

An aerial photograph of a large industrial port and rail yard. In the foreground, several long trains of dark-colored open-top rail cars are parked on tracks. A large, complex structure of metal beams and cranes is visible in the middle ground, likely used for loading and unloading cargo. In the background, there are large piles of dark material, possibly coal or iron ore, and a body of water with a few ships. The sky is clear and blue.

# BHP

## Port and Rail

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General Manager Rail

5 October 2022

# Disclaimer

## Forward-looking statements

This presentation contains forward-looking statements, including: statements regarding our strategy, our values and how we define success; our expectations of a competitive advantage for our business or certain products; our commitment to generating social value; our commitments under sustainability frameworks, standards and initiatives; our intention to achieve certain sustainability-related targets, goals, milestones and metrics; statements regarding trends in economic outlook; commodity prices and currency exchange rates; demand for commodities; medium-term guidance; production forecasts; operational performance; expectations, plans, strategies and objectives of management; climate scenarios; assumed long-term scenarios; potential global responses to climate change; the potential effect of possible future events on the value of the BHP portfolio; closure or divestment of certain assets, operations or facilities (including associated costs); anticipated production or construction commencement dates; capital expenditure or costs and scheduling; operating costs, including unit cost guidance, and shortages of materials and skilled employees; anticipated productive lives of projects, mines and facilities; provisions and contingent liabilities; and tax and regulatory developments.

Forward-looking statements may be identified by the use of terminology, including, but not limited to, 'guidance', 'outlook', 'prospect', 'target', 'intend', 'aim', 'ambition', 'aspiration', 'goal', 'project', 'anticipate', 'estimate', 'plan', 'believe', 'expect', 'commit', 'may', 'should', 'must', 'will', 'would', 'continue', 'forecast', 'trend', 'annualised' or similar words. These statements discuss future expectations concerning the results of assets or financial conditions, or provide other forward-looking information.

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

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 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; the duration and severity of the Ukraine conflict and the COVID-19 pandemic and their impact on our business; political uncertainty; labour unrest; and other factors identified in the risk factors discussed in section 9.1 of the Operating and Financial Review in the Appendix 4E 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](http://www.sec.gov).

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## Presentation of data

Unless specified otherwise: operations includes operated assets and non-operated assets; total operations refers to the combination of continuing and discontinued operations; continuing operations refers to data presented excluding the impacts of Onshore US from the 2017 financial year onwards and excluding Petroleum from the 2021 financial year onwards; references to Underlying EBITDA margin exclude third party trading activities; data from subsidiaries are shown on a 100 per cent basis and data from equity accounted investments and other operations is presented, with the exception of net operating assets, reflecting BHP's share; medium term refers to our five year plan. Numbers presented may not add up precisely to the totals provided due to rounding. All footnote content (except in the Annexures) is contained on slide 18.

## Non-IFRS information

We use various Non-IFRS information to reflect our underlying performance. For further information please refer to Non-IFRS financial information set out in section 11 of the Operating and Financial Review in the Appendix 4E for the year ended 30 June 2022.

## No offer of securities

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In this release, the terms 'BHP', the 'Company', the 'Group', 'BHP Group', 'our business', 'organisation', 'we', 'us', 'our' and ourselves' refer to BHP Group Limited and, except where the context otherwise requires, our subsidiaries. Refer to note 28 'Subsidiaries' of the Financial Statements in the Appendix 4E for a list of our significant subsidiaries. Those terms do not include non-operated assets. This release covers BHP's functions and assets (including those under exploration, projects in development or execution phases, sites and closed operations) that have been wholly owned and/or operated by BHP or that have been owned as a joint venture<sup>1</sup> operated by BHP (referred to in this release as 'operated assets' or 'operations') during the period from 1 July 2021 to 30 June 2022.

BHP also holds interests in assets that are owned as a joint venture<sup>1</sup> but not operated by BHP (referred to in this release as 'non-operated joint ventures' or 'non-operated assets'). Notwithstanding that this release may include production, financial and other information from non-operated assets, non-operated assets are not included in the BHP Group and, as a result, statements regarding our operations, assets and values apply only to our operated assets unless stated otherwise.

1. References in this release 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..

# Acknowledgement of Country

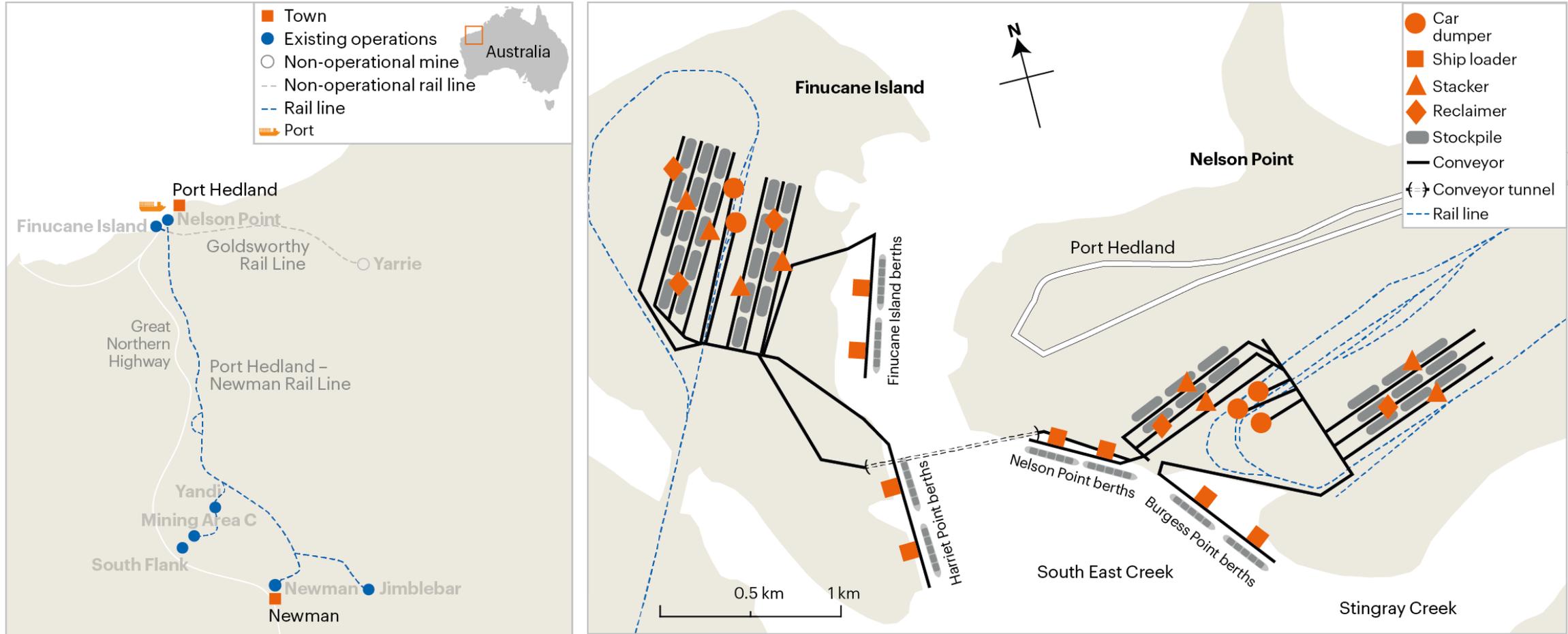


Kariyarra Country  
Port Hedland  
Photo by Matthew Love

**BHP**

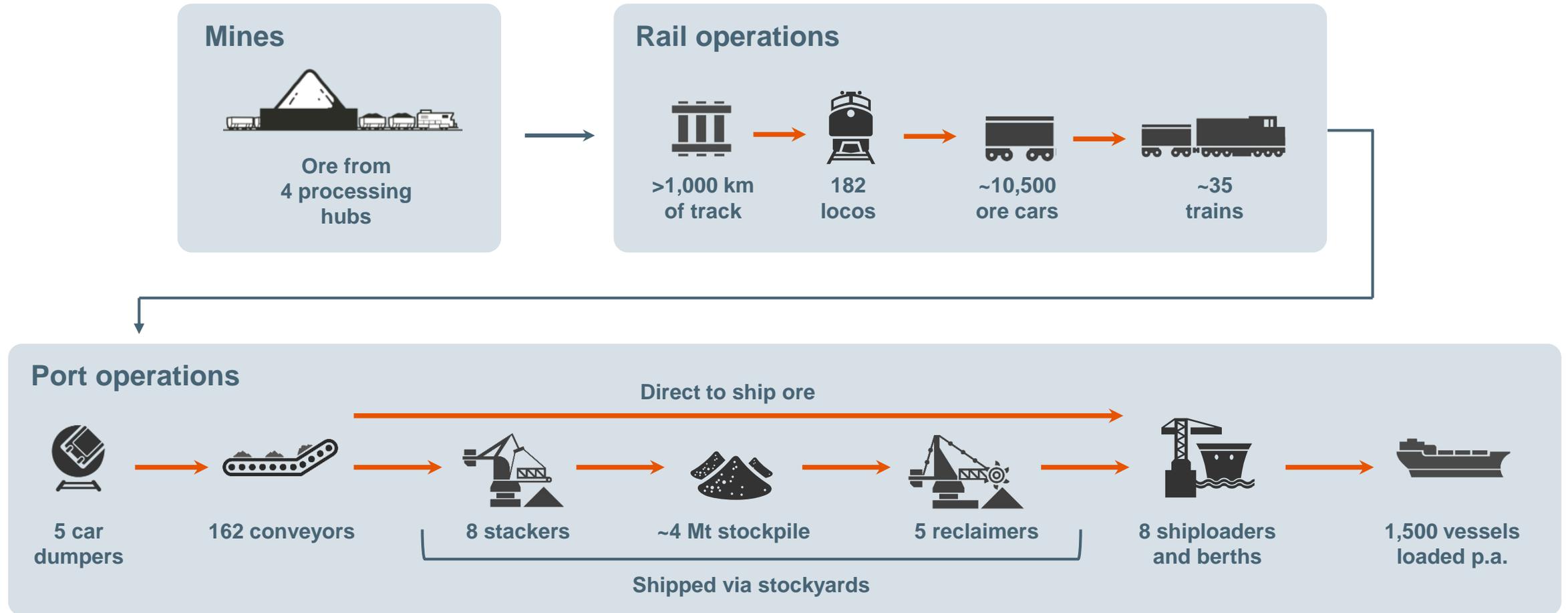
# Mines, rail and port: a connected system

All parts of the value chain must work together



# WAIO: an integrated supply chain

Enabling consistent, reliable supply to market



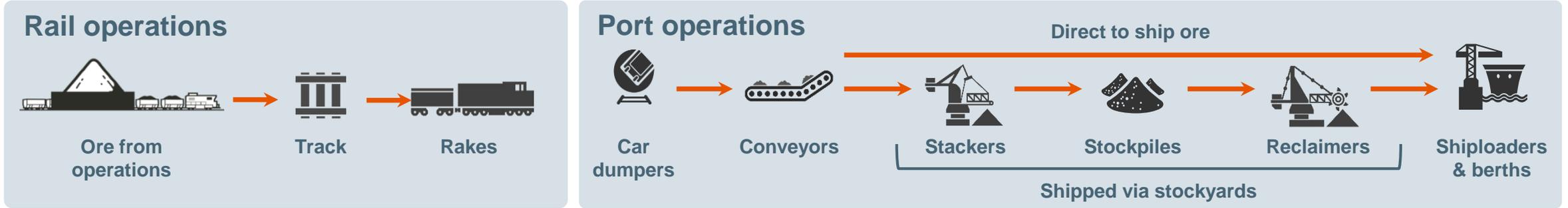
# Creating social value

Our positive contributions to our people, partners, the economy, the environment and local communities

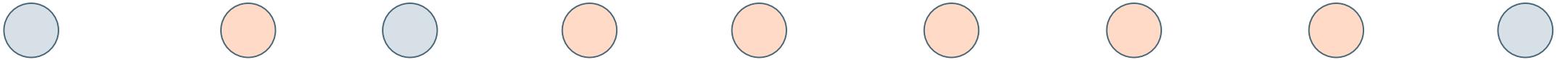
 <b>Decarbonisation</b>	 <b>Healthy environment</b>	 <b>Indigenous partnerships</b>	 <b>Safe, inclusive and future ready workforce</b>	 <b>Thriving, empowered communities</b>	 <b>Responsible supply chains</b>
<b>Reducing carbon emissions from rail and port</b>  Renewable PPA <sup>1</sup> in Port Hedland signed to deliver ~50% reduction in reported port emissions from electricity <sup>2</sup>  Trials for electric trains commencing 2024	<b>Industry leading dust management</b>  Australia-first wind fences  Comprehensive real time dust monitoring network  Vegetation barriers	<b>Working with the Kariyarra Traditional Owners</b>  Contract awards to Traditional Owner businesses  Kariyarra Aboriginal Corporation staff housing and office accommodation support	<b>Rail Train Driver Academy</b>  200 new train drivers over the next three years  Of the 60 recent graduates, >70% are female and 20% are Indigenous	<b>Providing community opportunities with Hedland Collective</b>  Provides opportunities to engage directly with stakeholders  Ensures BHP is aware of emerging issues and can work collaboratively with the community	<b>Supporting ethical, sustainable and transparent supply chains</b>  Working closely with customers, including our partnerships on Scope 3 emissions

# Highly reliable and stable system enabling growth

Disciplined investment to shift the bottleneck to the port over the medium term



Current (284 Mtpa – FY23 guidance mid-point): Tightly coupled supply chain



Mid term (>300 Mtpa): Debottlenecking Port and Rail, enabled by PDP1 and RTP



Studies (330 Mtpa): Additional car dumper and routes to shift system bottleneck to outflow (shiploaders)



● Step in supply chain   
 ● Investment focused on debottlenecking   
 ● Desired notional bottleneck

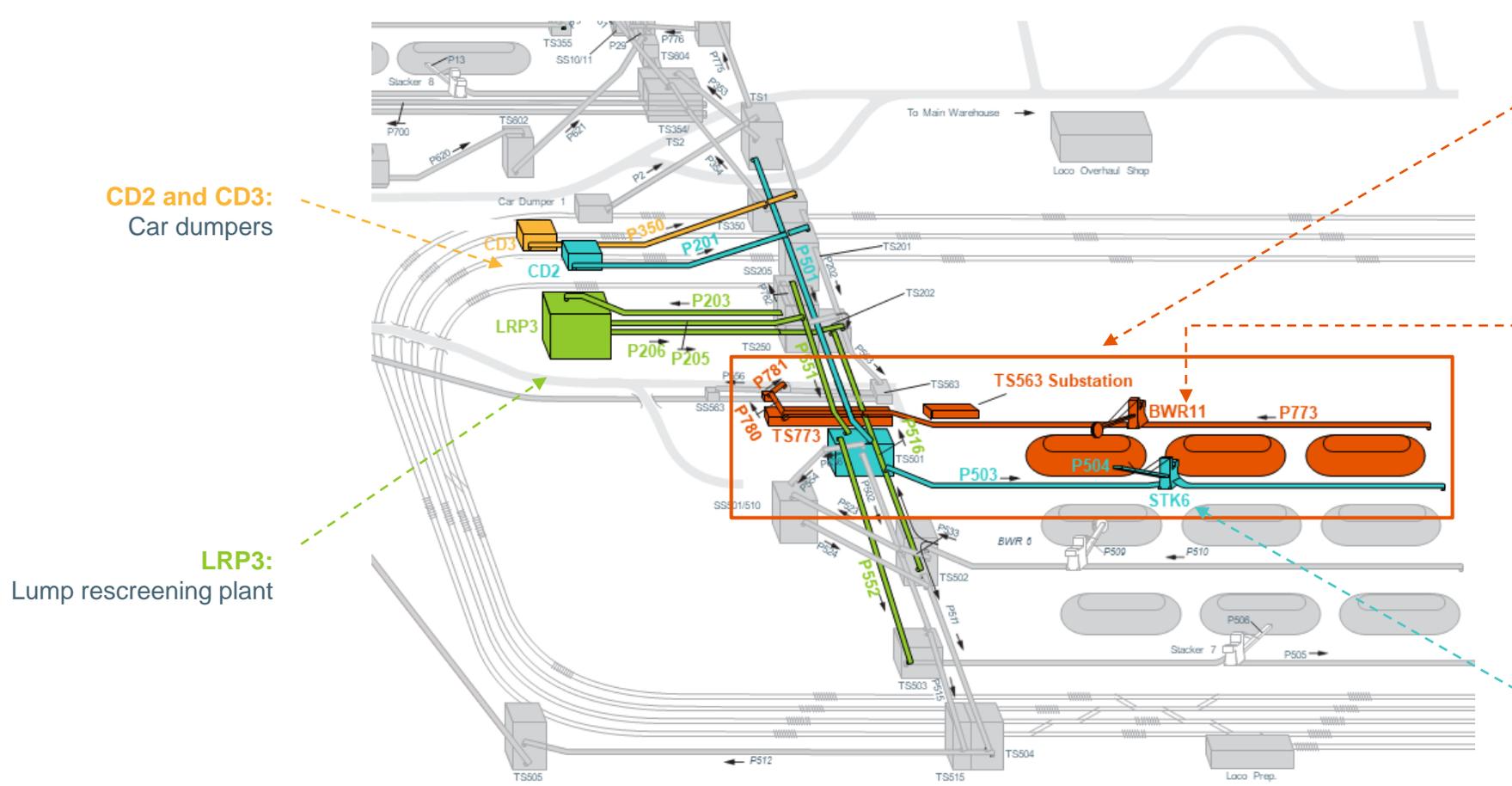
Note: PDP – Port Debottlenecking Project; RTP – Rail Technology Project.

Western Australia Iron Ore site tour

5 October 2022

# Port Debottlenecking Project 1 to uplift port capacity

Investment to support > 300Mtpa throughput; expected completion in 2024



CD2 and CD3:  
Car dumpers

LRP3:  
Lump rescreening plant



**PDP1:**  
Extension of South Yard  
and new infrastructure



**BWR11 (Reclaimer 11):**  
Installation of new Bucket  
Wheel Reclaimer



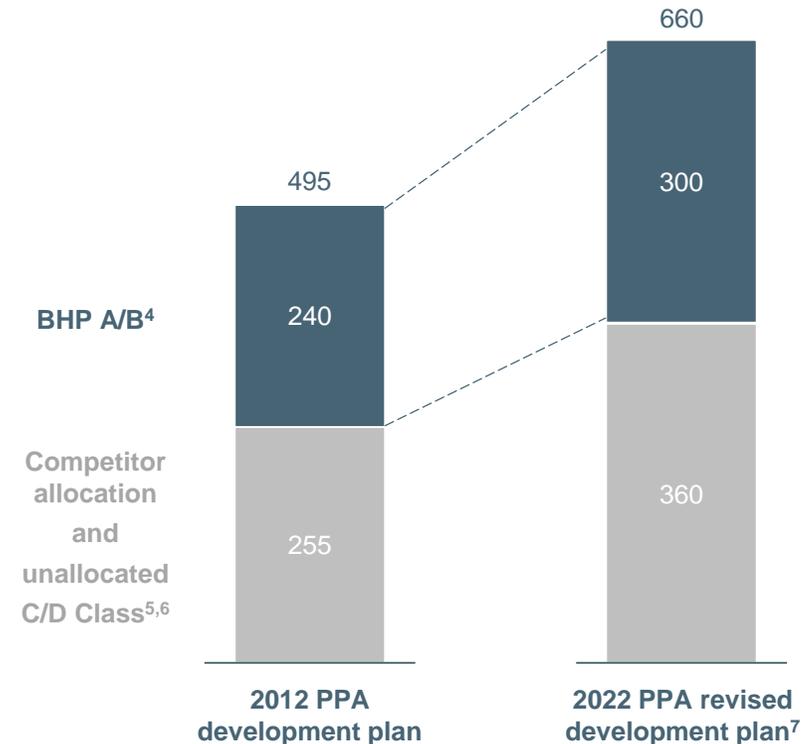
**STK6:**  
Stacker 6 upgrades

# Port Hedland channel capacity supports 330 Mtpa option

## Port capacity secured to enable growth plans

- Pilbara Ports Authority (PPA) review enables growth of iron ore exports to 660 Mtpa through Port Hedland
  - represents a 33% increase to modelled capacity since last port plan review in 2012
  - the amended port development plan facilitates increased capacity allocations of ~25% for existing port proponents, including BHP
  - the additional priority capacity allocation provides further certainty for BHP's 330 Mtpa growth plans through unallocated contestable capacity (class D)
- Studying options for growth to 330 Mtpa<sup>3</sup>
  - studies expected to be completed in FY25
  - will likely require an additional car dumper, routes and yard expansion

**Port Hedland channel capacity**  
(Port capacity allocation by class, Mtpa)



# Improving Port and Rail everyday

Enabling uplift in performance through four key areas

## BHP Operating System

Improved delivery of value initiatives

Reducing TSRs in the system bottleneck

## Technology and automation

Enabling increased capacity

RTP moving block technology  
Ship loader automation

## MECoE

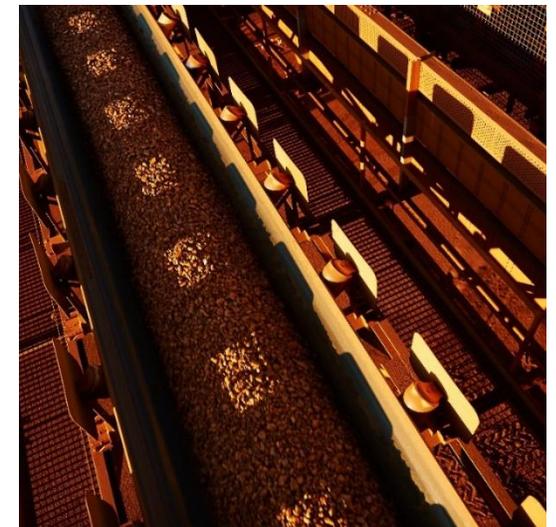
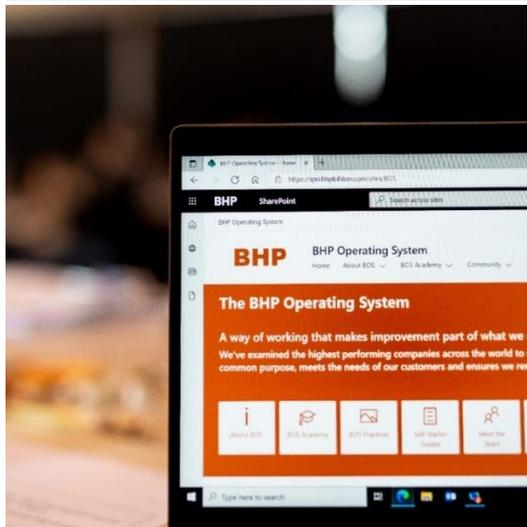
Standardising maintenance planning and scheduling

Major car dumper maintenance campaign

## Operations Services

Maintenance safety, mastery and productivity

Port conveyor deployment



Note: MECoE – Maintenance Engineering Centre of Excellence, TSR – Track Speed Restrictions, RTP – Rail Technology Project.

Western Australia Iron Ore site tour  
5 October 2022

# BHP Operating System in action

## Improving Track Speed Restrictions (TSRs)

### Track speed restrictions applied



- Targeted increase in tamping and grinding improved track surface and reduce the TSR time impact per cycle



Introduced routines to investigate defects and implement measures to prevent recurrence



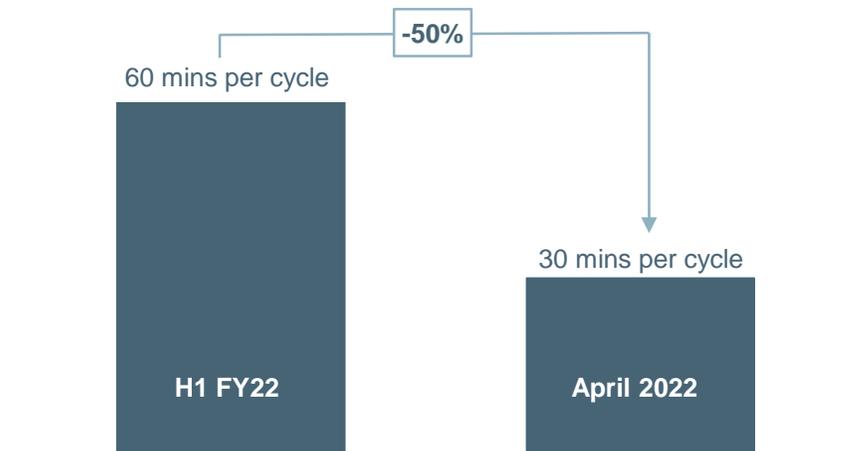
Enabled team ownership to remove TSRs at the root level



Expedited support process for TSR removal by restructuring teams, maintenance activities and overall strategy



+1.2 Mtpa supply chain capacity improvement



# Moving block technology to increase railway capability

Successful delivery of Rail Technology Programme (RTP) will improve communications and signalling

TODAY

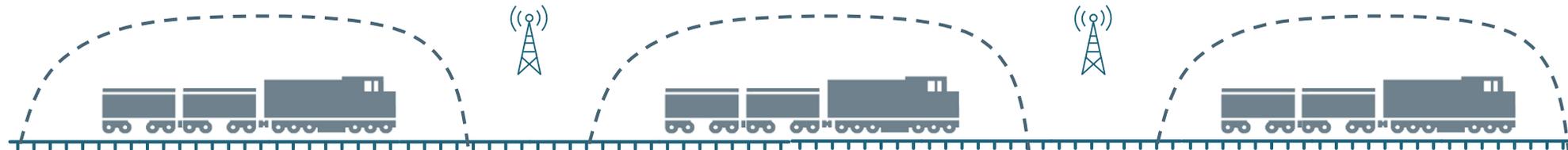
## BHP's current fixed Block signalling system



- Train separation dictated by track sections, which are ~8 km long
- Only one train per track section
- Train location is unknown within the track section

FUTURE

## BHP's future moving block signalling system



- Movement authorities are dynamic, with separation based on braking curves (plus safety margins) to allow distance between trains to be reduced
- Exact location of equipped rail mounted vehicle (RMV) is known based on communication signals



Improved safety



Increase in rail capability



Reduced variability



Platform for railway automation

# Automated ship loader technology

Building autonomy into the way we work



## 3D laser technology

Provides real time collision information and generates a precise 3D ship model



## June 2022

Testing of 2 new ship loaders



## 8 automated ship loaders

To be implemented by end CY23



## A\$50m invested

Targeted investments at our bottlenecks



## 1 Mt production uplift

Enables production increase



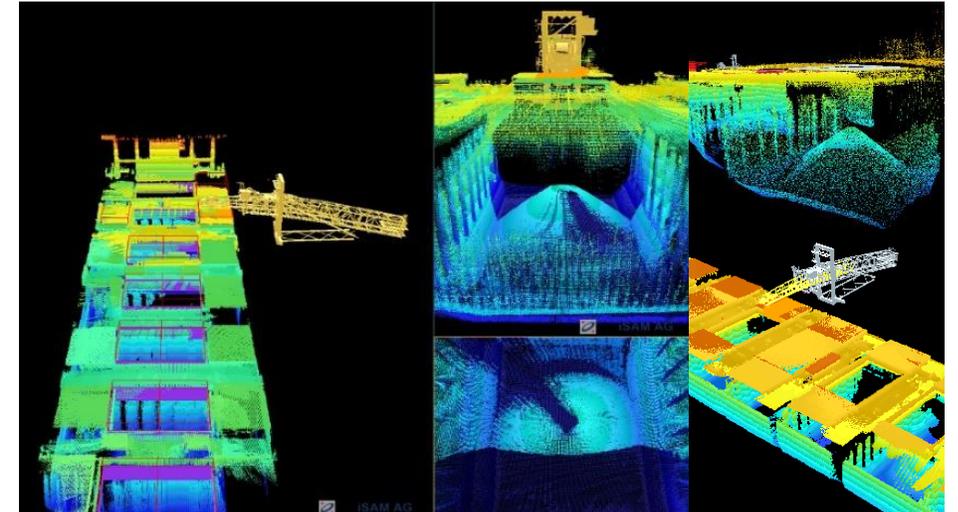
## Integrated Remote Operations Centre (IROC)

Once transitioned to fully automated, they will be operated by the IROC in Perth



## Safety improvement

Removing people from the line of fire



**3D laser scan**  
Visualisation of cargo distribution

# MECoE and BOS in action

Realising value through the major car dumper maintenance campaign

## Enabled by:

### Standardised maintenance practices

- Improved preventative maintenance strategies
- Larger shuts reduce failure modes and unscheduled equipment downtime
- Condition monitoring embedded in equipment strategies

### Ways of working

- Updated maintenance and operating philosophy
- BOS routines with a focus on embedding improvement

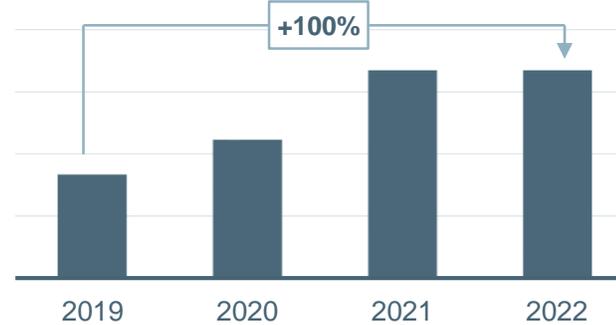
## Improvement in action:

### Port car dumper 1 apron feeder

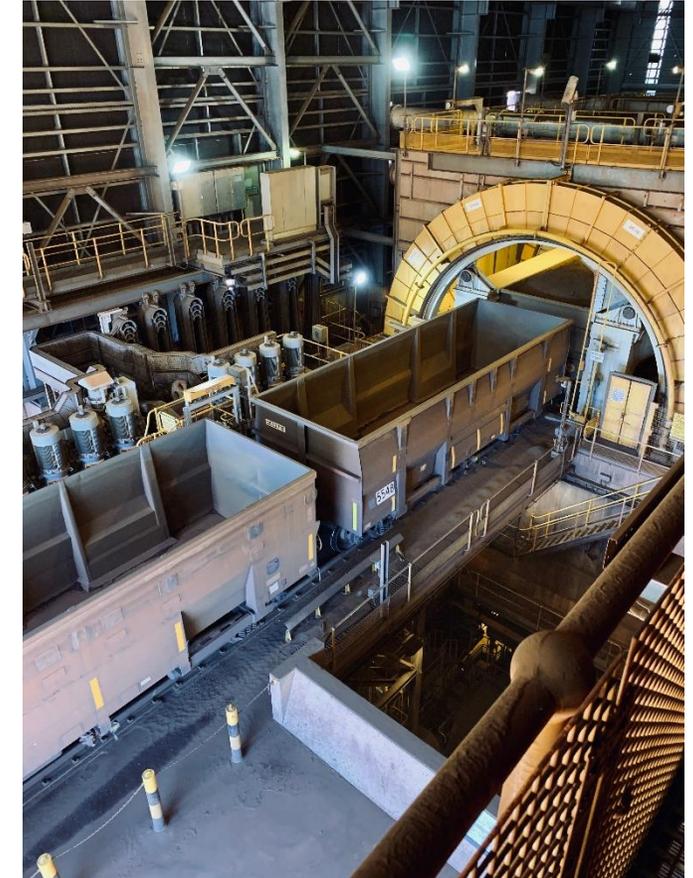
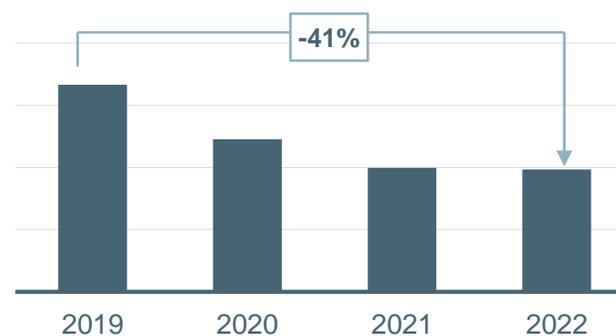
- Change from tail to head driven feeder
- Improvement embedded during major shut
- 1.6Mt local capacity uplift

## With visible results...

### Mean Time between Failure (MTBF)



### Unscheduled Equipment Downtime



# Operations Services in action

Port Hedland conveyor deployment – safe, consistent delivery the key to reliable performance

## BHP Operations Services (OS)

- Production and maintenance workforce
- Personnel deployed across minerals Australia
- Shift to a more permanent workforce
- Deployed across our five mines and port operations
- ~1,300 FTEs to be deployed across WAIO

## What do these improvements enable?

- Reducing manual handling on conveyor roller change outs by **~25%** through continuous improvement
- Improving safety performance – recordable injury reduction of **25%<sup>8</sup>**
- Enabling diversity by making tasks more accessible for all employees and contractors



Lightweight drop bottom bins



Lightweight rollers



Lightweight chute backing plate



Wharf roller trolley

# What you will be seeing today...

An integrated and efficient port and rail system

Harbour



Car dumper



Ship loader



**BHP**

# Footnotes

1. Slide 6: PPA – Power Purchase Agreement.
2. Slide 6: Based on current forecast and compared with FY20.
3. Slide 9: Regulatory approval to increase capacity to 330 Mtpa is subject to the outcomes of a standard appeals processes.
4. Slide 9: A and B class refers to tidally constrained cape size vessels, with priority sailing rights over other vessels, noting A class has priority over B class.
5. Slide 9: C class means non-tidally constrained vessels for general purpose and public access berths. C class has priority over D at all tides, but lower priority rights than A and B class.
6. Slide 9: D class means vessel used to load any excess iron ore beyond a proponents allocated capacity. These vessels have the lowest priority sailing rights of the four classes, and are accessed on a competitive basis. FY22 update includes future allocation for Stanley Point Berth 3.
7. Slide 9: Development plan allocations based on 25% increase from 2012 development plan as stated by Pilbara Port Authority.
8. Slide 15: Recordable injury rate: Port conveyor maintenance rolling 12-month TRIFR Aug-21 v Aug-22.

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