To optimise this step, we need a deeper understanding of how DRI feed materials, based on our Pilbara ores, interact with ESF operational parameters to produce iron at the quality and productivity needed for downstream steel.

So, we are supporting progress in laboratory studies and pilot scale testing of the ESF to characterise and optimise use of DRI based on our Pilbara ores. We will then seek to validate the results of these studies with customer operations in the future. This is why we have been setting up collaborative partnerships and consortiums to further develop these technologies.



Now focusing further on our progress towards a pilot electric smelting furnace (or ESF).

The pairing of direct reduced iron with an electric smelting furnace has deep emissions intensity reduction potential – around 80% relative to the conventional blast furnace route today. As shown in the graphic on the left, the ESF is very flexible compared to other process routes, as it can accept a wide variety of iron ore grades and can potentially produce a wide variety of steel grades like a blast furnace does now. And the ESF can integrate with existing steelmaking facilities – lowering the cost and risk of technology switching by enabling greater utilisation of existing infrastructure.

Here we also highlight three key projects we are involved in to support the feasibility of an electric smelting furnace pilot.

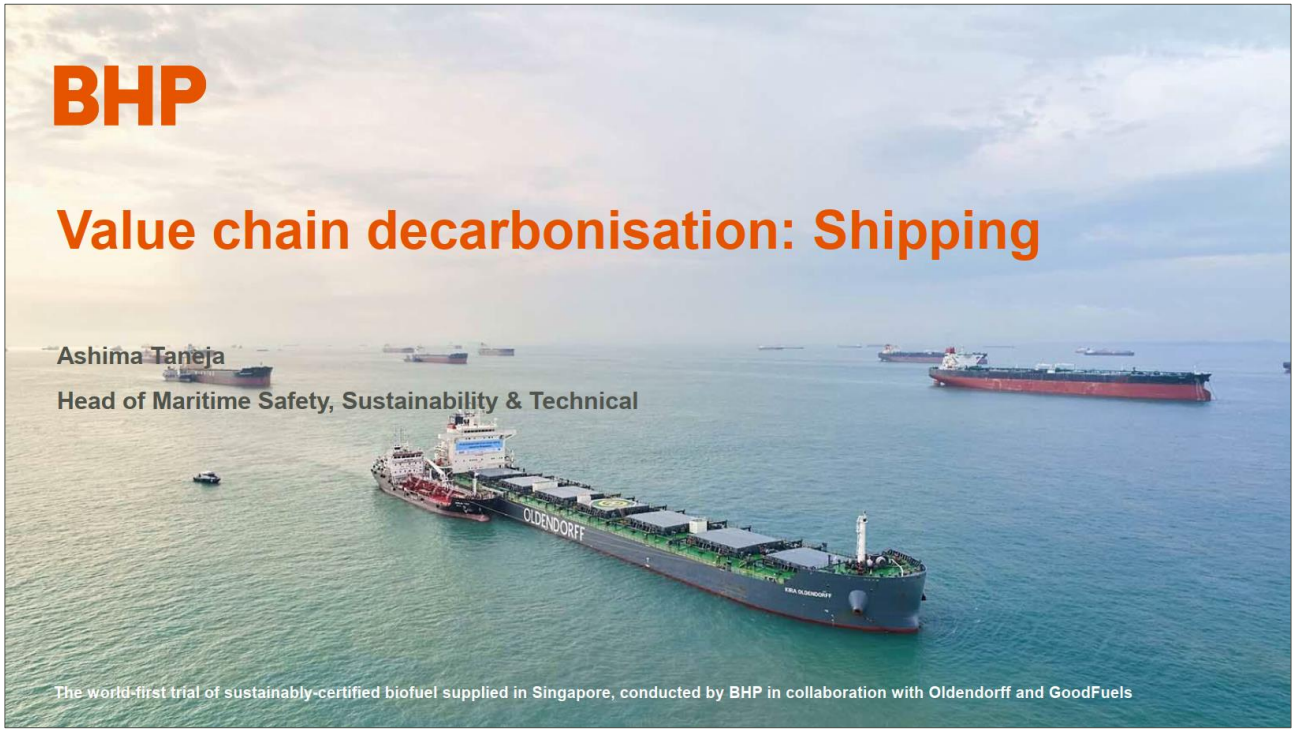
We are supporting our long-term research partners at University of Newcastle in New South Wales Australia in setting up new modelling and experimental capabilities. This commenced in CY2022 and is helping to characterise the fundamental behaviours that could support ESF commercialisation and use of Pilbara ore-based DRI. The importance of the program was recently recognised by the Australian Renewable Energy Agency (or ARENA), which awarded a grant to match BHP funding.

In March 2023, we announced a study with Hatch for a pilot plant. This developed the initial engineering design for a pilot ESF facility. It also highlighted the benefits of partnering to best achieve our technical objectives.

In February this year, we announced a partnership with BlueScope Steel and Rio Tinto to explore how to progress the proposed pilot ESF. This collaboration is a first of its kind in Australia and will build upon the work completed separately by the partners. A pre-feasibility study is anticipated to be complete in FY2025 and, if it's successful and subject to approval by the partners, we aim to complete a detailed design study, and construct and commission a pilot facility as early as CY2027.

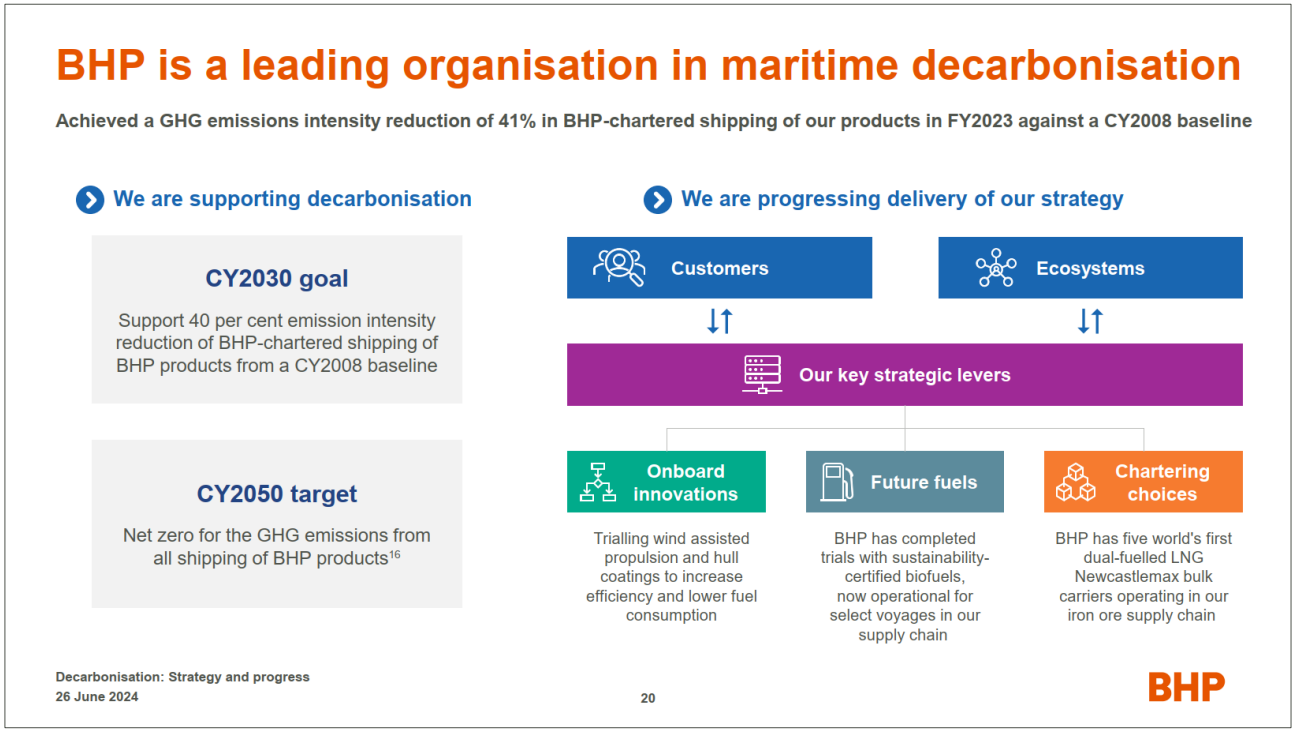
Once developed, the pilot facility would allow us to investigate and resolve technical challenges, test and optimise for the performance of DRI based on Pilbara ores, and demonstrate the viability of electric smelting furnaces to our customers as they seek to invest in full scale operations.

I'll now hand to Ashima, who will share on our industry-leading Shipping program.



Ashima Taneja, Head of Maritime Safety, Sustainability & Technical

Thank you, Nigel. I will now share a bit about our goal and target, our strategy and the actions we are taking to address shipping as a key component of Scope 3 emissions in our value chain in terms of our opportunity to influence outcomes. To give you context, Scope 3 emissions in our maritime decarbonisation strategy refers to the emissions from the shipping of our products to our customers, although we intend our initiatives to encourage broader change in the industry.



As one of the world's largest dry bulk charterers, BHP has built the expertise to safely, sustainably and cost-competitively ship hundreds of millions of tonnes of product globally every year.

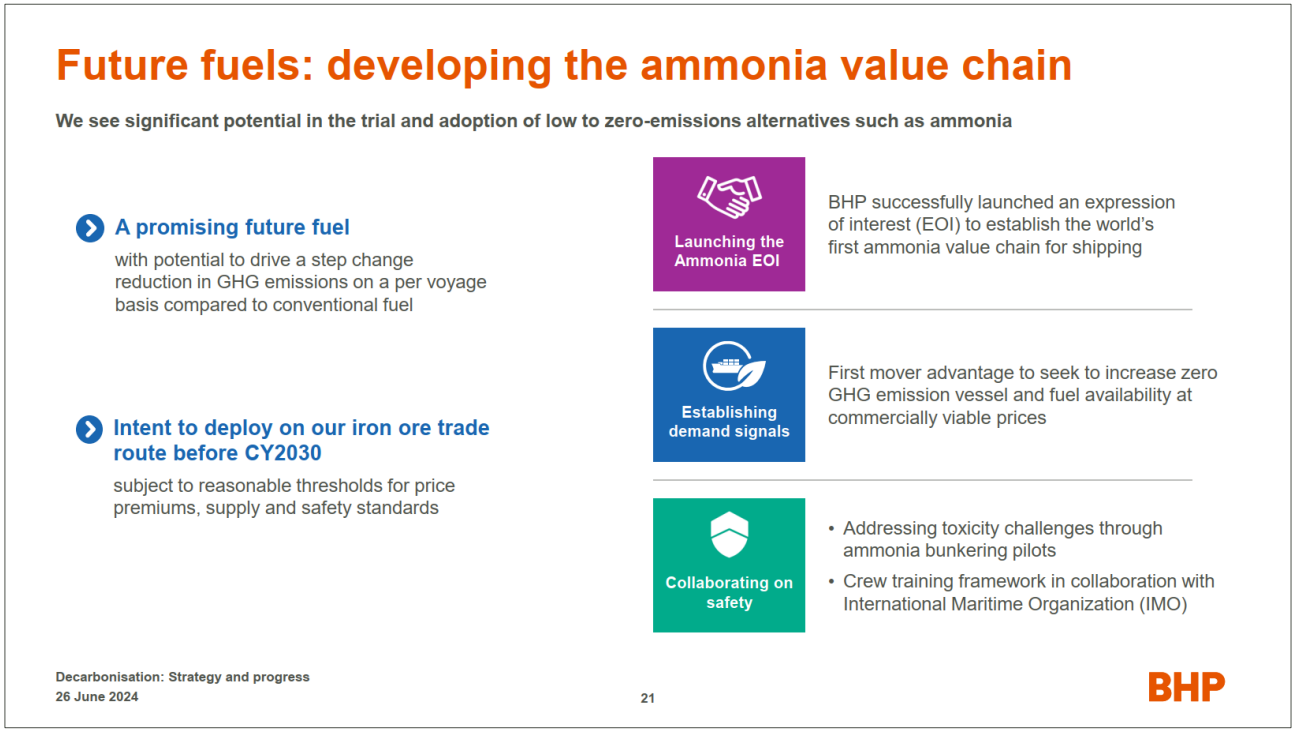
As shown on the left side of the slide, in the medium-term, our goal is to support an emissions intensity reduction of 40% in BHP-chartered shipping of our products by CY2030. Our long-term target is to achieve net zero GHG emissions from all shipping of BHP products by CY2050. To achieve this goal and target, we are deploying three key levers, as shown on the right:

1. First, onboard innovations: that is, driving operational efficiency through vessel and voyage optimisation and energy efficiency improvements, including consolidating parcel sizes to use larger and more efficient vessels. Technological measures include vessels with premium hull coatings and the launch of a wind-assisted propulsion trial with Pan Pacific Copper and Norsepower with a vessel retrofitted with a rotor sail onboard, which will undertake her maiden voyage post installation later this month.
2. Our second lever is to establish demand and incentivise industry uptake of low to zero GHG emission fuels – what we call future fuels. We are collaborating across the ammonia value chain, in particular, which I will address on the next slide.
3. The third lever relates to driving better chartering choices by ensuring completeness and accuracy of our carbon accounting through digitisation and automation in our value chain. This follows on from our partnership with DNV, using the Veracity data platform, for validation and reporting of GHG emissions.

We were the first to charter a dual fuelled LNG Newcastlemax vessel in CY2022 and now have five operating in our iron ore trade route. We were a first-mover in conducting trials of biofuels on an ocean-going vessel and have now operationalised biofuel lifts – that is the process of refuelling a vessel - on select voyages in our supply chain. Most recently, we conducted a trial out of the West Coast of South America, unlocking new supply locations. In trials utilising biofuels, we have been able to achieve emissions abatement ranging from 19-22% on a well-to-wake basis when compared to emissions from using similar quantities of conventional fuels.

Our actions, together with actions in the wider industry, led us to achieve a total GHG emissions intensity reduction in BHP-chartered shipping of our products of 41% in FY2023 from a CY2008 baseline (the same baseline year as used by the International Maritime Organisation).

We are using our expertise to support decarbonisation in the international shipping industry as one of the founding members of the Global Centre for Maritime Decarbonisation. This is a non-profit organisation supporting the industry in shaping standards, deploying solutions and fostering collaboration to seek to reach net zero around CY2050.



Now, I would like to zoom in on one strategic pillar – future fuels specifically. We see significant potential in the trial and adoption of low to zero-emission alternatives such as ammonia and I would like to share some of the work we are doing in supporting the development of the ammonia value chain.

Why ammonia? And why now? We see ammonia as a promising future fuel from a technical and availability perspective. It is the only alternative with no carbon in its composition, is a zero emissions fuel and has pricing and supply dynamics that enable a future potential use in maritime.

Subject to reasonable thresholds for price premiums, availability of supply and robust safety standards in place, we see ammonia fuelled vessels as key to enabling net zero GHG emissions for shipping of BHP products by CY2050.

Given our scale and influence, we are committed to engaging with the ecosystem, and have launched an Expression of Interest to help develop the ammonia value chain along an Iron Ore Green Corridor. These are specific shipping routes where the economics, infrastructure and logistics of low to zero emissions shipping are more feasible and rapid deployment can be supported by targeted policy and industry action. Subject to these conditions being achieved, our intent is to deploy ammonia dual-fuelled vessels on our iron ore trade route between Western Australia and China ports before CY2030.

We have had strong interest in response to our EOI from leading industry participants across vessel owners, fuel providers and integrated trading houses participating. We are now undertaking commercial and technical evaluations of the shortlisted bids.

We are also working with industry, port authorities and regulators on the establishment of safety standards and crew competency frameworks; and plan to address toxicity challenges of ammonia as a marine fuel through bunkering trials.

With these actions and our leadership, we are trying to bring the right parties together to overcome commercial and technical hurdles to best be able to help deliver and realise a truly net-zero alternative fuel solution for shipping.

Thank you for allowing me to share what we are doing to support decarbonisation of the maritime supply chain. I will now hand it back to Camille.

Footnotes

Decarbonisation overview

1. Slide 4: 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.
2. Slide 5: Future GHG emission estimates are based on latest annual business plans. Includes former OZ Minerals Australian assets and plans. Excludes Blackwater and Daunia (divested on 2 April 2024). FY2020 GHG emissions data has been adjusted for acquisitions, divestments and methodology changes. 'Organic growth' represents increase in GHG emissions associated with planned activity and growth at our operations. 'New PPAs' refers to GHG emission reductions from renewable/low to zero emission PPAs already entered and/or intended to be signed with reductions occurring post FY2023 and before FY2030. 'Other changes' refers to reductions in GHG emissions not covered by PPAs. 'Other' refers to GHG emissions from coal & coke, fuel oil, LPG or other sources. '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 (TRL) or are not yet commercially available. Emissions calculation methodology changes may affect the information presented in this chart.
3. Slide 6: Future GHG emissions estimates are based on latest annual business plans. Includes former OZ Minerals Australian assets and plans. Excludes Blackwater and Daunia (divested on 2 April 2024). FY2020 GHG emissions data has been adjusted for acquisitions, divestments and methodology changes. 'Organic growth with no GHG emission reduction' represents business-as-usual emissions forecast without abatement projects. 'Our GHG emission reduction pathway' represents planned decarbonisation activities to reach BHP's operational GHG emissions FY2030 target and CY2050 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 (TRL) or are not yet commercially available. 'Our net zero trajectory' refers to a straight line between our FY2020 baseline, FY2030 medium-term target, and CY2050 net zero goal. 'Negative GHG emissions solutions' include carbon credits (avoidance, reductions or removals), or other technologies that result in emissions 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). Emissions calculation methodology changes may affect the information presented in these charts. 'Fugitives' (methane emissions) estimated in accordance with the Australian National Greenhouse and Energy Reporting (NGER) 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.

Operational decarbonisation

4. Slide 9: FY2020 is the baseline year for BHP's Group-level FY2030 operational emissions reduction target. Emissions are presented on a 100% basis as per the operational control approach described by the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard. For example, this includes 100% of BMA's emissions (while BHP's ownership is 50%). Excludes projects, exploration, and legacy assets.
5. Slide 9: Percentage reduction figures are estimates based on FY2020 levels and calculated based on forecast electricity consumption, which is subject to change as our estimates and mine plans evolve. Percentage reductions based on PPAs already signed.
6. Slide 10: Global operations. Excludes former OZ Minerals assets. Excludes Blackwater and Daunia (divested on 2 April 2024).
7. Slide 10: BHP analysis (based on modelling and initial studies). Percentages shown are estimated comparative efficiency.
8. Slide 11: This pathway depends on the commercial availability of the required technologies. Visual is illustrative and not to scale.
9. Slide 11: Expected average between FY2024 and FY2030
10. Slide 12: Upon completion of successful trials.
11. Slide 12: At Caterpillar's Tucson, Arizona Proving Ground.
12. Slide 12: Smaller pilot fleets may be deployed earlier, subject to technology readiness.
13. Slide 13: The metallurgical coal GHG emissions intensity curve is based on CY2022 data estimates from Skarn Associates. The GHG emissions intensity basis is tonnes of CO2-equivalent per tonne of exported coal produced per mine. BHP operations have been aggregated to BHP Mitsubishi Alliance (BMA) level. BMA has been overlayed with reported BHP data points for CY2022 for: i) metallurgical coal production; ii) Scope 1 emissions; and iii) Scope 2 emissions incorporating BHP operated integrated rail and port GHG emissions. GHG emissions intensity estimates for freight, port and ocean logistics of metallurgical coal products were calculated using Skarn Associates average intensities for CY2022. As BMA utilises both integrated (included in Scopes 1 and 2 emissions) and third-party rail and port services, this may result in partial double counting of GHG emissions. The data set applies IPCC AR5 CH4 global warming potential factors to all mines.

Value chain decarbonisation: Steelmaking

14. Slide 15: Based on reported steelmaking production based on World Steel Association data.
15. Slide 15: 0.40 tonnes of CO2-e per tonne of crude steel for 100% 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 emission intensity calculation (including in relation to upstream emissions). Abatement potentials have been calculated relative to a baseline reference of 2.0 tonnes of CO2-e per tonne of crude steel.

Value chain decarbonisation: Shipping

16. Slide 20: Ability to achieve the target is subject to the widespread availability of carbon neutral solutions to meet our requirements, including low/zero GHG emission technologies, fuels, goods and services.

BHP