

A woman wearing a white hard hat with a headlamp and safety glasses, looking off to the side. She is wearing an orange work shirt with 'BHP' and 'KingGee' logos. The background is a blurred mining site.

# BHP

## Positioned for the future

Eddy Haegel, Asset President Nickel West

3 August 2021

Shania Kelly, Tjiwarl Native Title Holder  
Mt Keith Operation

# Disclaimer

## Forward-looking statements

This presentation contains forward-looking statements, including statements regarding: trends in commodity prices and currency exchange rates; demand for commodities; production forecasts; plans, strategies and objectives of management; 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 costs and scheduling; operating costs and shortages of materials and skilled employees; anticipated productive lives of projects, mines and facilities; provisions and contingent liabilities; and tax and regulatory developments.

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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, petroleum and/or metals extracted to applicable markets; the impact of foreign currency exchange rates on the market prices of the minerals, petroleum 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 COVID-19 pandemic and its impact on our business; political uncertainty; labour unrest; and other factors identified in the risk factors discussed in 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

Numbers presented may not add up precisely to the totals provided due to rounding. All footnote content is contained on slide 14.

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In this presentation, the terms 'BHP', the 'Company', the 'Group', 'our business', 'organization', 'Group', 'we', 'us' and 'our' refer to BHP Group Limited, BHP Group Plc and, except where the context otherwise requires, their respective subsidiaries set out in note 13 'Related undertaking of the Group' in section 5.2 of BHP's Annual Report and Form 20-F. Those terms do not include non-operated assets. This presentation includes references to BHP's assets (including those under exploration, projects in development or execution phases, sites and closed operations) that have been wholly owned and/or operated by BHP and that have been owned as a joint venture operated by BHP (referred to as 'operated assets' or 'operations') during the period from 1 July 2020 to 31 December 2020. Our functions are also included.

BHP also holds interests in assets that are owned as a joint venture but not operated by BHP (referred to in this release as 'non-operated joint ventures' or 'non-operated assets'). Our non-operated assets include Antamina, Cerrejón, Samarco, Atlantis, Mad Dog, Bass Strait and North West Shelf. Notwithstanding that this presentation may include production, financial and other information from non-operated assets, non-operated assets are not included in the Group and, as a result, statements regarding our operations, assets and values apply only to our operated assets unless otherwise stated. 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.

# Electrification is a firmly entrenched trend

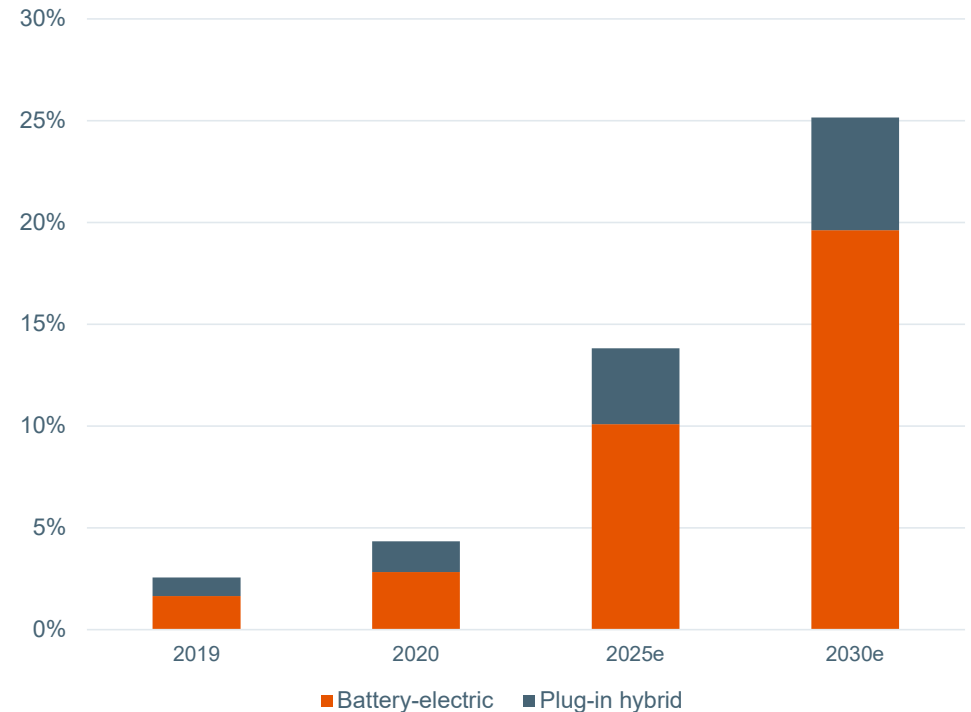
1 in 4 light-duty vehicles sold in 2030 will be electric

- 2020 was an inflection point for EVs – 3.2m units sold globally, up 44% from 2.2m units in 2019 and representing 4.3% of all light-duty vehicle (LDV) sales
- EVs are expected to make a quarter of all LDV sales globally by 2030, with leaders like Europe seeing penetration rates in excess of 40%
- Sales are being driven by increasing number of EV models on the market, policy support from governments, expanding charging infrastructure and shifting consumer preferences

Note: EV - Electric Vehicles

Eddy Haegel, Asset President Nickel West  
3 August 2021

Global Light Duty Vehicle (LDV) sales: EV penetration rate (EV light vehicle sales, per cent)



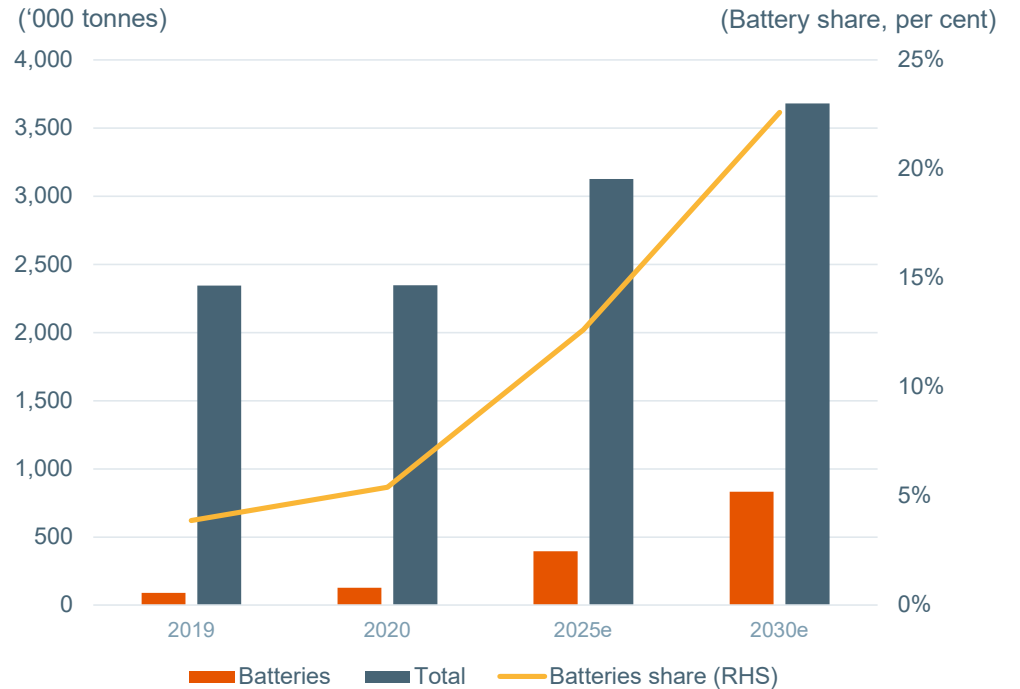
Source: BHP analysis

# Nickel demand from batteries to grow

We anticipate demand for nickel-in-batteries will grow by over 500% in the next decade

- Primary nickel demand expected to grow by 1,300 kt in the next decade
- Today, Nickel makes up ~80% of metals in lithium-ion battery cathodes like NMC811
- Primary nickel demand from batteries expected to rise by ~700 kt in the next decade
- Lithium iron phosphate (LFP) batteries expected to take market share in the small car segment, especially in China - but they have limited performance and range compared to nickel-based cathodes

## Global primary nickel demand and battery demand



Compound Annual Growth Rate (CAGR), 2020-2030

~21%

~5%

# Nickel West sales to the battery segment reach 85%

Our transition to the electric vehicle supply chain is almost complete

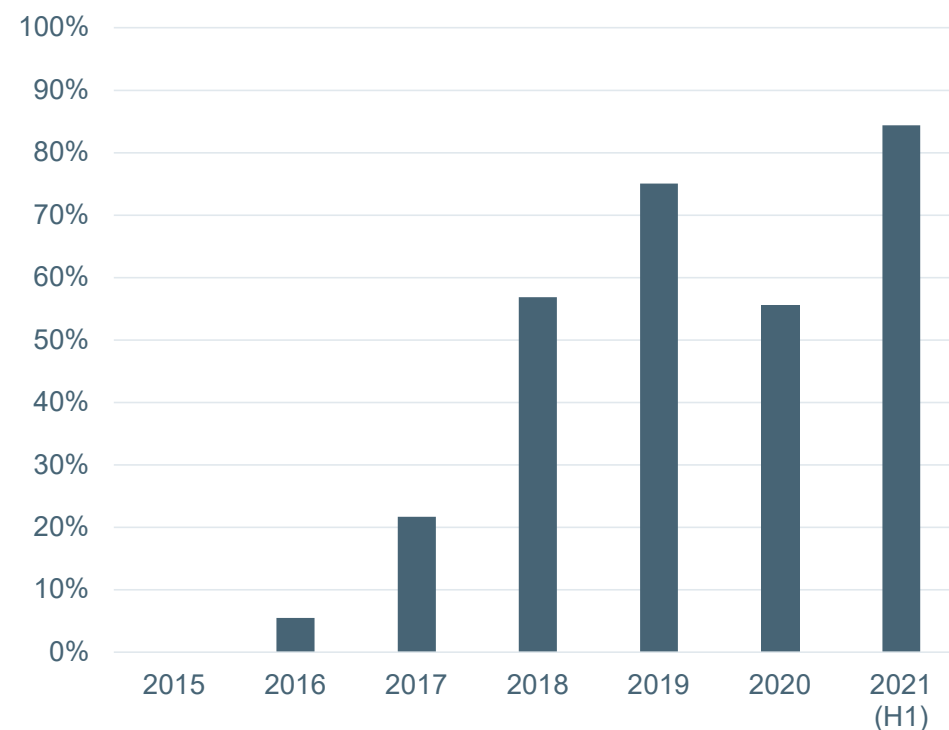
## Future facing commodities like nickel are critical for the energy transition

- We now sell 85% of our nickel metal to the electric vehicle supply chain - precursor, cathode active material, battery producers and OEMs
- Expect increasing sales to the battery segment in the coming years as demand for EVs grow in Asia, Europe and North America
- The continued growth in battery demand supports our ambition to be world's leading supplier of battery grade nickel

## Customers around the world are focused on improving sustainability in the battery chain

- We are working with key end users across the supply chain that not only value our product, but also share our commitment to sustainability and supply chain transparency

## Battery segment exposure (Nickel metal sold, per cent)



Source: BHP

# Electric car makers value low emission nickel suppliers

Nickel West is already one of the most sustainable nickel producer in the world, and we are doing much more

## Solar purchase agreements

- Announced in Feb 2021 an agreement to purchase 20MW of power from the Merredin Solar Farm
- Announcing today – a further 30MW of solar power from the Merredin Solar Farm – directed to the Kwinana Nickel Refinery; and Kalgoorlie Nickel Smelter

## Partnering to build new solar farms

- We have contracted with Transalta to build a 27.4 MW solar farm at Mt Keith and a 10.7 MW solar farm and 10.1 MW battery at Leinster, to power our mines and concentrators

## Further options

- We are in discussions on wind farm developments for the northern Goldfields and southern network
- Electric vehicles underground – Toyota LV and Normet charge wagon

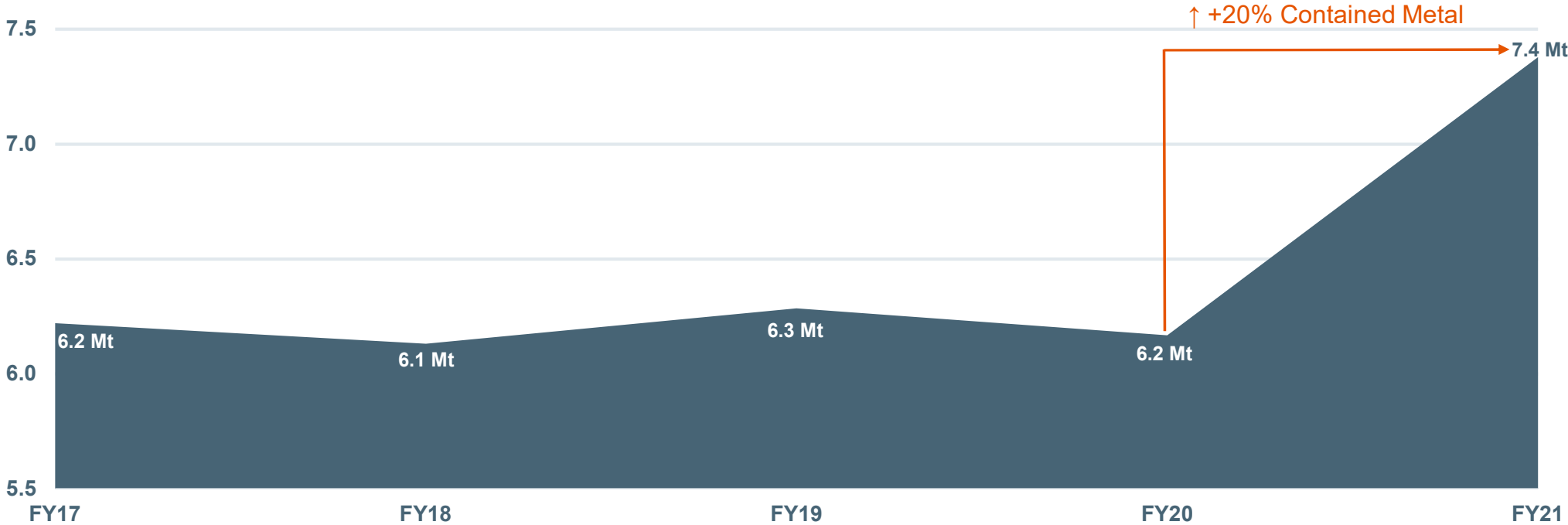


Merredin Solar Farm, Western Australia

# We are growing our resource base to meet demand

Honeymoon Well and Albion Downs acquisition increased our Mineral Resources by 20% for contained Nickel metal

## Nickel West Mineral Resources (Contained Metal, Ni Mt)



Note: Refer to disclaimer on slide 2 and detailed tables for Nickel West Mineral Resources in the Appendix slide 13.



# Growing our equity nickel production

We are increasing equity nickel with new mines and technology

## We are growing Mt Keith

- We are expanding the Mt Keith Concentrator from 10.5 Mtpa to 15 mtpa by installing a 16MW SAG and modernising the flotation circuit
- Yakabindie (Goliath and 6 Mile Well pits) are at full production
- We start Stage I in the Mt Keith pit in September 2022

## We are debottlenecking the Leinster Concentrator

- Venus Underground Mine is now in full production
- Leinster B11 is progressing the undercut phase with full production in 2023
- Cliffs life has been extended to 2024 and could go longer
- Honeymoon Well study is progressing



Third SAG mill ordered for Mt Keith



# Technology will unlock our future ore bodies

## A smelter to enable growth without constraints

### Studies are progressing on the furnace rebuild

- Concept studies complete
- Pilot testing for TSL and DON Flash is underway in Australia, Finland and Germany

### Additional oxygen supply supports throughput and emissions

- First of up to three new modular oxygen plants under construction for start-up in FY22
- Allows for sustained operations at reduced Fe:MgO on current furnace
- Supports additional capture of SO<sub>2</sub> via unlocked capacity in recently upgraded mist precipitators

### Kambalda Nickel Concentrator (mill) expected to start up in March quarter

- As nickel mining restarts in the region



Our smelter will be built for the future

# Kwinana Nickel Sulphate Plant has started

**BHP's nickel sulphate plant in Kwinana is an Australian first**

## Nickel Sulphate plant nearing completion

- Currently in commissioning. Production has commenced with tankage being filled
- First crystals to customers for product testing in the September quarter

## Stage 1 remains one of the world's largest

- Nickel Sulphate Plant will exceed 100 ktpa with Kwinana Nickel Refinery now able to produce finer powder
- A second pilot proves that hydrogen peroxide increases production

## Growing EV trajectory

- Nickel Sulphate premiums are strong



Nickel Sulphate Plant, Kwinana

# We are positioned for the future

Nickel West is a sustainable, world-class nickel asset, with opportunities to grow



We anticipate demand for nickel-in-batteries will grow by over 500% in the next decade

Electric car makers value low emission nickel suppliers, like Nickel West

We are creating future growth optionality through debottlenecking, process innovation and exploration

We have the foundations to create a BHP-scale, future-facing business

We are becoming a globally significant supplier to the battery sector

Eddy Haegel, Asset President Nickel West  
3 August 2021

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# Competent Person Statement – Mineral Resources

## Nickel West Mineral Resources Competent Person Statement

The information in this slide relates to Nickel West Mineral Resources as at 30 June 2021. Mineral Resources are inclusive of Ore Reserves and is based on information compiled by Richard Finch and Marcus Hope, Competent Persons for all declared Mineral Resources. The information in this presentation that relates to the FY2017 to FY2020 Mineral Resources were first reported by the Company in compliance with the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012' ('The JORC Code 2012 Edition') in the 2017, 2018, 2019 and 2020 BHP Annual Reports. All reports are available to view on www.bhp.com.

R. Finch and M. Hope are current Members of the Australasian Institute of Mining and Metallurgy (MAusIMM) and are full-time employees of BHP. R. Finch and M. Hope have sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as Competent Persons as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code)'. R. Finch and M. Hope both own shares in BHP and are entitled to participate in employee share holding plans. R. Finch and M. Hope consent to the inclusion in the presentation of the matters based on their information in the form and context in which it appears.

Mineral Resources as presented are reported in 100 per cent terms. Dry tonnages are reported and all tonnage and quality information has been rounded, hence small differences may be present in the totals. Total contained nickel metal is presented in the table below as kilotonnes (kt). No metallurgical recovery has been applied to the calculation of contained nickel metal. Mineral Resources classification is applied based on mineralisation type, geological understanding and an assessment of reasonable prospects for eventual economic extraction.

## Nickel West Mineral Resources as at 30 June 2021

Deposit	Ore Type	Cut-Off	Measured Resources		Indicated Resources		Inferred Resources		Total Resources			BHP Interest (%)
			Tonnes (Mt)	% Ni	Tonnes (Mt)	% Ni	Tonnes (Mt)	% Ni	Tonnes (Mt)	% Ni	Contained Metal (Ni kt)	
Leinster	OC Disseminated Sulphide	≥ 0.40%Ni	4.1	0.72	77	0.58	52	0.64	133	0.60	798	100
	OC Massive Sulphide	Stratigraphic	0.25	4.4	1.0	4.9	0.37	4.7	1.6	4.8	77	100
	UG Disseminated Sulphide	Variable between stratigraphic for block cave and ≥1.0% Ni	15	1.9	10	1.3	3.2	1.2	28	1.6	448	100
	UG Massive Sulphide	Stratigraphic	0.63	4.5	2.4	4.9	1.1	4.1	4.2	4.6	193	100
	Oxide	≥ 1.2%Ni	-	-	-	-	5.2	1.8	5.2	1.8	94	100
	SP	N/A	-	-	1.5	0.76	-	-	1.5	0.76	11	100
Mt Keith	OC Disseminated Sulphide	Variable between 0.35%Ni and 0.40%Ni	133	0.54	67	0.52	24	0.52	224	0.53	1,187	100
	SP	N/A	3.6	0.49	-	-	-	-	3.6	0.49	18	100
Cliffs	UG Disseminated Sulphide	≥ 0.40%Ni	-	-	6.3	0.86	1.6	1.0	7.9	0.89	70	100
	UG Massive Sulphide	Stratigraphic	0.79	3.6	1.1	3.6	0.47	3.6	2.3	3.6	83	100
Yakabindie	OC Disseminated Sulphide	≥ 0.35%Ni	137	0.59	107	0.62	170	0.61	414	0.61	2,525	100
	SP	N/A	2.1	0.59	-	-	-	-	2.1	0.59	12	100
Venus	UG Disseminated Sulphide	≥ 0.40%Ni	1.2	1.5	5.4	1.8	1.1	1.1	7.7	1.7	131	100
	UG Massive Sulphide	Stratigraphic	0.11	6.0	0.7	6.4	0.35	6.2	1.2	6.3	76	100
Nickel West Projects												
Honeymoon Well <sup>1 2</sup>	OC Disseminated Sulphide	≥ 0.35%Ni	-	-	138	0.62	6.5	0.66	144	0.62	893	100
	UG Disseminated Sulphide	≥ 0.40%Ni	9.1	0.72	18	0.75	3.8	0.74	31	0.74	229	100
	UG Massive Sulphide	Stratigraphic	0.35	6.0	0.92	6.4	0.17	6.6	1.4	6.3	88	100
Jericho <sup>1</sup>	OC Disseminated Sulphide	≥ 0.40%Ni	-	-	-	-	31	0.59	31	0.59	183	100
West Jordan <sup>1</sup>	OC Disseminated Sulphide	≥ 0.40%Ni	-	-	-	-	43	0.52	43	0.52	224	100

## Nickel West Historical Mineral Resources (contained Nickel metal)

Financial Year	Measured Resources	Indicated Resources	Inferred Resources	Total Resources	BHP Interest %
2017	316Mt @ 0.67% Ni for 2,103kt Ni Metal	303Mt @ 0.62% Ni for 1,864kt Ni Metal	340Mt @ 0.66% Ni for 2,254kt Ni Metal	958Mt @ 0.65% Ni for 6,221kt Ni Metal	99
2018	331Mt @ 0.66% Ni for 2,168kt Ni Metal	274Mt @ 0.63% Ni for 1,732kt Ni Metal	337Mt @ 0.66% Ni for 2,232kt Ni Metal	941Mt @ 0.65% Ni for 6,131kt Ni Metal	99
2019	322Mt @ 0.67% Ni for 2,146kt Ni Metal	282Mt @ 0.69% Ni for 1,947kt Ni Metal	335Mt @ 0.65% Ni for 2,192kt Ni Metal	939Mt @ 0.67% Ni for 6,285kt Ni Metal	99
2020	312Mt @ 0.66% Ni for 2,060kt Ni Metal	287Mt @ 0.70% Ni for 2,008kt Ni Metal	328Mt @ 0.64% Ni for 2,100kt Ni Metal	926Mt @ 0.67% Ni for 6,168kt Ni Metal	99
2021	307Mt @ 0.67% Ni for 2,050kt Ni Metal	436Mt @ 0.70% Ni for 3,052kt Ni Metal	346Mt @ 0.66% Ni for 2,277kt Ni Metal	1,089Mt @ 0.68% Ni for 7,378kt Ni Metal	100

(1) Change of ownership of Jericho from 50% to 100% and first-time reporting of Mineral Resources for Honeymoon Well and West Jordan deposits follows acquisition of these deposits during FY2021.

(2) The Honeymoon Well project is comprised of the Wedgetail (UG Massive Sulphide & UG Disseminated Sulphide), Corella, Hannibals and Harrier deposits (OC Disseminated Sulphide).