Consultation on the Critical Minerals Production Tax Incentive (CMPTI)

Introducing a Progressive Production Tax Incentive to Maximise Domestic Value Addition, Investment and Supply Chain Resilience

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Executive Summary

Australia possesses one of the world's largest endowments of critical minerals but currently captures only a limited share of the value generated from downstream processing (Smyth & Vespignani, 2022). The proposed **Critical Minerals Production Tax Incentive (CMPTI)** is an important step towards strengthening Australia's critical minerals industry and supporting the objectives of the **Future Made in Australia** agenda. However, the proposed uniform 10 per cent refundable tax offset provides the same level of support regardless of how much value is created within Australia.

This submission recommends replacing the flat production tax offset with a **Progressive Production Tax Incentive (PPTI)**, under which the incentive increases with the level of domestic value added. Rather than providing identical support across all eligible processing activities, a progressive incentive would encourage firms to move further downstream into higher-value processing and advanced manufacturing.

A progressive approach would better align government support with Australia's long-term economic and strategic objectives by encouraging greater investment, increasing domestic value capture, strengthening industrial capability, creating high-skilled jobs, and improving supply-chain resilience. It would also provide stronger incentives for integrated processing and manufacturing, helping Australia capture a larger share of the value generated from its critical mineral resources.

In summary, this submission recommends that the CMPTI be redesigned so that the level of fiscal support reflects the amount of value added in Australia. This would maximise the economic return from public investment while supporting the development of a globally competitive and resilient critical minerals industry.

1. Introduction

The transition towards low-carbon energy systems has fundamentally altered the strategic importance of critical minerals within the global economy. Unlike previous energy transitions that relied primarily on fossil fuels, achieving global net-zero greenhouse gas emissions requires unprecedented quantities of lithium, nickel, cobalt, graphite, manganese, copper, rare earth elements and other strategic minerals that underpin renewable electricity generation, electric vehicles, battery storage systems and emerging artificial intelligence (AI) technologies (International Energy Agency [IEA], 2024; World Bank, 2020). As demand for these minerals accelerates, competition between nations has shifted beyond securing access to mineral resources towards establishing integrated processing industries, resilient supply chains and advanced manufacturing capabilities (IEA, 2024).

Australia occupies a unique position within this transformation. The country possesses one of the world's largest and most diversified endowments of critical minerals, including globally significant reserves of lithium, cobalt, rare earth elements, manganese, nickel and bauxite (Department of Industry, Science and Resources [DISR], 2023). Combined with strong institutional quality, established mining expertise, high environmental and labour standards, and close proximity to rapidly growing Asian markets, these advantages provide Australia with a unique opportunity to become a global leader in critical mineral processing and downstream manufacturing (Accenture, 2021; DISR, 2023). Despite these comparative advantages, Australia continues to capture only a relatively small proportion of the value generated from global critical mineral supply chains because much of the downstream refining, chemical processing and advanced manufacturing occurs overseas (IEA, 2024).

This disconnect between Australia's resource endowment and its downstream industrial capability has become an important focus of industrial policy. Increasingly, governments have recognised that markets alone may underinvest in industries characterised by significant knowledge spillovers, coordination failures, learning-by-doing and strategic externalities (Aghion, Boulanger, & Cohen, 2011; Hausmann & Rodrik, 2003; Mazzucato, 2013; Rodrik, 2004). These market failures are particularly relevant to critical minerals, where processing facilities require substantial upfront capital investment, involve long development periods, and generate benefits extending well beyond the private returns captured by individual firms.

Reflecting these considerations, the Australian Government introduced the Critical Minerals Production Tax Incentive (CMPTI) as part of the broader Future Made in Australia agenda. The CMPTI represents an important evolution in Australian industrial policy by recognising that domestic processing generates substantial public benefits through technological capability, industrial diversification, employment creation, supply-chain resilience and national economic security. By reducing production costs through a refundable tax offset, the policy seeks to improve Australia's international competitiveness in critical mineral processing while encouraging greater domestic investment.

The objectives of the CMPTI are strongly supported. Nevertheless, this submission argues that the proposed policy design can be substantially strengthened. The current proposal applies a uniform refundable production tax offset across all eligible processing activities, irrespective of the level of domestic value added achieved by individual projects. Consequently, projects undertaking relatively limited downstream processing receive the same proportional fiscal support as projects investing in battery-grade chemicals, precursor cathode active materials, cathode active materials, battery components or other advanced manufacturing activities. From an economic perspective, this approach implicitly assumes that all eligible processing activities generate similar economic and strategic benefits, despite substantial differences in productivity spillovers, technological learning, export sophistication, industrial capability and national resilience.

This submission proposes replacing the uniform production tax offset with a Progressive Production Tax Incentive (PPTI) under which fiscal support increases with the level of domestic value added achieved within Australia. Rather than rewarding production volumes alone, the proposed framework rewards progressively higher stages of processing and integration within critical mineral supply chains. Such an approach recognises that higher-value downstream activities generate disproportionately larger economic spillovers through innovation, knowledge accumulation, advanced manufacturing capability and high-skilled employment (Hausmann & Rodrik, 2003; Mazzucato, 2013).

The theoretical foundation for this proposal builds upon three complementary research frameworks developed by Vespignani and Smyth (2024) and subsequent extensions. First, the Back-ended Risk Premium (BRP) framework shows that many critical mineral projects differ fundamentally from conventional mining investments because a substantial proportion of project value is realised only during the later stages of development. Investors, therefore, face prolonged periods of uncertainty before projects generate significant returns, requiring higher expected rates of return to compensate for delayed value realisation. The resulting increase in the cost of capital leads to suboptimal investment despite strong long-term demand for critical minerals (Vespignani & Smyth, 2024).

Second, the Non-Technical Risk Premium (NTRP) extends this framework by recognising that investment decisions are increasingly influenced by risks unrelated to geology or engineering. Regulatory uncertainty, permitting delays, policy instability, sovereign risk, environmental approvals and fragmented supply chains all contribute to higher financing costs by increasing the weighted average cost of capital (WACC). Elevated financing costs reduce project net present value (NPV), lower internal rates of return (IRR), and discourage private investment in strategically important downstream industries (Vespignani & Smyth, 2024).

Third, the Integrated Supply Chain Investment Framework (ISCIF) argues that many of these risks can be substantially reduced when projects are evaluated as integrated value chains, rather than isolated mining operations. Vertical integration—from mineral extraction through refining, battery chemical production, precursor materials and advanced manufacturing—creates multiple sources of economic value by increasing domestic value added, reducing revenue volatility, strengthening contractual certainty and generating economies of scale. Consequently, integrated projects exhibit higher expected returns and lower effective investment risk than projects limited to the export of mineral concentrates (Vespignani, Smyth, & Wang, 2026).

Building upon these frameworks, this submission argues that a Progressive Production Tax Incentive should be viewed as more than a production subsidy. By increasing fiscal support in proportion to domestic value creation, the policy raises expected after-tax returns precisely where investment risks are greatest. Higher expected returns reduce the effective NTRP, lower the project's discount rate, improve project finance ability, increase internal rates of return, and encourage firms to undertake additional stages of downstream processing within Australia. Consequently, the proposed policy simultaneously addresses two important market failures: the under-provision of activities generating substantial knowledge spillovers and the financing constraints associated with elevated investment risk.

2. A Progressive Production Tax Incentive (PPTI)

2.1 Why a Progressive Incentive?

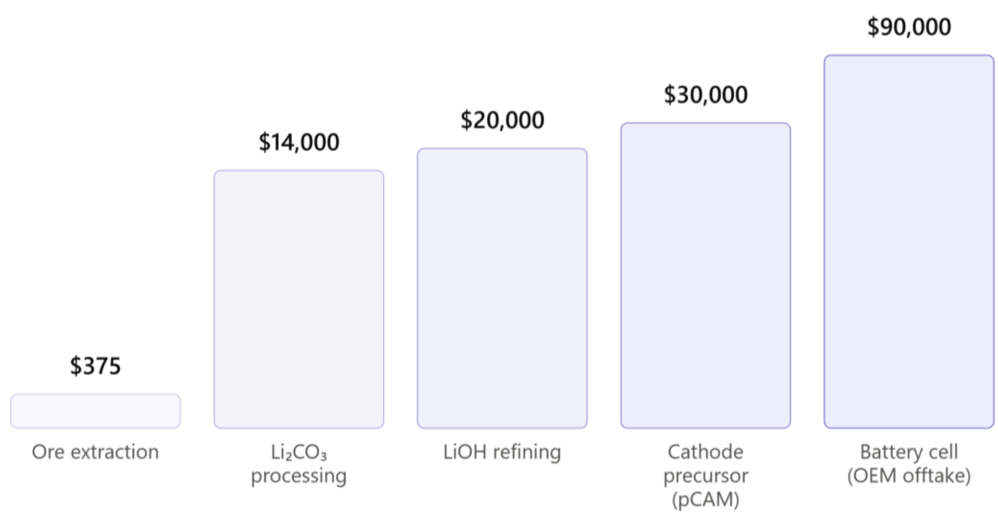
The proposed Critical Minerals Production Tax Incentive (CMPTI) represents an important step towards strengthening Australia's critical minerals sector by supporting domestic processing and refining. However, the proposed uniform production tax offset provides the same level of support regardless of how much value is ultimately created within Australia.

This approach assumes that all eligible processing activities generate similar economic benefits. In practice, this is not the case.

Each additional stage of processing captures progressively more value within Australia. Moving from mineral concentrate to refined metal, battery-grade chemicals, precursor materials and advanced battery components creates substantially larger economic benefits through higher productivity, skilled employment, technological capability, innovation, export diversification and supply-chain resilience (Hausmann & Rodrik, 2003; Mazzucato, 2013; Rodrik, 2004).

In Figure 1, we show the price per tonne LCE across the lithium supply chain**.** Feedstock and product prices rise from US$375 per tonne LCE at ore extraction to US$90,000 per tonne LCE at battery cell (OEM offtake) — a roughly 240-fold increase across five processing stages (Table 1). Bar height is scaled by $\log_{10}$(price) rather than linearly, since a linear scale renders the first four stages indistinguishable against the battery-cell figure. Stages, left to right: (1) ore extraction, (2) Li_2CO_3 processing, (3) LiOH refining, (4) cathode precursor (pCAM), (5) battery cell (OEM offtake).

Figure 1 | Price per tonne LCE across the lithium supply chain.



Source: Vespignani, Smyth and Wang (2026)

A production tax incentive should therefore reward not simply production, but **the amount of value created within Australia**.

For this reason, this submission proposes replacing the uniform production tax offset with a **Progressive Production Tax Incentive (PPTI)** under which the tax incentive increases with the level of domestic value added.

2.2 The Principle and Illustrative Progressive Incentive

The guiding principle is straightforward.

The greater the value added in Australia, the greater the production tax incentive.

Rather than treating every processing stage equally, the proposed framework recognises that downstream processing generates progressively larger economic and strategic benefits.

This approach encourages firms to continue investing beyond basic refining and into higher-value processing activities that are central to Australia's long-term industrial strategy.

The following table provides an example of how a progressive production tax incentive could operate.

Table 1: A Progressive Production Tax Incentive (PPTI)

Processing Stage	Example Products	Illustrative Production Tax Incentive
Stage 1	Initial refining and purification	**10%**
Stage 2	High-purity refined metals	**12.5%**
Stage 3	Battery-grade chemicals	**15%**
Stage 4	Cathode and anode precursor materials	**17.5%**
Stage 5	Battery cells and advanced downstream products	**20%**

Note: The tax rates shown are illustrative only. The key policy recommendation is that the production tax incentive should increase progressively with domestic value addition rather than remain constant across all eligible activities.

2.3 Why Does This Matter?

A progressive production tax incentive changes investment incentives in several important ways.

- First, it increases the expected returns from downstream processing, making investments in higher-value activities more financially attractive.
- Second, it encourages firms to establish integrated supply chains within Australia rather than exporting partially processed minerals for further processing overseas.
- Third, it supports industries that generate the largest spillover benefits for the Australian economy, including advanced manufacturing, engineering services, research and development, and specialised workforce skills.

Finally, by increasing expected project returns, a progressive incentive reduces investment risk and improves project finance ability. This is particularly important for critical mineral projects where large capital requirements and lengthy development periods often discourage private investment (Vespignani & Smyth, 2024).

2.4 Consistency with Australia's Industrial Strategy

The objective of the **Future Made in Australia** agenda is not simply to increase mineral production, but to increase Australia's participation in higher-value segments of global supply chains.

A progressive production tax incentive directly supports this objective by encouraging firms to undertake additional stages of processing domestically.

Rather than rewarding tonnes processed, the policy rewards **economic complexity**, **innovation** and **domestic value creation**.

Consequently, government support becomes more closely aligned with national economic objectives, including:

- increasing domestic value added;
- strengthening sovereign industrial capability;
- improving supply-chain resilience;
- promoting high-skilled employment;
- increasing productivity growth;
- supporting advanced manufacturing; and
- enhancing Australia's long-term international competitiveness.

3. Policy Implications and Recommendations

The proposed **Progressive Production Tax Incentive (PPTI)** provides a more efficient policy framework than a uniform production tax credit by aligning fiscal support with the level of domestic value added.

First, production tax incentives should be linked to **domestic value creation rather than production volumes**, ensuring that public support is directed towards activities generating the greatest economic and strategic benefits.

Second, the incentive should increase progressively with downstream processing. Higher-value activities—such as battery-grade chemicals, precursor materials and advanced manufacturing—generate larger productivity spillovers, technological capability, high-skilled employment and supply-chain resilience, and should therefore receive greater support.

Third, production tax incentives should be recognised as instruments for **reducing investment risk** as well as lowering production costs. By increasing expected after-tax returns, a progressive incentive reduces the effective Non-Technical Risk Premium (NTRP), improves project financeability and encourages vertically integrated supply chains.

Finally, the CMPTI should support Australia's long-term industrial strategy by encouraging firms to move beyond mineral extraction towards higher-value downstream processing. A technology-neutral, value-added approach would maximise domestic value capture, strengthen sovereign industrial capability and improve Australia's competitiveness in global critical mineral supply chains.

Recommendation: Replace the proposed uniform production tax credit with a **Progressive Production Tax Incentive** that increases with verified domestic value added, thereby aligning public support with Australia's long-term economic and strategic objectives.

Appendix:
The Economic Theory of a Progressive Production Tax Incentive

This appendix develops the analytical framework underpinning the proposed Progressive Production Tax Incentive (PPTI). The framework extends the Back-ended Risk Premium (BRP), the Non-Technical Risk Premium (NTRP) and the Integrated Supply Chain Investment Framework (ISCIF) developed by Vespignani and Smyth (2024) and Vespignani, Smyth and Wang (2026).

Existing production tax incentives are generally analysed as instruments that reduce production costs. By contrast, the PPTI recognises that fiscal incentives also influence investment risk, project finance ability and the organisation of supply chains.

The central hypothesis is that downstream processing generates progressively larger social returns than upstream mineral extraction because each additional stage captures greater domestic value added, strengthens technological capability, creates high-skilled employment and improves supply-chain resilience (Hausmann & Rodrik, 2003; Mazzucato, 2013; Rodrik, 2004). Consequently, the optimal production tax incentive should increase with the level of domestic value created, rather than remain constant across all eligible activities.

The Firm's Investment Problem

Consider a representative firm undertaking processing stage i. Gross revenue is:

$$R_i = P_i Q_i$$

Production costs are:

$$C_i = C_M + C_L + C_K$$

Without a tax incentive:

$$\Pi_i = R_i - C_i$$

Introducing a refundable production tax incentive τ_i gives:

$$\Pi_i = R_i - (1 - \tau_i)C_i (A1)$$

Since $\frac{\partial \Pi_i}{\partial \tau_i} = C_i > 0$, a larger production tax incentive increases project profitability. However, this formulation does not distinguish projects that generate different levels of domestic value added.

Flat versus Progressive Production Tax Incentives

Under the proposed CMPTI, every eligible project receives the same incentive:

$$\tau_i = \tau \ (A2)$$

Project profits become:

$$\Pi_i^{Flat} = R_i - (1 - \tau)C_i$$

The PPTI instead links the incentive to domestic value added:

$$\tau_i = f(VA_i)(A3)$$

where $f'(VA_i) > 0$.

A convenient specification is:

$$\tau_i = \tau_0 + \alpha\left(\frac{VA_i}{R_i}\right)(A4)$$

where τ_0 is the minimum incentive, $\alpha > 0$ measures progressivity, and $\frac{VA_i}{R_i}$ is the domestic value-added ratio.

Domestic Value Added

Domestic value added is defined as:

$$VA_i = R_i - M_i \ (A5)$$

where M_i denotes imported intermediate inputs.

Equivalently:

$$VA_i = W_i + \Pi_i + T_i + D_i \ (A6)$$

where W_i is labour income, Π_i is operating surplus, T_i represents indirect taxes and D_i depreciation.

As projects move downstream—from refining to battery chemicals, precursor materials and battery cells—the level of domestic value-added increases substantially. The PPTI, therefore, rewards projects according to their contribution to Australia's economy rather than simply tonnes processed.

Figure A1. Macroeconomic relationship between aggregated output and the Progressive Production Tax Incentive (PPTI).

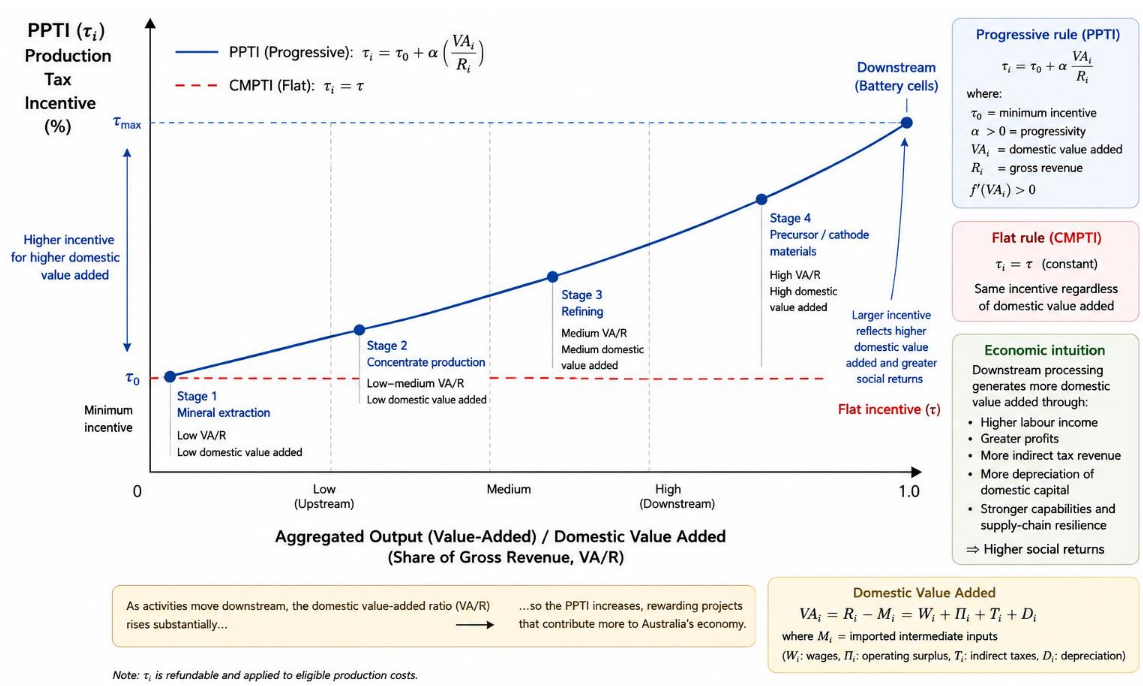


Figure A1 illustrates the central economic intuition underlying the Progressive Production Tax Incentive (PPTI). The horizontal axis represents the level of aggregated domestic value added (or, equivalently, the economy's position along the value chain), while the vertical axis measures the production tax incentive provided by the government.

The **red dashed line** represents a conventional flat production tax incentive, under which every eligible producer receives the same level of support regardless of the amount of domestic value created. Under this approach, upstream mineral extraction and highly integrated downstream manufacturing receive identical incentives, despite generating substantially different economic spillovers.

In contrast, the **blue upward-sloping curve** illustrates the proposed PPTI. As domestic value added increases through successive stages of processing—from mineral extraction to concentrate production, refining, precursor materials and finally battery cell manufacturing—the production tax incentive increases progressively. The upward slope reflects the assumption that downstream activities generate larger economic and social returns through higher wages, greater operating surplus, stronger technological capability, increased tax revenues, and more resilient domestic supply chains.

The convex shape of the curve suggests that these benefits increase more than proportionally as production moves further downstream. Early processing stages receive a minimum incentive (τ0), while projects with the highest domestic value-added ratio receive the largest production tax incentive. This creates stronger investment incentives for firms to undertake additional processing within Australia rather than exporting minimally processed minerals.

At the macroeconomic level, the figure illustrates how the PPTI shifts government support away from a uniform production subsidy towards an incentive structure that rewards value creation. By aligning fiscal support with domestic economic contribution, the policy encourages investment in integrated supply chains, expands high-value manufacturing, increases aggregate output, and improves long-run economic resilience and productivity. The figure therefore provides the conceptual link between the microeconomic investment model developed in Equations (A1)–(A6) and the broader objective of maximising national value added through industrial policy.

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