BHP submission to Australia's Critical Minerals Strategy Discussion Paper 2023

Executive Summary

BHP welcomes the opportunity to provide feedback on the Department of Industry, Science and Resources' (DISR) Discussion Paper on Australia's new Critical Minerals Strategy.

Metals and minerals are essential for the functioning of the global economy and continued prosperity. Certain of these will also play a particularly essential role in the global transition to a low greenhouse gas emission economy and given both the economic opportunity this presents as well as the strategic nature of securing their supply chains, there is significant interest being shown by key nations globally to attract investment into the mining and processing of these critical minerals. The United States, Canada, the European Union, Japan and the Kingdom of Saudi Arabia, amongst other resource-rich nations, are implementing favourable policies and engaging in outreach to attract this investment.

As the world's leading mining nation, and with further potential yet to be unlocked in critical minerals, Australia should be in an advantaged position to benefit from the rapidly growing demand for critical minerals. Capitalising on this opportunity would help to offset the economic challenges that otherwise exist on the horizon as the global energy transition and the continued evolution of the Chinese economy weigh on the long-term outlook for other current key exports that currently support the Australian economy and high living standards.

Notwithstanding what should be a strong starting advantage, Australia is currently at high risk of falling behind the curve and ceding this advantage to other competitor nations, due to a decline in relative competitiveness. Australia has a higher burden when it comes to taxes and royalties, restrictive industrial relations policies that do not support high productivity and lengthy and uncertain approval times which increase the risk and cost of holding and exercising investment options. Australia must take bold steps now to boost or reclaim its competitiveness on multiple fronts and in ways which both enable it to take advantage of the demand for critical minerals and to widen the export base of the nation. Australia's heavy reliance on exports for national prosperity given the very small domestic economy, means that competitiveness matters even more.

As the government considers feedback on Australia's new Critical Minerals Strategy, it should recognise the vital importance of investing in the infrastructure, skills and capabilities that could enable Australia to capture high-value segments of the critical minerals value chain. In our view, investing in, and incentivising the success of, Australia's copper, nickel and uranium industries must be considered as a platform for Australia's critical minerals sector to meet the growing global demand for these commodities.

In the sections below, we first provide a brief overview of BHP. We then detail: how we are positioning ourselves to meet the demand for commodities associated with the energy transition; what other countries around the world are doing to position themselves at the heart of the emerging supply chains for critical minerals; and our views on how Australia can compete in this fierce international contest.

About BHP

At BHP, our purpose is to bring people and resources together to build a better world. We have an extensive presence in Australia and are proud of the contribution we make to Australian society. We have around 50,000 employees and contractors across the country and our total economic contribution in Australia was A$79.3 billion in FY2022.

Of this we paid A$16.5 billion to Australian suppliers, A$39.5 billion in dividend payments, A$106m in community contributions and A$4.6 billion in payments to employees. Total payment to governments was A$18.5bn in taxes and royalties, which equates to close to 10% of Australia's corporate tax contributions in FY22.[1]

Around 70 per cent of Australians benefit directly from BHP's dividends and share price, with one in 10 Australian families holding BHP shares directly, and around 17 million Australians – almost two thirds of the country's population – holding accounts with super funds invested in BHP.

[1] Economic contribution report 2022| BHP

BHP produces essential resources the world needs to decarbonise and develop sustainably. Copper for the expanded electricity networks critical to the energy transition. Nickel for the batteries to store renewable energy and power electric vehicles (EVs). Uranium as an important source of reliable and zero emissions energy around the world. Higher-quality iron ore and metallurgical coal for steel needed to build our cities and create new infrastructure, such as fast trains and wind turbines.

BHP and future commodity needs

The increase in the need for commodities to support the world's decarbonisation ambition will be immense. Based on portfolio analysis BHP published in 2020 under the assumptions of a 1.5-degree scenario:

- Mined nickel production would have to increase nearly four-fold over the next 30 years, relative to the last 30;
- Mined copper and uranium production would have to double;
- The world would need almost twice as much steel in the next 30 years as it did in the last 30, partly to build decarbonisation infrastructure such as wind turbines.

World Bank analysis[2] of the mineral intensity of low-carbon energy technology illustrates the close link between nickel and copper and the broader array of critical minerals. Of the ten technologies assessed that require various types of critical minerals, copper is essential to all ten technologies and nickel to nine of them. Meeting the future demand for copper and nickel will be essential to enable the energy transition to drive the growth of demand for critical minerals. Emerging competitors such as Indonesia's efforts to boost nickel production recognise the importance of this.

In the face of disruptions to global energy supply chains, the stability of uranium supply has become increasingly important to strategic partners for whom nuclear energy forms a key part of their decarbonised energy supply.

At BHP we are working hard to grow our exposure to future-facing commodities. Globally we have the largest copper endowment of any company and the second largest nickel sulphide resource base. We have already developed large downstream infrastructure in Australia as we are beneficiating and processing copper and nickel locally and selling finished nickel and copper to customers globally. Our resource base offers plenty of organic growth options. We are accelerating studies to unlock these to help offset the predicted gap noted by government in the brief for this response. Some of the things we are looking at include:

Copper:

- We are studying two-stage smelting at Olympic Dam and progressing drilling at our Oak Dam discovery – both in South Australia – and have accelerated studies to unlock resources at our Escondida copper mine in Chile, including concentrator strategy and leaching opportunities.
- We have signed an A$9.6 billion Scheme Implementation Deed with OZ Minerals Ltd to acquire 100 per cent of OZL to consolidate the copper mining province in South Australia's Gawler Craton region, where OZ's Carrapateena and Prominent Hill mines are located either side of BHP's Olympic Dam, as well as OZ's planned nickel, copper and cobalt mine at West Musgrave in Western Australia. If completed, this transaction would create a significant South Australian copper basin.

Nickel

- The demand for high-quality nickel will surge as the trend towards EVs increases – a key component used in their batteries.
- Nickel West is our fully integrated mine-to-market business with all its operations (open-cut and underground mines, concentrators, a smelter, and a refinery) in various locations across Western Australia. The integrated business adds value for the nickel supply chain, with most of Nickel West's current production sold as powder and briquettes to the growing EV industry.
- Australia's first nickel sulphate plant commenced operation in October 2021. As the first of its kind in Australia, it will produce enough premium nickel sulphate to make 700,000 electric vehicle batteries each year.

[2] Climate-Smart Mining: Minerals for Climate Action (worldbank.org)

- BHP has signed supply agreements with OEMs and car manufacturers such as Tesla, which are exploring ways to make battery supply chains more sustainable and efficient, including opportunities for further alignment on best practice and raising Environmental, social, and governance (ESG) performance transparency.
- We have increased exploration spend for the next two years at Nickel West in Western Australia, with plans to spend more than A$140 million on brownfield exploration in the next two years in the Agnew-Wiluna Belt, host to the world's 2nd largest current nickel sulphide resource, that has potential for further discoveries.

Uranium

- More uranium will be required in a world where nuclear power plays an important role in delivering decarbonisation and energy security. Many jurisdictions, including Europe and the United States, are exploring alternative energy sources to combat the energy crisis and provide surety for supply chains.
- The United States has allocated US$9 billion for demonstration projects that could support the development of advanced nuclear reactors and US$6 billion for a civil nuclear credit program through the *Infrastructure Investment and Jobs Act* (IIJA). The US's *Nuclear Energy Innovations Capabilities Act* was designed to speed up the process of getting advanced reactors to market, establishing an advanced nuclear energy licensing cost-share grant program between industry and the federal government.
- Japan has recently announced it will cooperate with the United States in developing the next generation of advanced light water reactions and small modular reactors. Canada's government has taken an additional leap forward, making its first C$970 million commitment to developing a small modular reactor in October 2022. In Europe, Sweden and Finland are exploring nuclear expansions, while Germany has extended the life of its remaining nuclear reactors until April 2023.
- BHP's Olympic Dam in South Australia is a significant deposit of copper, gold, and uranium, with significant potential to support global decarbonisation needs.

Rare Earth Elements (REE)

- BHP's Olympic Dam is a globally significant REE deposit (second largest concentration of REE globally). However, the low grade of REE makes it a challenge to bring to market.
- Government investment in improving the ability to process low-concentration resources could provide a potential path for additional REE concentrate produced in Australia where low concentration is common amongst deposits. In addition, any support must acknowledge that the complexity of REE concentrate processing requires the need for significant chemical expertise and solutions to manage the resulting dangerous waste products that occur.

Actions of global competitors for investment

Over the past two years there has been a rapid increase in recognition from global policy makers and business leaders of the criticality of metals and minerals to the energy transition. With that we have seen an increase in policies that will support responsible and sustainable mining to meet the growth in demand.

As well as the increase in competitive policies from strategic partners such as the United States and Canada, there are positive developments in other jurisdictions – for example Ecuador, Saudi Arabia and some African nations – where they are looking to engage with the resources sector to enhance the stability of their regulatory and fiscal frameworks to provide more certainty and attract new mining investment.

Steps taken by the United States

There is growing desire to designate copper with critical mineral status in the United States. Bipartisan lawmakers have written to the US Interior Secretary Haaland urging the Biden administration to designate copper as a critical mineral. The letter highlights the importance of copper for the US energy transition and warns about the potential consequences of a global copper supply shortage. The letter also urges the Administration to support domestic copper at all points of the supply chain.

The United States has introduced or proposed a number of incentives to move more production, processing and assembly of critical mineral-related components and materials to the United States. These include:

- Tax credits through measures such as the Inflation Reduction Act(IRA) (such as for EVs), which are conditional on sourcing critical minerals from the US and free trade agreement (FTA) countries, including Australia.
- The American Battery Minerals Initiative, which is a new effort to mobilise the entire government in securing a reliable and sustainable supply of critical minerals used for power, electricity, and EVs. It intends to fund projects including producing enough battery-grade nickel to supply approximately 400,000 EVs annually.
- The Infrastructure Investment and Jobs Act (IIJA) which will provide US$1.3 billion in grants for critical minerals research and development, mining and processing.
- Proposals such as a Rare Earth Magnet production tax credit, which has received bipartisan support but is yet to be enacted.

The IIJA has also directed federal agencies to adhere to determined schedules for each step in the permitting process to maximise efficiency and effectiveness.[3] Having certainty of permitting timelines significantly boosts the competitiveness of this investment environment.

Steps taken by Canada

Critical minerals have recently been at the front of the Canadian government's regulatory and legislative agenda as Canada seeks to secure its position in global supply chains. Recent developments include:

- Launch of Canada's Critical Mineral Strategy that is supported by up to C$3.8bn (A$4.1bn) in federal funding allocated in Budget 2022. Highlights of the specific investments include:
    - C$1.5 billion for the Strategic Innovation Fund to support critical minerals projects, with prioritisation given to advanced manufacturing, processing, and recycling applications (which is currently heavily focused on the EV battery industry) and priority deposits;
    - C$144.4 million for critical mineral research and development, and the deployment of technologies and materials to support critical mineral development for upstream and midstream segments of the value chain;
    - C$47.7 million for targeted upstream critical mineral R&D through Canada's research labs; and
    - Steps to speed up project approval processes including by running Federal and provincial approvals in parallel.
- The Federal Budget released in April 2022 introduced a carbon capture, utilisation and storage (CCUS) refundable tax credit for eligible expenses related to the purchase and installation of eligible equipment used in an eligible new project that captures carbon dioxide emissions.
- The C$15 billion Canada Growth Fund will invest on a concessionary basis to lower the risk of private sector net-zero projects, and is designed to be flexible, employing financial tools that include contracts for difference and other forms of price assurance.
- In 2021, the passing by the Canadian Parliament of the *United Nations Declaration on the Rights of Indigenous Peoples Act* which enshrined free, prior and informed consent (FPIC) into Canadian domestic law.

These recent developments build on Canada's investment in critical mineral trade relationships, having signed a joint action plan with the United States in 2020 to advance secure supply chains for critical minerals. Canada has signed similar critical minerals cooperation agreements with Japan and the European Union and is actively engaging in additional bilateral conversations with the United Kingdom and the Republic of Korea.

Steps taken by Europe

The European Commission has announced its Green Deal industrial Plan to increase Europe's competitiveness in clean technologies and boost investment, skills and raw material supply chains. This plan is a direct response to the US's IRA, and includes:

[3] Infrastructure and Jobs Act: Critical Minerals permitting and information – Policies - IEA

- A Critical Raw Materials Act[4] – a regulatory framework that aims to secure the EU's access to rare earth materials that are used in the manufacturing of key technologies by strengthening international engagement, facilitating extraction, processing and recycling; and
- Exploration of the establishment of a Critical Raw Materials Club to foster green free trade agreements with third countries, bringing together raw material 'consumers' and resource-rich countries to ensure global security of supply through a competitive and diversified industrial base.

The EU has already made available EUR€250 billion for green measures and can mobilize an additional EUR€372 billion from InvestEU for net-zero investments and a further EUR€40 billion from the Innovation Fund over the next decade.

There is strong support for the EU's upcoming legislation[5] to also speed up permitting times to meet the expected increase in demand.

How Australia should compete on the global stage

Australia is competing against the rest of the world to supply these emerging and growing markets. Africa, the Middle East, and Western, Central and Southeast Asia have an important role to play when it comes to providing the world with the mineral resources needed for the energy transition and beyond.

Investment priorities across the globe to diversify critical minerals supply chains are now shifting to include technology and green infrastructure minerals as areas of priority.

If Australia is to take advantage of this opportunity and be at the forefront of supplying these resources, much in the way Australia has benefited from supplying higher quality iron ore and metallurgical coal to the rest of the world, and to be best positioned to continue to benefit, there are a number of key areas the Australian Government must address.

Maintaining global competitiveness

Projects in the critical minerals space are competing against other proposals across the globe on a range of metrics – resource quality, technical risk, commodity outlook, capital expenditure, expected returns, as well as the predictability of the regions in which we are looking to invest.

While some countries are relying on subsidies to attract investment, we encourage the Government to focus on strengthening Australia's fundamental competitiveness through smart, competitive and stable policy settings that deliver certainty and consistency. These are the key to making Australia the investment destination of choice. In BHP's view, it does not make strategic sense for Australia to pursue like for like strategies with other nations or to compete head to head in terms of subsidies.

In addition to focusing on addressing Australia's slow and overly bureaucratic approvals process, which we discuss in more detail below, Australia should:

- Streamline Australia's existing workplace relations system and do not impose workplace relations reforms that further increase the cost of labour and which do not result in an increase in productivity. It should be noted that Australia already has some of the highest cost of labour[6] of any major mining nation, even before the recent and potential further reforms;
- Pursue a genuinely non-ideological approach to energy policy – one that is centred on the delivery of a reliable and decarbonised energy system at the lowest possible cost, is open to all forms of energy that can help deliver these goals, and recognises the mounting costs of repeated, ad hoc government intervention in the market; and
- Ensure Australia's fiscal regime best incentivises investment in business endeavours that enhance the country's value-added and productivity capability. Historically, Australia has maintained a relatively stable fiscal regime, but recent amendments to industrial relations legislation has introduced a level of uncertainty for industry and will almost certainly result in reduced productivity. In Queensland, the unexpected, and very significant increase in coal royalties has meant BHP's effective tax rate in Queensland in the first half of the year was nearly 60 per cent – roughly double the Australian corporate tax rate and very significantly higher than competing jurisdictions – and has made that state

[4] European Critical Raw Materials Act (europa.eu)
[5] EU urged to speed up permits for critical mineral projects | Reuters
[6] Average labour costs and share in total coal mining costs in selected countries, 2018-2020 – Charts – Data & Statistics - IEA

uninvestable for growth capital from a BHP perspective. Other global opportunities generate higher returns for lower risk.

Constructing Enabling Infrastructure

The construction of enabling infrastructure will be a key factor in driving new investment, not just in the critical minerals space, but across the resources sector as part its move towards decarbonisation.

Scope exists under the Federal Government's $15 billion National Reconstruction Fund to direct the required multi-user infrastructure build, including the transport and energy transmission necessary to develop not only the upstream opportunities that exist, but to also lower the barriers that downstream processing, manufacturing and export face when making investment decisions.

Improving our capability (and building a knowledge economy)

The shift to renewable and low greenhouse gas emissions energy will require increased efforts to grow the broad set of mining capabilities required. What we are observing now is that geoscience and other mining-related studies are either not popular or being substituted with green energy / decarbonisation studies. The overall decline in enrolments in these disciplines over the last 10 years, and university programs closing (e.g., Macquarie University, UNSW) or seriously downsizing (e.g., Curtin University) mean that Australia lacks the skill sets necessary to take advantage of not only the growing demand for critical minerals, but across the broader resources sector.

Australia desires increased downstream processing value to be extracted in-country for critical minerals. Many critical minerals, including lithium and REE, require complex processing technology. Training and research in key disciplines such as geometallurgy, metallurgy and mineral process engineering will be required yet are not effectively provided in Australian institutions currently.

Investing in capability to better discover and extract Australia's resources should benefit the entire Australian economy, not only the mining sector. This means support of university programs – both undergraduate training and research - is critical for Australia to be able to capitalise on the global decarbonisation opportunity.

BHP's investment in skills training to meet these emerging demands include nearly $800 million in the period between 2020 and 2025 to deliver a broad skills package. It includes:

- Annual internships for undergraduate Australian science and engineering students to expose them to the exciting challenges and opportunities in the mining industry;
- Creating 2,500 apprenticeships and traineeships through the BHP FutureFit Academy, with associated spending of A$300 million;
- A A$30 million investment with the Australian Government to create 1,000 skill development opportunities across regional Australia; and,
- A$450 million in contracts with Australian METS companies and to working directly and through its major technology providers to source more local products and services, as well as investing in technology pilots and emerging businesses.

Growing regional infrastructure, capability and services

A key challenge the resource sector continues to face is delivering the necessary infrastructure, capability and services needed in Indigenous and regional communities. As recognised in the discussion paper, partnerships such as BHP's Indigenous Development Program are helping to create career pathways for Indigenous employees to move into new roles, including leadership.

Respecting and partnering with Indigenous Peoples aligns with BHP's Company Purpose of bringing people and resources together to build a better world, our focus on delivering long-term social value and our commitment to working with integrity.

As well as the physical infrastructure needed to support the growth of new projects, BHP's experience of regional development shows that access to services continues to be a significant challenge. Addressing regional access to services such as primary healthcare, regional childcare and law and order are important steps that would not only support the development of critical minerals resources, but the wider sector. Another key consideration and what we have found in our ongoing discussions with Indigenous Peoples, is the very real desire and aspiration of Indigenous peoples to be a part of the solution.

Connectivity with existing efforts underway to address these issues at a Commonwealth and State level, such as the upcoming Productivity Commission inquiry into Australia's Early Childhood Education and Care (ECEC) system[7] will contribute to a broader benefit and avoid duplication of effort.

Meeting the challenge of downstream processing and manufacturing

High-cost environment

BHP has invested significant capital in our Nickel West operations in recent years, including the construction of an Australian-first nickel sulphate plant and power purchase agreements that are expected to reduce Nickel West's total market-based Scope 2 greenhouse gas emissions by nearly 60 per cent against FY2020[8] baseline levels commencing in CY2024. However, in many instances it has been uneconomic in Australia to build refining and downstream infrastructure given high capital and operational costs, the high risk of delays in construction (driven by capacity constraints and complex permitting processes), and Australia's distance from key sources of demand (noting, for instance, that battery manufacturing is typically localised in consumer centres).

While the Government should be realistic about its ability to address all these challenges, there are a range of policy measures that it could pursue to enhance the cost competitiveness of the Australian economy, which are outlined in the paragraph above. All these measures will go some way to address the high-cost environment of downstream processing and manufacturing in Australia.

Environmental impacts and approvals

Previous reviews undertaken by the Productivity Commission[9] and the independent review of the *Environment Protection and Biodiversity Conservation Act 1996*[10] have identified that regulatory processes remain unduly complex, duplicative, lengthy, and uncertain. For example, the average time for the assessment and approval of resource projects under the EPBC Act has increased from 716 days from Act commencement in 2013-14, to 940 days in 2019-20[11].

As the cost of delays can dwarf other regulatory costs[12], reforms that deliver greater certainty of both timeframes and outcomes, while preserving the competitive advantage Australian resources can have from an ESG perspective will not only improve the ability of business to bring forward investment decisions but to undertake the exploration and preparation necessary to develop the next wave of project opportunities in Australia. Any opportunity to harmonise and align approval processes between State and Federal requirements (as is being done in Canada) could be an important step in overcoming what can be a significant barrier to entry for new projects in this space. Ensuring environmental approval and land access processes are effective at achieving environmental, heritage and social objectives while delivering timely and predictable outcomes for project proponents would match steps being taken internationally to attract project investment.

Aligning and harmonising assessment processes and timeframes at a state and federal level where assessment criteria overlap, such as water and threatened species listings, consistent information processes to eliminate the multiple submissions of identical data in different formats and the continued pursuit of bilateral agreements to accredit state assessment and approval processes under a national standard are all examples of steps that could be taken that would deliver significant time savings in the approval process.

Recognising the additional complexity that critical minerals approvals can contain and the importance of ESG aspects of critical minerals production for investors and consumers, any changes to the strategy should include close engagement with the process underway via the Australian Government's *Nature Positive Plan*[13] response to the EPBC review. Improvements in approval processes cannot be at the expense of retaining high environmental standards.

Matching Australia's capability with global demands

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[7] Terms of reference - Early Childhood Education and Care - Productivity Commission (pc.gov.au)
[8] As Scope 2 market-based accounting approaches improve, this may impact the expected abatement values achieved from the power purchase agreements.
[9] Resources Sector Regulation - Commissioned study - Productivity Commission (pc.gov.au)
[10] EPBC Act Review | Independent review of the EPBC Act (environment.gov.au)
[11] EPBC Act Review | Independent review of the EPBC Act (environment.gov.au) page 85
[12] Resources Sector Regulation - Commissioned study - Productivity Commission (pc.gov.au) page 12
[13] Nature Positive Plan: better for the environment, better for business - DCCEEW

While outside the scope of this current review, shifting global markets demonstrate that Australia's critical minerals priority list should continue to align with emerging global trends. The shift towards meeting technology and green infrastructure requirements indicate there is clear benefit in including commodities such as copper, nickel and uranium in future lists to improve Australia's ability to serve this growing opportunity.

As desirable as it may be to prioritise downstream processing and manufacturing opportunities, meeting the needs of global export markets through leveraging export opportunities delivered by upstream capacity to strategic partners should also play an important role.

We also note that many of Australia's key strategic partners adopt a broader categorisation of what constitutes a critical mineral compared to Australia. For instance:

- The 2022 list of critical minerals, published by the U.S. Geological Survey (USGS) includes nickel on their current list. Bipartisan support[14] also exists to include copper on this list. As the US Energy Act excludes "fuel minerals" from the definition of critical minerals, uranium that was listed in the 2018 critical mineral list has been removed.
- Canada's critical minerals list[15] includes copper, nickel and uranium as priority commodities.
- The EU has included copper and nickel[16] as strategic commodities vital to secure[17] the critical raw materials needed for the energy transition.

Conclusion

We thank DISR for the opportunity to comment on this discussion paper. If DISR requires further information on any of the issues raised in this submission, please do not hesitate to contact us at james.martin3@bhp.com.

[14] ICYMI: Manchin, Bipartisan Colleagues Urge Administration to Revisit Copper for... (senate.gov)
[15] The Canadian Critical Minerals Strategy - Canada.ca
[16] Critical raw materials (europa.eu)
[17] EU urges European banks to step up funding for critical minerals | Reuters