



Australian Government
The Treasury



Impact Analysis

Critical Minerals Production Tax Incentive

The Treasury, and the Department of Industry,
Science and Resources

October 2024

A decorative graphic at the bottom of the page consisting of several colored rectangular bars. A horizontal bar at the top is divided into three segments: dark green, dark blue, and light green. Below it, a vertical bar is divided into two segments: blue and light blue. To the left, there are two horizontal bars: a blue one on top and a brown one below it. At the bottom left, there is a vertical bar divided into two segments: blue and orange.

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In the spirit of reconciliation, the Treasury acknowledges the Traditional Custodians of country throughout Australia and their connections to land, sea and community. We pay our respect to their Elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples.

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Executive Summary

The Critical Minerals Production Tax Incentive (CMPTI) is part of a targeted national plan to support objectives under the economic resilience and security stream of the Future Made in Australia National Interest Framework. A robust, resilient and adaptable supply-chain is central to supporting the many demands ranging from meeting net-zero targets to sustainable economic growth¹, enabling the economy to adapt to and withstand the challenges of an uncertain world.^{2,3} This Impact Analysis outlines the challenges of the critical minerals market and identifies where a CMPTI can be effective to build domestic sovereign capability in the critical minerals sector.

This analysis provides a summary of the problem, options and impacts, recommendation, consultation and implementation/evaluation.

PROBLEM

The problem that is identified in this Impact Analysis, leading to the lack of processing activity on critical minerals is split out into two key areas.

First, the problem that is identified is supply chain concentration and the vulnerability of the critical minerals supply chain to market shocks due to the concentrated nature of the downstream processing and refining of critical minerals. Private firms are failing to appropriately price in the required level of economic resilience and security in critical sectors and supply chains.

Second, a further problem is identified as the cost gap between production costs in Australia and other overseas markets due to high labour costs, environmental standards and the cost of capital. This is exacerbated by industry support being provided by other Governments to attract investment.

OPTIONS AND IMPACTS

The Impact Analysis considers three options that have been contemplated. The first option is to retain the status quo, with Options 2 and 3 presenting variations of a production tax incentive policy reflecting changes made as a result of industry consultation.

These options are assessed against their ability to deliver on the Government's objectives and the policy problem. Options that address related issues such as capital costs have been excluded from this.

RECOMMENDATION

Based on feedback from consultation, and ability to meet the Government's objectives the option that is recommended on the basis that it provides the greatest net benefit is Option 3. This is the production tax incentive that incorporates policy changes in response to feedback to best address the identified problem.

CONSULTATION

A summary of consultation conducted by Treasury and the Department of Industry, Science and Resources is included. It outlines the pre- and post-Budget consultation, detailing stakeholder views and how the policy was adapted to respond to these, or not. Stakeholders broadly supported the design of the incentive, but key changes were made as distinguished between Option 2 and Option 3 of the proposed options.

1 www.aph.gov.au/Parliamentary_Library/Budget/reviews/2024-25/NewIndustryPolicy

2 <https://ministers.treasury.gov.au/ministers/jim-chalmers-2022/speeches/second-reading-speech-future-made-australia-bill-2024>

3 <https://www.pm.gov.au/media/investing-future-made-australia>

Background and existing policies

Critical minerals

Australia's Critical Minerals List⁴ consists of 31 minerals (see Appendix B) . These minerals have been deemed 'critical minerals' as they are

- essential to our modern technologies, economies, specifically the priority technologies set out in the Critical Minerals Strategy;
- essential for our national security, especially for defence industry technologies;
- for which Australia has geological potential for resources;
- in demand from our strategic international partners; and
- that are vulnerable to supply chain disruption.

Critical Minerals value chain

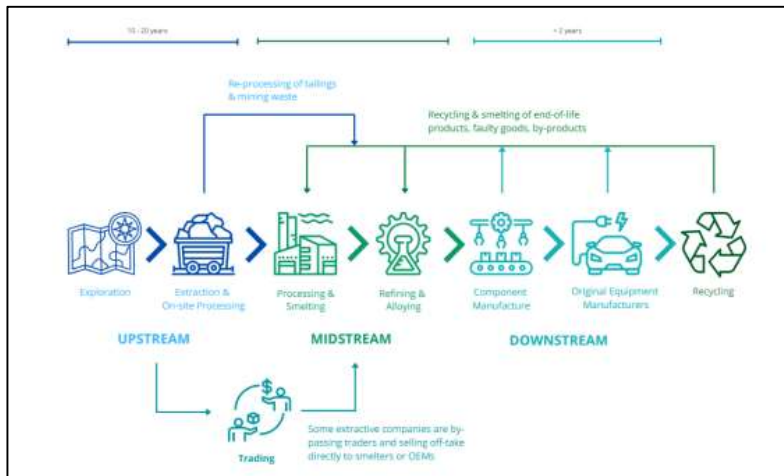
The critical minerals value chain can, at a high level, be split into three sections:

- The upstream activity, being largely the extraction and beneficiation process which includes mechanical processing of the ore and some waste removal;
- The midstream activity, being the processing and refining of the critical minerals; and
- The downstream activity, being largely the use of the processed critical minerals in manufacturing.

The value-chain is summarised at **Figure 1**, which illustrates the three stages and the respective industry/market structures characterising the critical minerals sector.

Figure 1. Summary overview of stages in the critical minerals supply chain (original source: Critical Minerals Association)

⁴ Australia's Critical...~<https://www.industry.gov.au/publications/australias-critical-minerals-list-and-strategic-materials-list>

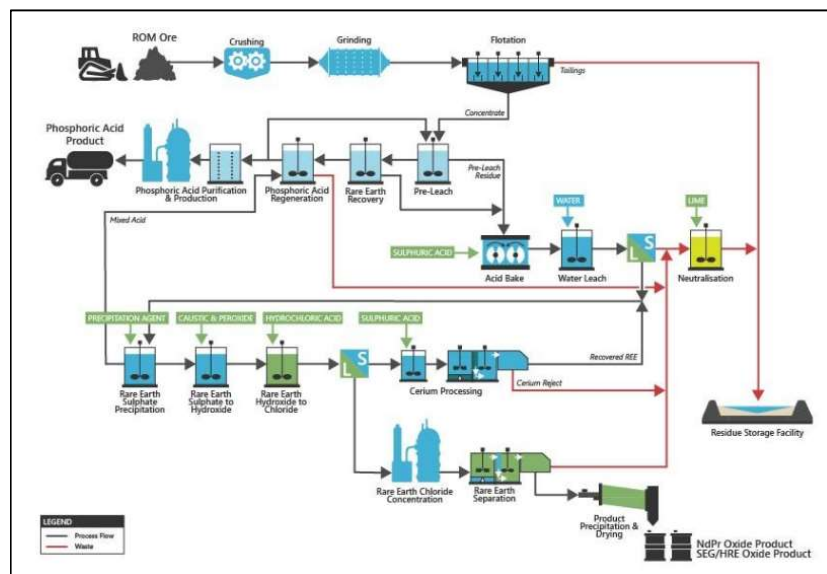


Source: University College London Institute for Sustainable Resources (2024) L. Pickett – Critical minerals; potential next steps 5

The ‘midstream’ processing step shown in **Figure 1** is expanded below. **Figure 2** shows the process flow diagram for the midstream processing/refining operations for the proposed Arafura Nolans rare earth refining facility⁶.

The refining step of the mid-stream process is a multi-stage extractive metallurgical process where the ore is progressively refined to extract the critical mineral in a form that is suitable for further downstream processing. The facilities are large and complex to operate and require significant upfront capital investment. A newly built plant typically undergoes a period of optimisation to ensure efficiency and reproducibility of product quality.

Figure 2. Arafura rare earth processing flowsheet showing the stages and inputs associated with the midstream processing of beneficiated ore⁷



5 https://www.ucl.ac.uk/bartlett/sustainable/sites/bartlett_sustainable/files/critical_minerals-potential_next_steps.pdf

6 <https://www.arultd.com/projects/nolans/project-update/>

7 <https://www.arultd.com/projects/nolans/project-update/>

Criticality of critical minerals to Australia’s economic resilience and national security

Critical minerals are important as they enable a range of technologies required for the basic functioning of a modern society. They are the essential inputs to important sectors such as clean energy manufacturing, transport, agri-tech, medicine, defence, space, computing, and telecommunications. A stable and diversified supply of critical minerals can also support the net zero transformation in Australia.

In particular, the net zero transformation will increase the demand for critical minerals that are required for renewable energy technologies such as hydrogen electrolyzers, batteries and solar panels. Global demand for critical minerals will need to increase by around 350 per cent by 2040 to meet the world’s net zero carbon emissions commitments.⁸

The global race to secure supplies of critical minerals is accelerating rapidly. Critical mineral supply chains are also prone to disruption because mineral production and processing is heavily concentrated in particular locations, facilities or companies. Supply chains that are highly concentrated, are typically fragile, volatile and lack transparency. Under these conditions markets and their participants cannot adequately price and manage risks, making it hard for businesses to access commercial investment and compete on a level playing field.⁹

Australia is home to some of the world’s largest reserves of critical minerals such as lithium, cobalt and rare earths needed to diversify supply chains and support low emissions technologies. Australia is already the world’s largest producer of lithium and is well placed to meet future global demand, with exports projected to double over the next five years.¹⁰ Australia has the ability to leverage its track record as a trusted and reliable trade partner, with established links into key markets in North Asia, the United States and Europe, to be a reliable supplier into the growing markets of the future. Growing industries further down the critical mineral value chain also presents significant potential economic benefits for Australia, that will build on our established mining industry.

⁸ International Energy Agency, ‘Critical Minerals Demand Dataset’, International Energy Agency (2022), www.iea.org/data-and-statistics/data-product/critical-minerals-demand-dataset .

⁹ Department of the Treasury, ‘Future Made in Australia: National Interest Framework’, 2024, Page 24, [Future Made in Australia – National Interest Framework](#)

¹⁰ Department of Industry, Science and Resources (DISR) (Commonwealth of Australia), ‘Resources and Energy Quarterly March 2023’, DISR (2023), 158, <https://www.industry.gov.au/publications/resources-and-energy-quarterly-march-2023>.

The policy problem

Policy problem

Australia does not process critical minerals domestically at scale. This is a problem as the critical minerals on Australia's list, and the technologies they enable, are key inputs to support Australia's renewable energy requirements, manufacturing and defence industries and a range of other applications essential to our economy and modern way of life¹¹. As such, lack of domestic processing capacity presents a national security risk.

Critical minerals processors are not developing operations at scale in Australia due to the barriers of investment in Australia. These barriers in the critical minerals supply chain are:

- the supply chain concentration and consolidation and
- the cost gap.

Most notably, private firms are failing to appropriately price in the required level of economic resilience and security in critical sectors and supply chains, resulting in unacceptable levels of risk to Australia's national interest or broader economy.

If these barriers to investment are not addressed, Australia risks not having a well-developed and stable critical minerals supply chain domestically leaves Australia vulnerable to external market-related supply shocks, adverse Government policies in foreign jurisdictions, and market manipulation by major players in the global industry. This exposure could lead to upwards prices for processed critical minerals, downwards prices for raw feedstock, and a lack of consistent access to the supply of processed critical minerals in Australia.

Australia's current market share in the critical minerals and energy transition minerals sector is 5.66 per cent overall, based on Australia's 2023 market value when compared to the global equivalent¹². This figure is heavily driven by Australia's mining and extraction of critical minerals, rather than the downstream processing, where the largest value add occurs and primarily occurs offshore. For example, in the battery minerals value chain, the majority of value-adding occurs in the mid- and down-stream stages of production¹³.

Supply chain concentration and consolidation

Key suppliers of critical minerals are located in a small number of countries. According to a working paper published by the Peterson Institute for International Economics, China's control over global value chains involving critical minerals extends beyond what is commonly assumed if control of production is taken into consideration.¹⁴

As Figure 1.2 shows, the US dominates the supply chain of oil and gas while China is the dominant actor in the supply chains of clean technologies, with the US only a minor player. In the markets of critical minerals where China is not a main source of reserves, it hosts many companies that exploit them.

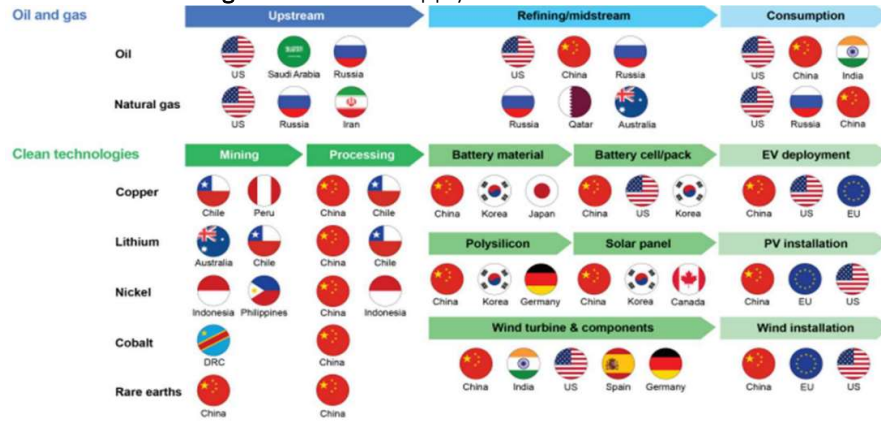
11 [Critical Minerals Strategy 2023–2030 \(industry.gov.au\)](#)

12 [The economic potential of Australia's critical minerals and energy transition minerals \(industry.gov.au\)](#)

13 [PU-141-Energy-Report-WEB.pdf \(fbicrc.com.au\)](#)

14 page 10, <https://www.piie.com/sites/default/files/documents/wp22-12.pdf>

Figure 1.2 Global supply chain concentration



Source: Peterson Institute for International Economics

Global demand for a variety of critical minerals is growing (see Table 1). Without policy intervention, the issue of supply chain concentration will not be addressed, and Australia will also risk having a smaller share of global supply.

The problem is further illustrated by the level of geographic concentration of critical mineral and downstream processing. As an example of China's dominance in supply chains, nearly 80% of global lithium-ion batteries¹⁵, a battery chemistry that is forecast to dominate the battery market, are produced in China.¹⁶ As extraction and processing of critical minerals are 'highly concentrated geographically' (see Table 2), this could create a 'bottleneck' which runs a significant risk of delaying the production of clean energy assets.

Notes:

Announced Pledges Scenario (APS), Stated Policies Scenario (STEPS), Net Zero Emissions by 2050 (NZE) Scenario

Source: World Energy Outlook 2022, International Energy Agency

15 CHINA'S MONOPOLY OVE...~<https://orcaasia.org/article/602/chinas-monopoly-over-lithiums-upstream-and-downstream-supply-chain>

16 Trends in batteries ...~<https://www.iea.org/reports/global-ev-outlook-2023/trends-in-batteries>

Table 1.1: Global supply and demand for selected refined critical minerals

	Battery Grade Lithium		Refined N Nickel		Refined Cobalt		Battery Grade Graphite		Refined Rare Earths		Vanadium	
	2023	2029	2023	2029	2023	2029	2023	2029	2023	2029	2023	2029
Units	Lt LCE	kt LCE	kt	kt	kt	kt	kt	kt	t REO	t REO	kt	kt
Global demand	1,019	2,266	3,104	4,400	214	283	1,424	3,342	176,784	227,395	130	165
Compound annual growth rate		17%		7%		6%		19%		5%		5%
Global supply	1,001	2,261	3,346	4,300	220	297	1,434	3,364	248,948	370,386	130	138
Australian supply (FY ending)	4	75	131	55	3	32	0	90	0	23,006	0	22
Australian share of global supply	0%	3%	4%	1%	2%	11%	0%	3%	0%	6%	0%	16%

Notes: Australian share of global supply is indicative only, as Australian production figures are for the financial year and global supply use a different data source.

Source: DISR, private sector forecasts

Table 1.2: IEA estimate of the share of top 3 producers of selected refine critical minerals in 2023, thousand tonnes

Ranking	Battery Grade Lithium		Refined Nickel		Refined Cobalt		Battery Grade Graphite		Magnet Rare Earths	
Top 1	China	114	Indonesia	1,414	China	172	China	1,852	China	70
Top 2	Chile	46	China	1,065	Finland	19	Japan	124	Malaysia	4
Top 3	Argentina	9	Finland	138	Japan	6	United States	17	Australia	0
Total		176		3,796		224		2,037		76
Top 3 share		96%		69%		88%		98%		98%

Source: International Energy Agency (2024)

This supply-chain concentration, coupled with other jurisdictions not meeting expected targets¹⁷, is further reflected by China’s share of around 80% of the rare earth (refer to **Figure 1.4**) minerals processed worldwide, 90% of the lithium, 70% of the gallium, and 70% of germanium.¹⁸ Evidence from a production forecast study suggests that the EU will fall short of meeting its 2030 targets in the rare earth sector. According to this study, EU will achieve only 22% of expected demand of 45% for producing magnets from metals.¹⁹ Another study demonstrates that US firms producing critical minerals sought to meet short term goals that ran contrary to national and strategic objectives focused on the long term.²⁰ These figures highlight the exposure and reliance of Australia on

17 EU forecast to fall ...~<https://source.benchmarkminerals.com/article/eu-forecast-to-fall-short-of-2030-crma-targets-without-ambitious-action>

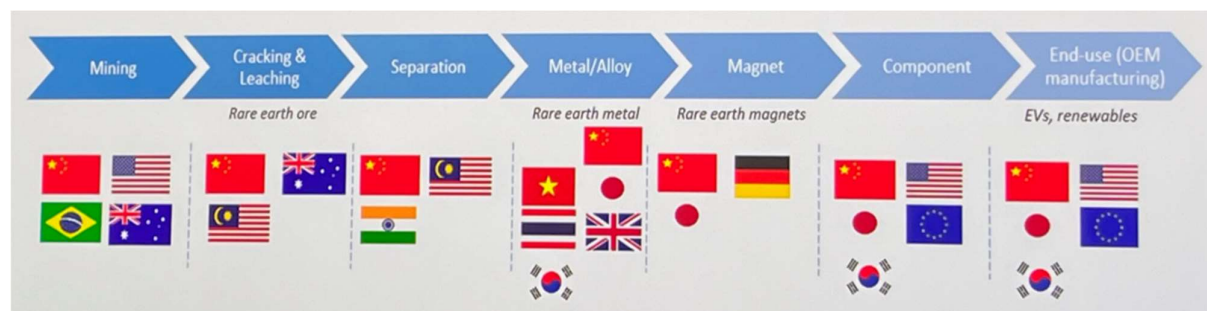
18 <https://lens.monash.edu/2024/02/19/whats-behind-the-collapse-in-the-price-of-nickel-and-how-can-the-industry-survive>

19 www.reuters.com/markets/commodities/race-regain-rare-earth-glory-europe-falls-short-mineral-goals-2024-06-27/

20 <https://www.sciencedirect.com/science/article/pii/S030142072300733X>

concentrated, vulnerable supply chains for critical minerals. Without development of domestic supply chains, Australia will remain exposed to these supply chain risks and be vulnerable to external instabilities.²¹

Figure 1.4. Summary overview of the global rare earth elements supply-chain



ANU Rare Earth Elements (REE) Conference 2023: REECON 23 - Rare Earth Element (REE) Supply Chain Perspective

Another key example of market volatility in critical minerals supply chains is nickel. A substantial increase in nickel supply from Indonesia, following significant Government intervention²² influenced a fall in price from a high of US\$50,000/t in 2022 to just US\$16,400/t in February 2024. Consequently, BHP, Australia's only and largest nickel producer, wrote down the value of its West Australian nickel division Nickel West to zero and has since placed the entire division into a "period of care and maintenance".

Cost gap

Critical minerals refining is technically complex and involves significant capital outlays. Australia's high labour and environmental standards, and higher cost of capital mean that the processing of critical minerals is more expensive relative to other markets²³.

In addition, over the past decade, there has been a surge in global industry policy interventions that has exacerbated cost differentials between Australia and these other jurisdictions. From 2010 to 2022, the volume of such interventions has expanded exponentially, showing a 46-fold increase. This upswing has been strongest among OECD countries, including the United States. Specifically, the US *Inflation Reduction Act* (IRA) provides US\$394 billion of industry support, including US\$31 billion to reduce the operating costs for producing critical minerals²⁴.

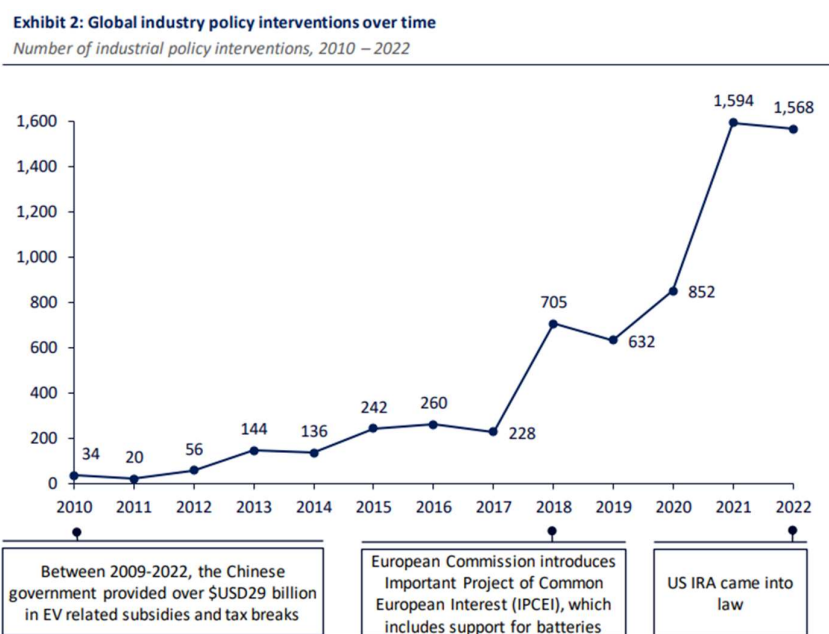
21 www.sciencedirect.com/science/article/pii/S030142072300733X

22 A glimpse into Indon...~<https://www.lowyinstitute.org/the-interpreter/glimpse-indonesia-s-nickel-policy>

23 [Lithium-Ion-Battery-Value-Chain-report.pdf \(greengravity.com\)](#)

24 Congressional Budget Office (2022) Estimated Budgetary Effects of H.R. 5376, the Inflation Reduction Act of 2022; Rhodium Group (2023) Clean Investment Monitor; McKinsey (2022) The Inflation Reduction Act: Here's what's in it; Mandala analysis

Figure 1.1. Evolution of industrial policy by major economies from 2010-2022



Source: Reka Juhasz, Nathan Lane and Dani Rodrik (2023) The new economics of industrial policy; MIT Technology Review (2023); European Commission (2019).

Using proprietary industry data from ten firms in Australia’s critical minerals industry, Mandala modelling determined that Australia’s production is on average 10 per cent more expensive than in the US when it comes to refining critical minerals and producing battery active materials²⁵. This is partly attributable to the US IRA Advanced Manufacturing Production Tax Credit (AMPTC) which provides a 10 per cent production subsidy for both critical minerals and active battery materials.

Similar to the US IRA, the Canadian CTM Clean Technology Manufacturing Investment Tax Credit (CTM ITC) and Critical Mineral Exploration Tax Credit (CMETC) both also exacerbate the cost gap in Australia. The CM ITC reduces the cost of capital for clean energy technology manufacturing, processing and extraction of 6 critical minerals in Canada by 30%, through a refundable tax credit. The CMETC also provides a 30% tax credit for specified mineral exploration expenses incurred in Canada and renounced to flow-through share investors. These tax incentives improve prospective critical minerals processors anticipated returns and make Canada a more attractive investment destination for critical minerals processors.

A study for Thorium Energy Alliance has expressed concern over China’s dominance of rare-earth elements production and nominal cost differentials of up to 30% compared with US firms.²⁶ Neodymium market prices have fluctuated greatly in the past decade, ranging from around US\$50,000/tonne (\$50/kg) to nearly US\$140,000/tonne (\$140/kg).²⁷ With US policies already in place, the nominal cost differentials of China compared with Australian firms is even larger.


How the problem impacts people, businesses and community organisations

Insufficient processing of critical minerals in Australia at scale is a problem as without the critical minerals on Australia’s list, and the technologies they enable, manufacturing sectors and defence

25 Critical Minerals Pr...~<https://amec.org.au/ptc-resources/>

26 <https://thoriumenergyalliance.com/wp-content/uploads/2020/10/Rare-Earth-Cost-Economic-Value-By-Distribution-V12-10-15-2020.pdf>

27 <https://www.dailymetalprice.com/neodymium.html>



industries will not have access to key inputs, putting them in a vulnerable position and posing a national security risk.

Furthermore, critical minerals processing will assist Australia in meeting its renewable energy ambitions and net zero goals. Achieving net zero will internalise the negative externalities from emissions, drive efficient decarbonisation, spur long-term investment in clean, emissions-lowering technologies and industries, and seize the economic opportunities this transformation presents.²⁸

These impacts are further noted to include the following people, businesses and communities:

- Processors undertaking critical minerals processing and refining activities, and clean energy manufacturers further downstream, would be significantly more exposed to supply chain disruptions, and economies of scale may not be achieved or realised by firms.
- New firms and investors may be less inclined to invest in Australia’s critical minerals sector rather than other jurisdictions with Government support.
- The Australian community may lose out to the extent that the onshore downstream critical minerals related jobs are lost because of offshore processing.
- The Australian community will not benefit from the rewards of an established clean energy production industry in Australia which will help Australia meet its net zero targets.

Current Government measures that address the problem - Why are the measures not sufficient?

Australia’s *Critical Minerals Strategy 2023-2030*²⁹ sets out a vision for investment in critical minerals processing facilities and the sustainable development of Australia’s critical minerals industry. The Government has announced a range of measures consistent with the Strategy to promote investment (as set out in Appendix C). However, these measures are primarily aimed at providing capital support and do not directly address the subsequent production cost gap compared with other jurisdictions. This means there is insufficient incentive for critical minerals processing in Australia.

If these barriers to investment in the critical minerals supply chain are not addressed, Australia will not process critical minerals at scale. This will leave Australia vulnerable to external shocks and lead to upwards prices for processed critical minerals, downward prices for Australian ores, and a lack of consistent access to a supply of processed critical minerals.

²⁸ Page 3, *Future Made in Australia – National Interest Framework*

²⁹ *Critical Minerals Strategy 2023–2030* ([industry.gov.au](https://www.industry.gov.au))

Case for government action/objective of reform

Government objectives

The Government's objective is to create sovereign capability in critical minerals processing to strengthen domestic resilience against supply chain shocks in line with the economic resilience and security stream of the National Interest Framework³⁰.

Achieving this objective will see Australia moving down the critical minerals value chain and increase Australia's footprint in downstream processing. It will also allow Australia's critical minerals sector to make higher-value products that will assist in building new industries and strengthen domestic resilience to supply chain shocks.

Specific measurable targets include:

- production volumes of processed critical minerals increasing to manage supply shocks on the Australian economy;
- increase in the volume of onshore downstream processing in Australia relative to the status quo;
- processing facilities established increasing by 30 per cent by 2035 in Australia to perform downstream activities;
- Australia's market share in the critical minerals and energy transition minerals increasing from the 5.66 per cent base case scenario³¹; and
- the number of long-term offtake agreements by 2035 in place for the refined minerals alongside a growing domestic market for critical minerals.

The success targets were selected on the basis that they are measurable and reflect the Government's objective. The targets assume that Australia will invest in the downstream processing of critical minerals for the primary objective of economic resilience and security given that some level of domestic capability is necessary to protect against global supply chain shocks.

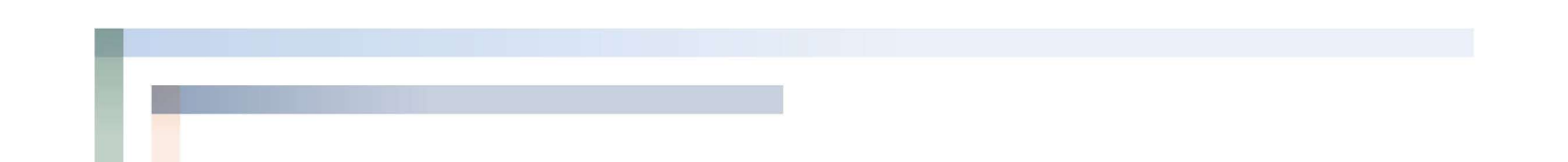
Given the Government's objective, these targets are important in ensuring that Australia can build enough domestic capability in the downstream processing and refining of critical minerals in order to withstand global supply shocks.

Why is Government intervention required?

Critical minerals processors are not entering into Australia's critical minerals sector at a rate which will effectively develop the sovereign capability in critical minerals to protect against global supply chain shocks. Because of this, Australia is also not capturing the full value of Australia's opportunity that the energy transition presents to allow the industry to be able to achieve economies of scale. This lack of international investment is largely driven by the global cost differentials and supply chain vulnerabilities that have been outlined in the Policy Problem Section.

³⁰ [Future Made in Australia – National Interest Framework](#)

³¹ [The economic potential of Australia's critical minerals and energy transition minerals \(industry.gov.au\)](#)



Given the lack of new entrants at the desired rate, well-designed Government support can help de-risk critical minerals investments and crowd-in private sector funding to build the required domestic resilience. Specifically, tailored public financing arrangements can assist projects manage price risks over longer periods and unlock further private financing opportunities that would otherwise have been unavailable due to lower rates of return.³² This intervention can improve the attractiveness of Australia as an investment location for prospective processors, especially coupled with the comparative advantage that Australia has in relation to the abundance of raw critical mineral ores and mining and extraction capabilities.

Private sector customers are not always well placed to manage the risk of supply chain disruption and may not be able to account for the broader public costs of this risk. For this reason, strategic products such as critical minerals, that are highly exposed to supply chain disruption and lack of diversification, can require Government support to account for the public value of prudent management of geostrategic risk and broader access to these materials for the Australian economy³³, as outlined in the Policy Problem section.

Australia cannot rely on the existing natural rate of investment determined by normal investment cycles given the expected significant demand pressures arising from global net-zero transformation efforts to develop sovereign capability in the sector. As identified in the 2024-25 Budget National Interest Framework Supporting Paper, some level of domestic capability may be both necessary and efficient for critical minerals processing, but the private sector cannot adequately invest in this capability without public investment.³⁴ This is because of issues that create undue uncertainty for investors as described above, particularly around price instability makes investment uncertain.

As an example of the potential benefits of Government intervention, the US administration reported that twelve months since the introduction of the *US Inflation Reduction Act of 2022*, which was complemented by the *Bipartisan Infrastructure Law* and *CHIPS and Science Act*, the private sector had announced more than \$110 billion in new clean energy manufacturing investments and more than 170,000 clean energy jobs created.³⁵ Given the nascency of other policies, such as the Canadian CM ETC and CMITC, data on the effect of the Government intervention is not available, however various industry stakeholders have noted the importance of these measures to the global critical minerals industry.

Furthermore, Australia's trade and investment partners are increasingly looking to Australia to provide critical minerals, including rare earth elements, that will feed diversified global supply chains in the energy transition. The Government can work with industry and communities to enable this. The Government has already taken steps to work with international partners to help projects link to emerging markets in countries like the United States, the United Kingdom, Japan, Korea, India, the UK, the European Union and its member states.³⁶

Constraints to achieving objectives

The key constraint to Australia achieving its critical minerals objectives is that the Government has limited funds to address the cost gap in Australia and the expenditure may not be enough to overcome the barrier to encourage the required investment levels. To manage this constraint, Government expenditure on critical minerals will need to be targeted to the areas required most by the industry to build sovereign capability. The Government can manage this risk by engaging in stakeholder consultation with the industry to best understand where the cost gap lies.


32 Page 27, [Future Made in Australia – National Interest Framework \(treasury.gov.au\)](#)

33 Page 27, [Future Made in Australia – National Interest Framework \(treasury.gov.au\)](#)

34 Page 24, [Future Made in Australia – National Interest Framework \(treasury.gov.au\)](#)

35 <https://www.whitehouse.gov/briefing-room/statements-releases/2023/08/16/fact-sheet-one-year-in>

36 [Critical Minerals Strategy 2023–2030 \(industry.gov.au\)](#)



Another constraint is the nascent nature of the critical minerals industry. Although early movement is necessary to meet the Government's objective, there is a risk that technology may rapidly change, requiring greater than expected capital expenditure from firms. The Government should remain engaged with stakeholders and be agile with the method of intervention to manage this risk.

The final constraint is that the critical minerals sector may remain vulnerable to global supply chain disruptions even with Government intervention. This constraint is most apparent in relation to China's current monopolisation of the Lithium and Rare Earth minerals market as explained in the Policy Problem section. To best mitigate this risk, Government should develop sovereign capability in critical minerals processing, and secondarily maintain strong trade relations with key countries in the critical minerals sectors, such as the US, Canada and China, to ensure there are multiple sources of processed critical minerals inputs.

Alternative to government action and why is this a problem?

An option is to leave the market to manage the challenges faced in the sector and rely on existing Government support. This is a problem for Australia as there are long lead-time for projects in the critical minerals industry and will require time to build sovereign capability to protect against supply shocks. Further, the renewable energy transition is occurring now, which could lead to Australia being left behind and not capturing the full value of the opportunity that the energy transition presents.

Policy options

Option 1 –Base Case (Status Quo)

Under the base case, Australia maintains the current status quo. It is assumed that Australia would continue to benefit from domestic and international economies decarbonising, with no additional efforts from the Government or industry.

The base case reflects some impacts resulting from the decarbonisation of the Australian and global economy, however, remains agnostic as to whether this decarbonisation is in line with the Paris Agreement or Australian Government emissions reduction targets.

As such, Australia would not take on any further downstream processing activities and would remain an exporter of raw minerals where it is already doing so.

This option demonstrates the national security risks of a lack of government intervention in the sector, and resulting foregone economic opportunities.

Access to critical minerals will therefore rely heavily on trading partners building their capacity and honouring Free Trade Agreements with Australia.

Options 2 and 3 – Production Tax Incentive

The Critical Minerals Production Tax Incentive (CMPTI) will be available for up to 10 years per facility, for production between 2027-28 and 2039-40. The CMPTI will provide a time-limited and uncapped 10 per cent refundable tax offset, delivered through the tax system for constitutional corporations subject to tax in Australia:

- The offset will be calculated on the costs of processing and refining any of the critical minerals published on the Australian Government’s Critical Minerals List³⁷ as at 14 May 2024.
- Where the value of the taxpayer’s incentive claim exceeds their tax liability, the offset may result in a cash refund.
- There is no proposed cap on the quantum of funds claimable for each facility and no proposed restriction on the end use of the critical mineral.

The addition of further minerals to the Critical Minerals List (see Appendix B for full list) would not automatically flow through to the incentive and would instead require a decision of Government to amend the legislation. If a mineral is removed from the critical mineral list, this would not flow through to the incentive, without Ministerial direction, to retain certainty for firms which have proceeded with investments on the basis that they would receive the CMPTI.

Eligible processing costs will be those incurred for the processing and refining of the critical minerals. Depreciation and financing costs, and costs of feedstock will be excluded. Taxpayers will be required to apportion costs where they use the same inputs for eligible and non-eligible purposes.

Integrity measures will limit risk associated with related party transactions.

The CMPTI is only available to constitutional corporations that are income tax residents of Australia, or which carry on their processing activities through a permanent establishment (except entities that are fully exempt from paying corporate income taxes). Foreign investment will continue to be subject to Australia’s foreign investment settings.

Eligible processing will usually be defined based on the processing activities undertaken, such as chemical or thermal techniques, as opposed to eligibility based on the purity of the output. Legislation

³⁷ Australia’s Critical...~<https://www.industry.gov.au/publications/australias-critical-minerals-list-and-strategic-materials-list>

will include a regulation making power to allow for the inclusion or exclusion of activities for which the general definition does not appropriately cater.

Taxpayers will be able to elect when to start claiming the CMPTI, so that they can commence the 10-year period at the most opportune time for them.

The CMPTI will help achieve Government’s policy objectives as it will assist in building sovereign capability and economic resilience in critical minerals by narrowing the ongoing operational expenditure cost gap for firms with eligible processing activities by providing the 10 per cent tax credit for operational expenditure costs. This cash flow support will also increase companies’ creditworthiness and indirectly supports initial capital finding from financial institutions. By narrowing this cost gap, a greater volume of firms may decide to invest in processing which will assist in meeting the objective to protect and diversify supply chains for both Australia and our strategic partners.

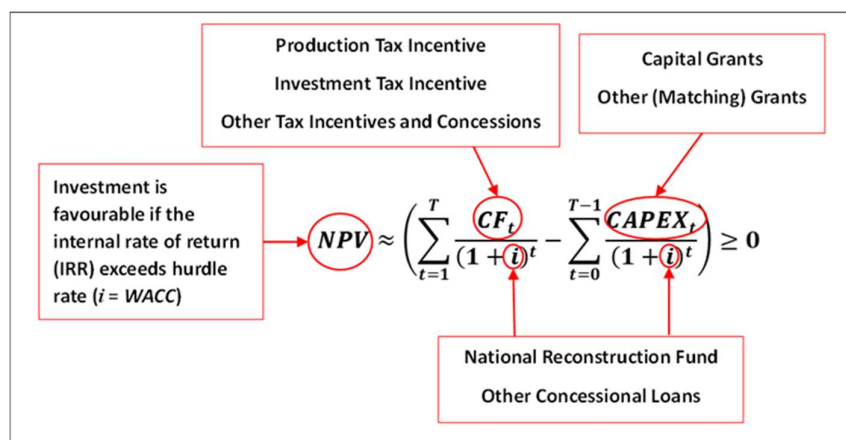
How Production Tax Incentive Affects Investment Decisions

The impact on investment of different industry support measures vary with the instrument. One way to understand the impact is to consider headline metrics that matter for firms in major investment decisions:

- Pre-Tax Net Present Value (NPV)
- Internal Rate of Return (i)
- Capital Expenditure (CAPEX)
- Operating Expenditure (OPEX)
- Cash Flow (CF)
- Year (t)

The IRR allows alternate prospective investments to be ranked and the schematic at **Figure 2.1** is a convenient representation of where particular financial support instruments target the drivers of investment decisions:

Figure 2.1. Schematic showing where support instruments interact with investment decision drivers



The proposed CMPTI as a tax offset will improve the after tax cashflow, but the cumulative effect of various incentives on the net present value of the benefit inflows over the life of the project will be a key determinant of investment decisions.



Option 2 - CMPTI as announced in the 2024-25 Budget

Option 2 would require applicants of the CMPTI to take a Final Investment Decision (FID), or commencement of production, prior to 30 June 2030. Applicants would need to provide supporting evidence that they had taken a FID or started processing by this date.

The inclusion of the requirement to take a FID by 30 June 2030 was intended to support the Government's objective of building sovereign capability by providing an incentive to bring forward investment decisions.

Option 3 – CMPTI as amended following stakeholder consultations

This option would remove the requirement for applicants to take a FID, or commence production, prior to 30 June 2030.

In consultation, stakeholders noted that given the long lead times for critical mineral investments new investors were unlikely to be able to take a FID by 30 June 2030. The intended effect of removing the FID requirement was to not exclude any new investment into critical minerals processing given the long lead times for projects. The removal would lead to the CMPTI not favouring existing producers or those well advanced towards FID. As a result, Option 3 will also support the Government in achieving its objective to build sovereign capability by providing as many processors as possible with access to the CMPTI.

Options out of scope for this Impact Analysis

Various stakeholders have raised that other initial capital supports could also help the nascent industry stakeholders to develop the infrastructure required for developing downstream critical minerals processing and refining. The Government had made a separate announcement in the 2024-25 Budget that the Critical Minerals Facility would financially support projects that are aligned with the national interest.

Additionally, there are other priority industries and areas which require further investigation within the Government's *Future Made in Australia* package with similar objectives, such as green hydrogen, green metals and low carbon liquid fuels. These measures are also not in scope of this regulatory impact analysis.

Cost benefit analysis

The cost-benefit analysis incorporates external scenario modelling commissioned by the Department of Industry, Science and Resources in 2023 to estimate the possible whole of economy benefits of an expansion in the critical minerals sector and potential downstream value adding.

Appendix D outlines the modelling approach, assumptions, and limitations of the external scenario modelling.

4.1 Option 1 – Base Case (Status Quo)

Under the status quo, Australia would not be well positioned to establish downstream critical minerals processing and manufacturing capabilities, and as such meet the Government objective. This option would favour the existing ‘dig and ship’ model and not build sovereign capability in the sector, leaving Australia vulnerable to supply chain shocks. It will also not assist with the investment growth in any additional critical minerals refining capabilities increasingly constrained by Australia’s cost gap and vulnerability to supply chain disruptions.

Treasury estimates suggest that under the base case, Australia will produce more than 7.5 million tonnes of refined critical mineral output by 2039-40, however the level that the minerals are refined to are estimated to be small improvements to the raw mineral. This estimation is based on analysis of Wood Mackenzie data, DISR prepared and provided data on unit production costs, and production forecasts of existing facilities only.

Australia’s current market share in the critical minerals and energy transition sector is 5.66 per cent overall based on Australia’s 2023 market value when compared to the global equivalent³⁸, heavily derived from the mining and extraction sectors.

The base case does not achieve the Government’s objective: to develop a sovereign capability for Australia to perform the downstream processing and refining of critical minerals. As a result, Australia will remain highly exposed to global supply chain disruptions given the lack of development in the critical minerals processing sector.

Furthermore, under the base case, Australia will not realise the potential value of the renewable energy transition and economies of scale will not be realised by the sector. Because of this, firms with marginal rates of return may be forced to close both temporarily and permanently during periods of disruption or economic difficulty. This will leave Australia more vulnerable to the global supply shocks as domestic processing and sovereign capability both decline.

Similarly, because the problems remain for existing firms the Australian community will not benefit should a well-developed critical minerals processing sector be developed in Australia. As a result, the community may lose out to the extent that an established clean energy production industry would help Australia meet its net zero targets and inputs into defence technologies and manufacturing. This would reduce the community’s access to emission-lowering technologies and industries, and worsen Australia’s national security, especially when supply chain disruptions occur.

The Australian community may also lose out to the extent the opportunity to gain higher value and productive onshore downstream critical minerals related jobs are foregone because of offshore processing.

This option is not expected to have any regulatory impact.

³⁸ Page 12, [The economic potential of Australia’s critical minerals and energy transition minerals](#)

4.2 Option 2 and 3 – Critical Minerals Production Tax Incentive Key Features

The refundable CMPTI Options 2 and 3 provide financial support to critical minerals processors for ongoing operating expenditures. This cash flow support also increases companies' creditworthiness and thus indirectly supports initial capital funding from financial institutions. Because of this incentive, the CMPTI aims to help establish downstream refining and processing capability, and in turn build sovereign capability and economic resilience for the sector.

Treasury estimates suggest that Australia will produce an additional amount of more than 2.5 million tonnes of refined critical mineral output over the life of the policy. By 2039-40, the CMPTI will have supported estimated production of around 10 million tonnes of refined critical minerals.

This estimation was calculated using the theory of price-induced demand and an elasticity for refined minerals sourced from the Global Trade and Analysis Project database. Treasury also consulted with DISR on expected lead times for new projects to become operational.

Like all forecasts, there is uncertainty as to future outcomes, with both upside and downside risks. In addition, and not uncommonly, there were limitations to the data, including that DISR was unable to source production data for all 31 critical minerals due to their nascency.

An increased production of more than 2.5 million tonnes of higher processed, critical mineral output reflects the effectiveness of the Government's objective to build a sovereign capability. The CMPTI is expected to benefit critical minerals processors and manufacturers further downstream as they will be able to access an increased supply of domestic minerals because of the development of the industry, due to the narrowing of the operational expenditure cost gap achieved by the CMPTI. Developing the critical minerals industry will reduce Australia's reliance on imported processed critical minerals and accordingly support the Government's objective of achieving national security benefits by building sovereign capacity.

The Australian community is expected to benefit to the extent that the CMPTI encourages greater production of clean energy assets and defence technology inputs which will assist with Australia's net zero objectives and national security considerations. Achieving net zero will internalise the negative externalities from emissions, drive efficient decarbonisation, spur long-term investment in clean, emissions-lowering technologies and industries, and seize the economic opportunities this transformation presents. ³⁹

Additionally, the CMPTI will be aligned with the Community Benefit Principles outlined in the Future Made in Australia Bill⁴⁰ which seeks to ensure public investment and the private investment it attracts flows to local communities in ways that benefit local workers and businesses.

It should however be noted that the full potential of the Australia's sovereign capability in the critical minerals sector may not be realised without targeted support for downstream activities, including manufacturing (i.e. creating demand for the CMPTI outputs). Options 2 and 3 only aim to address the operational expenditure cost gap for processors. Targeted Government support for capital expenditure, such as the Critical Minerals Facility, will still be relied upon by the sector to assist Australia in meeting its objectives.

In addition to the national security rationale of the CMPTI, the external modelling commissioned by DISR also provides an estimates of the economic benefit that the CMPTI could provide. In scenario 2 of the external modelling, it is estimated that a \$6.94 billion in total investment from Government and Industry is applied to the Australia economy from 2022 until 2035. Given the CMPTI is estimated to

³⁹ Page 3, *Future Made in Australia – National Interest Framework*

⁴⁰ *Future Made in*

[Austr...~https://www.aph.gov.au/Parliamentary_Business/Bills_LEGislation/Bills_Search_Results/Result?bId=r7219](https://www.aph.gov.au/Parliamentary_Business/Bills_LEGislation/Bills_Search_Results/Result?bId=r7219)

cost approximately \$7 billion dollars from 2023-24 to 2033-34, Treasury has for the purposes of this Impact Assessment, assumed that Scenario 2 is at least equivalent to the proposed CMPTI outcomes.

As the external modelling assumes that the \$6.94 billion comes from both industry and Government, compared to the CMPTI which only comes from Government expenditure, Treasury believe that it is reasonable to assume that the estimates in the external modelling constitute the lower bound of the possible economic benefits of the CMPTI.

The modelling commissioned externally by DISR estimates that a \$6.94 billion total investment until 2035 into the critical minerals downstream processing sector will see a net increase in national GDP of \$69.9 billion (2023-dollar value) until 2040, relative to the base case. The investment from the Government is expected to cause greater co-investment from industry compared to Option 1 given the reduced cost gap and vulnerability to supply chains.

Furthermore, the external modelling estimates that Government investment is expected to create up to 143,000 additional cumulative FTE jobs from 2022 to 2040⁴¹, compared to the base case. While the investment captured as part of this scenario is spread out from 2022 to 2035, employment levels post 2035 are maintained as the shocks adopted remain ongoing.

Option 2 and 3 are expected to result in a medium overall compliance cost impact, comprising a medium implementation impact and a low increase in ongoing compliance costs. The options are expected to cost \$100,000 per claimant for implementation, and \$12,000 per year for ongoing reporting requirements.

The regulatory impact cost assessment assumes that the compliance cost will vary between companies and that there will be some new reporting and verification activities that will need to be designed and dealt with.

Option 2 – Critical Minerals Production Tax Incentive at Budget

The FID requirement was intended to support the accelerated development of sovereign capability in critical minerals processing industry onshore. This is because it would incentivise firms to bring forward any existing, or potential, investment decisions to pre-June 30 2030 to be eligible for the CMPTI. A requirement for FID was also considered as it could limit the fiscal impacts over the life of the CMPTI by not limiting the cost associated with late entrants. Having a FID deadline with a requirement to register this decision with DISR would also provide processors with greater certainty and assurance for the industry participants that they could receive the CMPTI.

Option 2 was estimated to have a cost to the budget of \$7.0 billion over 11 years from 2023-24 (and an average of \$1.5 billion per year from 2034-35 to 2040-41).⁴²

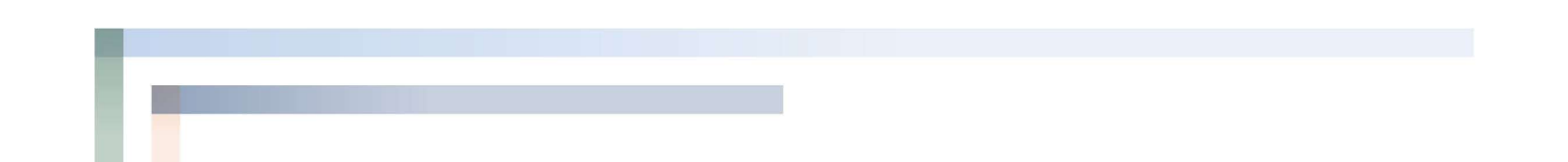
This option was estimated, subject to data availability, by taking forecasts provided by DISR of eligible annual production volumes for each critical mineral. These volumes were then multiplied by eligible unit processing costs for each mineral to provide an estimate of total eligible processing costs for each listed critical mineral. Proxy processing costs were used where data limitations were present. The resulting eligible CMPTI costs were then multiplied by 10 per cent to obtain the value of the CMPTI accrued over a given year.

The regulatory impact for option 2 to include a requirement to register a FID is not estimated to require additional costs from firms, rather require the bring forward of these decisions that would occur as normal business practice.

Option 3 – CMPTI as amended following stakeholder consultations

⁴¹ [The economic potential of Australia's critical minerals and energy transition minerals \(industry.gov.au\)](https://www.industry.gov.au)

⁴² Page 68, [Budget Paper No.2](#)



Feedback from industry stakeholders indicated that critical minerals projects have long lead times due to financing, environmental and other approvals processes which will impede upon a new project's ability to accelerate towards FID by 2030. This meant that Option 2 would only benefit existing producers or those already well advanced towards a FID by 2030. Treasury has estimated that the FID requirement would disqualify production from some of the facilities which would commence operations in response to the CMPTI but begin producing much later (2035-36 onwards) than assumed under Option 2 at 2024-25 Budget. Treasury has estimated that retaining the FID eligibility requirement would result in a reduction in CMPTI support to this cohort of facilities.

Option 3 would better ensure that the CMPTI meets the policy objective of growing Australia's sovereign capability in the critical minerals processing industry, including by incentivising projects not already under active consideration. It would allow projects with longer lead times to come online later and remain eligible for the CMPTI towards the end of the life of the policy, largely offsetting the unintended consequence of the FID requirement.

The fiscal cost of Option 3 is similar to Option 2 as costed at 2024-25 Budget, with a small increase to the underlying cash balance (UCB) over the life of the policy (to 2040-41). The small UCB gain is due to a small amount of production from 'induced' projects falling outside of the eligibility period. This overall net UCB gain further reflects the net benefit that Option 3 provides. As a result, the fiscal cost of Option 3 is similar to Option 2 as costed at 2024-25 Budget.

The FID requirement was originally considered to incentivise firms to move quickly to bring projects online and to limit the budget cost. However, feedback from consultation indicated that the 10-year limit per project and 2040 end date were sufficient to incentivise firms to move as quickly as possible and limit the fiscal impact of the policy.

Stakeholder engagement confirmed that infrastructure demands constrain the delivery of critical minerals projects making it almost impossible to meet the FID deadline outlined in the consultation paper.

Removing the requirement for a project to take FID or start production by 2030 will make the CMPTI more effective in incentivising new investment and diversifying critical minerals supply chains which supports the Government's objective. It would also reduce the administrative complexity for companies, DISR and the ATO, and be consistent with strong feedback from stakeholders during consultation.

Option 3 is also expected to have a negligible regulatory cost. Firms will be required to register their intention to claim the CMPTI with DISR, however the information required to meet these registration requirements is estimated to be low.

Consultation conducted

Early confidential consultations before announcement

Before the 2024-25 Budget announcement, Treasury, with representatives from the Department of Industry, Science and Resources (DISR), the Department of Climate Change, Energy, the Environment and Water (DCCEEW) and the Net Zero Economy Agency (NZEA) undertook confidential consultations with participants and peak bodies in the critical minerals industry.

The purpose of these consultations was to:

- test the key features of the CMPTI;
- clarify the proposed interaction between the CMPTI and other Government critical minerals initiatives; and
- engage with the States on the specific implications for their Government Business Enterprises (GBEs).

Consultees welcomed the proposal and indicated it would make a meaningful improvement to Australia's attractiveness as an investment destination for refining and processing critical minerals. Consultees also broadly agreed with the proposed project parameters, noting the similarities with the US production tax credit for critical minerals.


Treasury and DISR agreed that concerns raised in the confidential consultations could be explored further during public consultation before finalising the proposed design. The concerns were repeated in the public consultation process.

Public consultation on implementation details

Treasury conducted a public consultation on the design implementation details of CMPTI from 28 June 2024 to 12 July 2024, and 49 written submissions were provided with a range of stakeholders including, project developers, industry bodies, tax advisors, unions and state and territory governments. Treasury and DISR also held targeted discussions with 18 key stakeholders to explore the CMPTI in greater detail.

Public consultation supported the addition of a broad-based tax incentive to incentivise growth and scale in the critical minerals sector. Some of the key outcomes of the consultation are as follows:

- At least 12 respondents supported the inclusion of mid-stream processing in the CMPTI policy framework. Other respondents did not explicitly note support or provide dissenting views.
- 9 stakeholders flagged that the 10 per cent credit would be insufficient to facilitate new investment in critical minerals processing and would need to be complemented by other forms of Government assistance to effectively shift the dial.
 - Treasury considered the appropriate level of incentive in the lead up to Budget based on industry feedback, comparisons with other support provided globally, and existing policies. Feedback from public consultation did not sufficiently question the basis for this decisions.
- Eleven stakeholders communicated that depreciation is one of the highest costs for critical minerals processing in Australia and including it as an eligible cost would help attract more downstream processing investment.
 - Treasury and DISR understand that depreciation costs do not scale with production once a facility has been built, so extending eligibility to depreciation could result in some



taxpayers receiving significant payments even if production is limited. This would be inconsistent with the policy objective of targeting processing activity and there are other forms of capital support that projects could seek access to, such as the Critical Minerals Facility.

Removal of FID requirement

During public consultation, 11 industry stakeholders of the 49 submissions supported the removal of the requirement to make a Final Investment Decision (FID), or commence first production, by 2030. Stakeholders outlined that this requirement would likely exclude new investment given the long lead times for critical mineral processing projects, meaning the CMPTI would only benefit existing producers or those well advanced towards FID, which was against the policy intent of the CMPTI.

Treasury and DISR agreed with stakeholders around the removal of the FID requirement, and this is reflected in the preferred option. It is understood that given the long lead time for critical minerals processing in Australia, a FID requirement is likely to exclude new investment, meaning the incentive will only benefit existing producers, which is against the policy intent. This thinking differs to the Hydrogen Production Tax Incentive, as the relevant projects have short lead times.

Eligible outputs

Sixteen stakeholders cautioned against the CMPTI defining eligible outputs by prescribing purity levels. It was noted that customer requirements are consistently evolving and incentivising companies to target certain purity levels may not match future market demand. This was because a plant built to certain specifications may be out of date by the time the build is complete.

Furthermore, stakeholders noted that achieving high purity levels is not currently economical for the Australian critical minerals industry. Even with a CMPTI the foreseeable opportunity is mid-stream processing activity, with further downstream capability being developed incrementally. Industry added that higher purity targets are more appropriate for the United States industry as they have a more developed manufacturing sector to sell processed minerals into.

Some stakeholders proposed an alternative approach to purity definitions which involved using a metric based on value-add or chemical transformation from the initial mined output.


Following consultation, Treasury and DISR's view is that outputs should be defined through a test that will be principally defined based on the processing activities undertaken, such as extractive metallurgical processing techniques, as opposed to eligibility based on the purity of the output. This is reflected in the preferred option.

Leverage existing processes to reduce administration burden for claimants

Six stakeholders requested that existing processes were leveraged as much as possible to reduce administrative burden. In particular, stakeholders noted that producers and customers do extensive testing to ensure output meets the specifications of the sale contract, with financial penalties or rejection where it does not. This testing is performed by an in-house or independent laboratory, and disputes are generally adjudicated by a third-party laboratory.

Products can be independently tested by National Association of Testing Authorities (NATA) accredited laboratories in Australia, which certify the products for commercial sales and are required for any sale of critical minerals globally. These laboratories are audited by the International Federation of Inspection Agencies.

Industry recommended that the CMPTI rely on certificates of assurance from these laboratories for compliance purposes rather than requiring separate testing by Geoscience Australia. Industry also noted Geoscience Australia did not currently have necessary testing capabilities for this function.



Nevertheless, they were largely supportive of an audit of products where appropriate to ensure compliance.

Treasury and DISR support the use existing testing arrangements to evidence eligibility of outputs, specifically, the use of NATA accredited testing labs. From consultation, it is clear there are already incentives for producers to have sufficient testing mechanisms in place, given the financial consequences that will arise where it does not meet the specification in the commercial contract. This level of independence and certification is considered sufficient to support the integrity of the scheme and is reflected in the preferred option.

Confidential Consultation on draft legislation

In October 2024, Treasury, with representatives from DISR undertook confidential consultation with participants and peak bodies in the critical minerals industry. The purpose of this consultation was for consultees to provide feedback on draft legislation and explanatory materials.

Consultees welcomed the draft legislation and indicated that the amendments since the public consultation effectively incorporated stakeholder feedback and would assist with Australia's ambition to grow the downstream critical minerals processing sector.

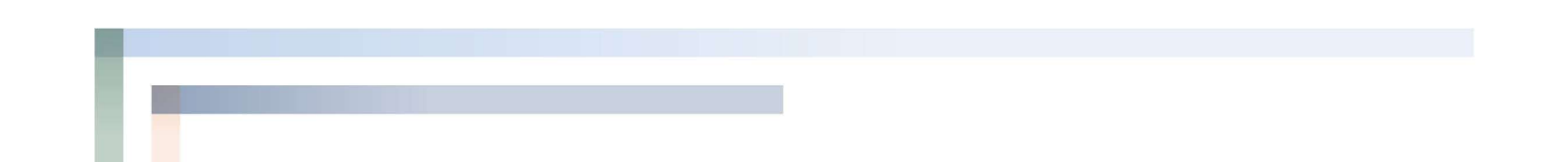
Option selection

The table below provides a summary of the costs and benefits of each option.

Impacts	Option 1 – Status Quo	Option 2	Option 3
Supply chains	Australian community and processors vulnerable to price volatility from supply chain disruption	Improved management of supply chain risks consistent with national security considerations, including for strategic partners	
Society	Consumers passed on greater costs from international firms Onshore critical minerals jobs will be lost to offshore processing Limited capacity to meet net zero and renewable energy ambitions	Creation of onshore critical minerals higher value processing jobs Significant contributions to Australia’s GDP Significant capacity improvement to meet Australia’s net zero and renewable energy ambitions Consumers access to inputs from domestic firms and less subject to the potential of price volatility due to the enhanced domestic production capability. CMPTI alignment with the Future Made in Australia Community Benefit Principles will increase investment in local communities, skills whilst diversifying the workforce.	
Government	No change in costing. Government may be required to make more direct investment in critical minerals processing programs. This support may need to be at a higher rate than proposed in the CMPTI to attract capital already invested elsewhere.	Cost from reduced tax receipts and increased payments Cost from implementation and enforcement of the CMPTI The demand for further Government direct investment in critical minerals processing programs will be reduced.	
Critical Minerals processors	Exposed to supply chain disruptions and price volatility from purchasers Cost gap will remain, disincentivising activity in Australia	Reduced processing costs for eligible expenditures	Reduced processing costs for eligible expenditure Greater access to the CMPTI with no FID requirement
Net benefit compared to Option 1	N/A	Net benefit over Option 1	Greatest net benefit

The preferred option is Option 3 – introduction of the CMPTI without a requirement for a FID to be taken. This option provides the greatest net benefit as it most effectively address the Government’s objective to incentivise critical minerals processing in Australia by narrowing the cost differential for production and, in doing so, build sovereign capability in critical minerals processing.

As discussed in the cost benefit analysis, Option 1 does not adequately address the Government’s objectives as it favours the existing ‘dig and ship’ model. This option does not build sovereign capability in the sector, leaving Australia vulnerable to supply chain shocks. It will also not assist with



the investment growth in any additional critical minerals refining capabilities increasingly constrained by Australia's cost gap and vulnerability to supply chain disruptions.

Furthermore, under the status quo, Australia will not realise the potential value of the renewable energy transition and economies of scale will not be realised by the sector. Because of this, firms with marginal rates of return may be forced to close both temporarily and permanently during periods of disruption or economic difficulty. This will leave Australia more vulnerable to the global supply shocks as domestic processing and sovereign capability both decline.

Similarly, because the problems remain for existing firms the Australian community will not benefit should a well-developed critical minerals processing sector be developed in Australia. As a result, the community may lose out to the extent that an established clean energy production industry would help Australia meet its net zero targets and inputs into defence technologies and manufacturing. This would reduce the community's access to emission-lowering technologies and industries, and worsen Australia's national security, especially when supply chain disruptions occur.

The Australian community may also lose out to the extent the opportunity to gain higher value and productive onshore downstream critical minerals related jobs are foregone because of offshore processing under option 1.

Options 2 and 3 aims to help establish downstream refining and processing capability, and in turn build sovereign capability and economic resilience for the sector. The CMPTI provides financial support to critical minerals processors for ongoing operating expenditures. This cash flow support also increases companies' creditworthiness and thus indirectly supports initial capital funding from financial institutions.

Furthermore, Treasury estimates suggest that Australia will produce an additional amount of more than 2.5 million tonnes of refined critical mineral output over the life of the policy. By 2039-40, the CMPTI will have supported estimated production of around 10 million tonnes of refined critical minerals. The increased production of more than 2.5 million tonnes of higher processed, critical mineral output, compared to the status quo, reflects the effectiveness of the Government's objective to build a sovereign capability.

Options 2 and 3 are also expected to benefit critical minerals processors and manufacturers further downstream as they will be able to access an increased supply of domestic minerals because of the development of the industry, due to the narrowing of the operational expenditure cost gap achieved by the CMPTI. Developing the critical minerals industry will reduce Australia's reliance on imported processed critical minerals and accordingly support the Government's objective of achieving national security benefits by building sovereign capacity.

The Australian community is expected to benefit from these options to the extent that the CMPTI encourages greater production of clean energy assets and defence technology inputs which will assist with Australia's net zero objectives and national security considerations. Achieving net zero will internalise the negative externalities from emissions, drive efficient decarbonisation, spur long-term investment in clean, emissions-lowering technologies and industries, and seize the economic opportunities this transformation presents.⁴³

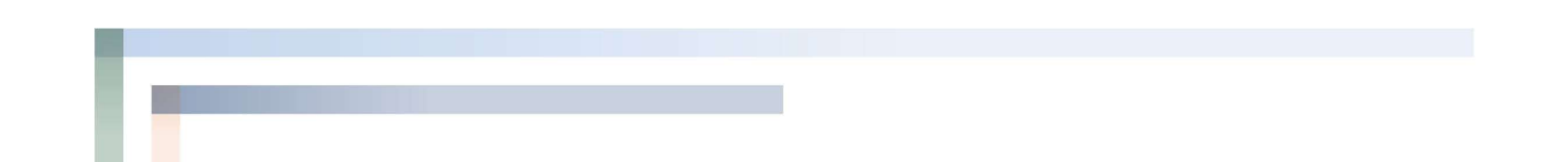
Additionally, these options will be aligned with the Community Benefit Principles outlined in the Future Made in Australia Bill⁴⁴ which seeks to ensure public investment and the private investment it attracts flows to local communities in ways that benefit local workers and businesses.

It should however be noted that the full potential of the Australia's sovereign capability in the critical minerals sector may not be realised without targeted support for downstream activities, including

⁴³ Page 3, *Future Made in Australia – National Interest Framework*

⁴⁴ *Future Made in*

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manufacturing (i.e. creating demand for the CMPTI outputs). Options 2 and 3 only aim to address the operational expenditure cost gap for processors.

Under the modelling commissioned externally by DISR, it is also estimated that options 2 and 3, in contrast to the status quo would see a net increase in national GDP of \$69.9 billion (2023-dollar value), until 2040. Further, the modelling estimated that these options are expected to create up to 143,000 additional cumulative FTE jobs from 2022 to 2040⁴⁵, compared to the base case.

Furthermore, the external modelling estimates that Government investment is expected to create up to 143,000 additional cumulative FTE jobs from 2022 to 2040⁴⁶, compared to the base case. While the investment captured as part of this scenario is spread out from 2022 to 2035, employment levels post 2035 are maintained as the shocks adopted remain ongoing. These options and their net benefits outweigh the status quo in their ability to meet the Government's objectives.

The key constraint of these options is that the critical minerals sector may remain vulnerable to global supply chain disruptions even with Government intervention. This constraint is most apparent in relation to China's current monopolisation of the Lithium and Rare Earth minerals market as explained in the Policy Problem section. To best mitigate this risk, Government should maintain strong trade relations with key countries in the critical minerals sectors, such as the US, Canada and China, to ensure there are multiple sources of processed critical minerals inputs.

Option 2 would address the Government's objectives to a more limited degree, as the FID requirement would lock out investment that comes online after the FID deadline. The Option was estimated to have a cost to the budget of \$7.0 billion over 11 years from 2023-24 (and an average of \$1.5 billion per year from 2034-35 to 2040-41).⁴⁷

Option 3 considers stakeholder feedback and removes the requirement for firms to take a FID by 2030 or commence first production. Option 3 would better ensure that the CMPTI meets the policy objective of growing Australia's sovereign capability in the critical minerals processing industry, including by incentivising projects not already under active consideration. It would allow projects with longer lead times to come online later and remain eligible for the CMPTI towards the end of the life of the policy, largely offsetting the unintended consequence of the FID requirement.

This option takes stakeholder feedback into consideration and has sought to manage compliance and administration costs. It reflects close collaboration between the Treasury, DISR, and regulators. Given the nascency of the industry there are limitations associated with calibrating support, however this option is underpinned by robust assumptions and received broad support from stakeholders.

The fiscal cost of Option 3 is similar to Option 2 as costed at 2024-25 Budget, with a small increase to the UCB over the life of the policy (to 2040-41). The small UCB gain is due to a small amount of production from 'induced' projects falling outside of the eligibility period. This overall net UCB gain further reflects the net benefit that Option 3 provides.

Implementation considerations


To implement the CMPTI, legislative design will be worked through, including appropriate consultation of the legislation. Once implemented, Treasury will continue working with DISR and the ATO to monitor the effectiveness of the CMPTI.

Implementation risks in relation to the introduction of the CMPTI include that there may be a rapid influx of applications to DISR to register for the incentive when available and taxpayers seeking certainty prior to investment decision in the sector. This risk can be mitigated by clear guidance from

⁴⁵ [The economic potential of Australia's critical minerals and energy transition minerals \(industry.gov.au\)](https://industry.gov.au)

⁴⁶ [The economic potential of Australia's critical minerals and energy transition minerals \(industry.gov.au\)](https://industry.gov.au)

⁴⁷ Page 68, [Budget Paper No.2](#)



DISR and the ATO regarding registration requirements and providing a timeframe in which responses to applications are expected to be sent.

There are further integrity risks associated with offering a significant refundable tax offset, which can be addressed to an extent by integrity rules in legislation, which the ATO will manage.

Evaluation/Review

The effectiveness of the preferred option can be monitored and evaluated against the Government's objectives as outlined in the table below.

Objectives	Success Metrics
<ul style="list-style-type: none">• Building sovereign capability in critical minerals processing• Greater volume of critical minerals processing• Narrowing the cost gap for production in Australia compared to other jurisdictions	<ul style="list-style-type: none">• Production volumes of processed critical minerals increasing to manage supply shocks on the Australian economy• Increase in the volume of onshore downstream processing in Australia, relative to the status quo• Processing facilities established increasing by 30 per cent by 2035 in Australia to perform downstream activities• Australia's market share in the critical minerals and energy transition minerals increasing from the 5.66 per cent base case scenario• The number of long-term offtake agreements in place for the refined minerals alongside a growing domestic market for critical minerals

The cost of the production tax credits will be publicly reported via the Tax Expenditures and Insights Statement each year.

The policy will be annually through observing the typical administration of the tax system and increase in private new capital expenditure and investment intentions.

The policy will also be evaluated over time through regular community outreach and engagement Treasury has with the industry and other interested stakeholders.


Careful design of the application forms will enable economic data including baseline data to be collected for future evaluation.

Potential for Future Made in Australia Community Benefits Principles⁴⁸ to inform data collection

Outcomes from the Community Benefit Principles under the Future Made in Australia Bill may be measured, with the data to inform future evaluations. The principles as introduced are:

1. Promote safe and secure jobs that are well paid and have good conditions;
2. Develop more skilled and inclusive workforces, including by investing in training and skills development and broadening opportunities for workforce participation;
3. Engage collaboratively with and achieve positive outcomes for local communities, such as First Nations communities and communities directly affected by the transition to net zero;

⁴⁸ <https://www.pm.gov.au/media/future-made-australia-bill-will-build-stronger-cleaner-economy>

- 
- a. Supply Nation’s members include a number of mining companies with interests in critical minerals, for example: BHP Ltd; Fortescue Metals Group; Iluka Resources Ltd; Mineral Resources Ltd, Newmont Australia Ltd., Rio Tinto, Wesfarmers.⁴⁹
 - b. Such information can be useful for assessing progress against the National Agreement on Closing the Gap, socioeconomic target outcome 8 – Strong participation and development of Aboriginal and Torres Strait Islander people communities⁵⁰
- 3a. Supporting First Nations communities and Traditional Owners to participate in, and share in the benefits of, the transition to net zero;
4. Strengthen domestic industrial capabilities including through stronger local supply chains; and
5. Demonstrate transparency and compliance in relation to the management of tax affairs, including benefits received under Future Made in Australia supports.

⁴⁹ <https://supplynation.org.au/about-us/supply-nation-members/>

⁵⁰ National Agreement on Closing the GAP (2020) Closing the Gap in Partnership.

Appendix A: Status of the IA at each major decision point

Decision Point	Timeframe	Statuses of the IA
Government announced	May 2024	<p>Discussed with OIA the need for an IA.</p> <p>OIA indicated an IA is required as this policy is more than likely to have a minor impact.</p> <p>Prepared and provided draft IA to OIA for feedback.</p>
Identification of viable policy options and preferred option	June 2024 – October 2024	<p>Consulted with stakeholders to develop policy options and collected information for cost-benefit analysis in the IA.</p> <p>Revised draft IA provided to OIA for feedback.</p> <p>First Pass Final Assessment completed.</p> <p>Second Pass Final Assessment completed.</p>
Final decision of policy and introduction of viable policy options and preferred option	November 2024	Assessed IA provided to decision maker

Appendix B: Australia's Critical Minerals List

**Critical Minerals List as at 14 May 2024*

High-purity Alumina

Antimony

Arsenic

Beryllium

Bismuth

Chromium

Cobalt

Fluorine

Gallium

Germanium

Graphite

Hafnium

Indium

Lithium

Magnesium

Manganese

Molybdenum

Nickel

Niobium

Platinum-group elements⁵¹

Rare-earth elements⁵²

Rhenium

Scandium

Selenium

Silicon

Tantalum

Tellurium

Titanium

Tungsten

51 The platinum group elements include ruthenium, rhodium, palladium, osmium, iridium, and platinum. Several partner lists separately identify the platinum group elements and/or only identify certain platinum group elements as critical minerals.

52 The rare earth elements include yttrium, lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, and lutetium. Several partner lists separately identify the rare earth elements and/or only identify certain rare earth elements as critical minerals.



Vanadium

Zirconium

Appendix C: Existing Support for Australian Critical Minerals Production

The table below provide examples of support for Australian Mining and Resources industry:

Support Programmes	Delivery Instruments
Critical Minerals Facility ⁵³	<ul style="list-style-type: none"> • Loans, • Bonds • Limited equity • Guarantees, • Insurance
National Reconstruction Fund ⁵⁴ - Value-adding in Resources	<ul style="list-style-type: none"> • Concessional Loans • Equity • Guarantees
Northern Australia Infrastructure Facility ⁵⁵	<ul style="list-style-type: none"> • Concessional Loans • Equity (≤A\$50 million per project) • Letters of Guarantee
Critical Minerals Development Program ⁵⁶	<ul style="list-style-type: none"> • Competitive Grants <ul style="list-style-type: none"> ○ 3-years totalling A\$50 million.
Australian Critical Minerals Research and Development Hub ⁵⁷	<ul style="list-style-type: none"> • In-Kind support: <ul style="list-style-type: none"> ○ Through funding the technical capability expansion of CSIRO, ANSTO and GA.
Research and Development Tax Incentive	<ul style="list-style-type: none"> • Tax incentive for eligible core and supporting activities as set out in the <i>Income Tax Assessment Act 1997</i>, s.355. <ul style="list-style-type: none"> ○ For R&D entities with aggregated turnover of less than \$20 million, the refundable R&D tax offset is your corporate tax rate plus an 18.5% premium.⁵⁸

Future Made in Australia measures in the 2024-25 Budget to support critical minerals⁵⁹

Budget Measure	Objectives
<i>Making Australia a Renewable Energy Superpower</i> - \$10.2 million	To work with states and territories to develop prefeasibility studies of common use infrastructure, which promotes a competitive and productive critical minerals sector.
<i>Workforce and Trade Partnerships for Renewable Energy Superpower Industries</i> - \$14.3 million	To work with trade partners to support global rules on unfair trade practices and to negotiate benchmarks for trade in high quality critical minerals.

⁵³ www.exportfinance.gov.au/how-we-can-help/our-solutions/critical-minerals/

⁵⁴ <https://www.industry.gov.au/news/national-reconstruction-fund-diversifying-and-transforming-australias-industry-and-economy>

⁵⁵ <https://naif.gov.au/our-investments/sectors-we-support/resources/>

⁵⁶ <https://www.industry.gov.au/news/our-commitment-developing-australias-critical-minerals-sector>

⁵⁷ www.industry.gov.au/news/our-commitment-developing-australias-critical-minerals-sector

⁵⁸ <https://business.gov.au/grants-and-programs/research-and-development-tax-incentive/overview-of-rd-tax-incentive>

⁵⁹ Budget Paper No.2

Appendix D: Modelling Assumptions and Limitations for Cost Benefit Section

The cost benefit analysis section draws on external scenario modelling that was commissioned by DISR in 2023 to estimate the possible whole-of-economy benefits of an expansion in the critical minerals sector and potential downstream value-adding. The scenarios were modelled as a change in the status quo (i.e. shocks) and illustrated the potential impact of an expansion in downstream critical minerals processing activity through investment.

The observations reflected comparative static analyses of 4 scenarios out to 2040 against a 'base case' scenario, which assumed some growth in the critical minerals sector with mine expansions based on current trends, together with impacts resulting from the current decarbonisation paths of the Australian and global economies.

Base Case:

Under the base case scenario, the status quo is maintained. This means that Australia would continue to benefit from domestic and international economies decarbonising, with no additional efforts from the Government or industry. The base case reflects some impacts resulting from the decarbonisation of the Australian and global economy, however, remains agnostic as to whether this decarbonisation is in line with the Paris Agreement or Australian Government emissions reduction targets.

The Base Case also assumes there would be no green price premium, no faster adoption of clean technologies and no further adoption of energy transition related policies in Australia.

The base case is informed by a view of the Australian economy, based on Australian Bureau of Statistics (ABS) data, as well as known and anticipated mine expansions based on current trends. It is assumed under the base case, that no further investment stimulates the economy (in addition to what has already been catered for in the model), nor the use of any other policy mechanism or levers within each of these subsequent scenarios. This also means no green price premium, no faster adoption of clean technologies and no further adoption of energy transition related policies are captured under the base case.


Scenario 2

Scenario 2 reflects the scale of change required to transform global economies to net zero, generating unprecedented levels of demand from private and public sectors for clean technology products. These clean technology products are critical to global decarbonisation, with all pathways to net zero requiring a significant increase in capital expenditure and investment in material efficiency, circular economy solutions, and renewable energy technologies.

Scenario 2 captures the opportunity for Australia to become more than a primary producer and capture the potential of developing Australia's sovereign manufacturing capability to value add to these raw materials.

The additional investment adopted under Scenario 2, which equates to Options 2 and 3 in this Impact Assessment, is not directly associated with specific Government policy mechanisms or industry players, as it remains unclear what key drivers will lead to the additional investment adopted. Key inputs from DISR have been provided to establish a total co-investment value that could be attributed to building out downstream capabilities. Given the time horizon of the modelling, these inputs are necessarily illustrative, and should not be considered as indicating future government policies.

Representative ratios for Government to private sector investment provided by DISR have been used for scenario 2 and is based on historic performance of similar or related Government measures.



For scenario 2, the report employs economic ‘shocks’ to represent construction and operation phases, effectively making Australia’s downstream capabilities more productive. Sectors that were shocked contained processing of mineral products, battery manufacture, electrical equipment manufacture, metal fabrication and transport equipment manufacturing.

The shocks employed include additional investment in:

- Other metals sector, which includes for example professional, scientific, computer and electronic equipment manufacturing and electrical equipment manufacturing;
- Other chemicals sector, which includes for example chemical manufacturing; and
- Other manufacturing sector, which includes for example metal product manufacturing.

In adopting these economic shocks, it is assumed that greater productivity will be achieved within the above sectors, meaning less input will be required to deliver the same level of output.

Assumptions/modelling approach:

The modelling uses a customised version of the Victoria University Regional Model (VURM).⁶⁰ A dynamic multi-regional computable general equilibrium (CGE) model which quantifies the economic impacts resulting from the various success in building downstream capability scenarios (and sensitivities).

The model uses detailed data from the Australian Bureau of Statistics and features price-driven behaviour and economy-wide constraints. The model involves an economy changing and growing over time in response to population, capital and debt accumulation, partial adjustment mechanisms in the labour market, as well as changes in technology and patterns of international trade and growth.

The ‘base case’ captures the baseline impact that is expected by Australia as it moves to low emissions technologies to support its decarbonisation journey.

While the base case captures the baseline impact that is expected by Australia as it moves to low emission technologies to support its decarbonisation journey, it is unclear whether or not the VURM assumes Australia achieves net zero by 2050, and whether it is on the trajectory to achieve that target over the analysis period. The report assumes this a reasonable position to adopt within the base case as it represents governments and industries actively taking steps to support the decarbonisation of the Australian economy.


All results presented are additional to the growth that is expected to occur under the model base case forecast of the Australian economy.

Jobs reported as ‘additional’ within the scenario results are the estimated net number of new jobs generated above the baseline, which move from non-productive industries to those which are stimulated by additional activity/investment.

Limitations:

The results have been quantified out to 2040, based on publicly available projections relating to foreseen demand of critical minerals. The modelling has been conducted using a forecast of critical

⁶⁰ <https://www.vu.edu.au/centre-of-policy-studies-cops/contract-research-cge-model-sales/cge-model-sales/victoria-university-regional-model-vurm>



mineral demand values, so would be subject to any change in those forecasts. Due to data limitations, the commodity prices adopted have been assumed to remain consistent across the analysis period.

The additional investment adopted under Scenario 2, which equates to Options 2 and 3 in this Impact Assessment, is not directly associated with specific Government policy mechanisms or industry players, as it remains unclear what key drivers will lead to the additional investment adopted. Key inputs from DISR have been provided to establish a total co-investment value that could be attributed to building out downstream capabilities. Given the time horizon of the modelling, these inputs are necessarily illustrative, and should not be considered as indicating future government policies.

It remains unclear what green price premium could be unlocked in Australia, where it plays an active role in shaping international standards in the future.

CGE is a simplification of real-world interactions and will not definitely address all uncertainties. One of these uncertainties includes whether Australia achieves net-zero by 2050, in the absence of any targeted additional 'shocks'.

The modelled scenarios do not capture the impacts of recent shifts in international renewable energy and industry policies, such as the US Inflation Reduction Act of 2022, nor are the shocks attributed to any particular additional government policy levers. As such, the scenario outcomes are interpreted as illustrative of the potential impacts from building downstream capabilities.