15 September 2021

Hon. Peter Tinley MLA
Chair, Economics and Industry Standing Committee
Legislative Assembly, Parliament House
4 Harvest Terrace
West Perth WA 6005

Sent via email: laeisc@parliament.wa.gov.au

Dear Mr Tinley

INQUIRY INTO INTERGENERATIONAL CHALLENGES & OPPORTUNITIES FOR THE WA ECONOMY

The Chamber of Minerals and Energy of Western Australia (CME) is the peak representative body for the resources sector in WA. CME is funded by member companies responsible for more than 88 per cent of the onsite workforce,[1] ranging from mining (mineral and petroleum commodities), manufacturing (alumina, basic inorganic chemicals and explosives) and support services (aviation, gas transmission pipelines and electricity supply).

CME welcomes the invitation from the Economics and Industry Standing Committee (the Committee) to submit to the *inquiry into intergenerational challenges and opportunities for the WA economy out to 2041* (the inquiry). Developing and planning a longer-term strategy and vision is critical to securing WA's economic prosperity for current and future generations. In the wake and ongoing turbulence of the COVID-19 pandemic, WA is fortunate to have the opportunity to reflect on how we can further enhance the resilience and productivity of our economy and communities.

The landscape

The WA resources sector will be crucial to accelerating the recovery and underpinning future economic opportunities through investing in and maintaining assets and generating exports from WA. Despite the unprecedented challenges brought forward by the pandemic, the sector achieved record exports of $174 billion[2] and employed 140,941 individuals in 2020.[3] Currently making up 47 per cent of the WA's total gross value added by industry,[4] commodity exports are a significant contributor to the economy.[5]

With the support of the State Government, the sector's safe and continued operation has helped sustain the solid fiscal position of the economy before and throughout the pandemic, helping to provide stable and growing revenue streams to governments via royalties, payroll,[6] corporate taxes,[7] and underpinning thousands of new jobs. The value of royalties received from the sector totalled $12.7 billion in 2020-21, accounting for 31.7 per cent of general government revenue.[3]

As noted in the Australian Treasurer's *2021 Intergenerational Report* (the Treasurer's report), Australia's terms of trade and export prices relative to imports are projected to remain stable in the medium and long term.[8] A key determinant is that commodity prices are expected to normalise in real terms to their 2006-07 levels and stabilise to 2060-61.[9]

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[1] Government of WA, *2020 Economic indicators resources data*, Safety Regulation System (SRS), Department of Mines, Industry Regulation and Safety (DMIRS), 1 April 2021.

[2] Government of WA, *Latest statistics release*, DMIRS, 1 April 2021.

[3] Government of WA, *2020 Economic indicators resources data*, SRS, DMIRS, 1 April 2021.

[4] Cassells, R., Duncan, A., Kiely, D. and Salazar, S., BCEC Quarterly economic commentary, Bankwest Curtin Economics Centre, 26 November 2020, p. 2.

[5] Commonwealth of Australia, *Resources and energy quarterly*, Office of the Chief Economist, Department of Industry, Science, Energy and Resources, 29 September 2020.

[6] Government of WA, *2020-21 Pre-election financial projections statement*, TSY, 8 February 2021.

[7] Commonwealth of Australia, *Budget strategy and outlook*, budget paper no. 1 2021-22, The Treasury, 11 May 2021.

[8] The Hon. Josh Frydenberg MP, Treasurer of the Commonwealth of Australia, *2021 Intergeneration Report: Australia over the next 40 years*, June 2021.

[9] Ibid

This optimistic outlook is inherently subject to uncertainty and volatile headwinds which could affect commodity and export markets, including:

- The volatility of developing economies and geopolitical rebalancing in the Indo-Pacific region. While this could see an increased risk of tensions that impact trade dynamics, population growth and urbanisation in these economies may significantly drive the market demand for Australia's natural wealth; and
- Global emission reduction efforts with several key trading partners adopting net-zero emission targets, e.g. the Republic of China committed carbon neutrality by 2060. While meeting these targets will impact future demand for unabated fossil fuels, there is opportunity in the corresponding increased market for cleaner energy technologies (e.g. electric vehicle batteries, wind turbines and solar panels). This demand will stimulate the supply of battery materials and critical mineral inputs required to manufacture these technologies and create new markets (e.g. hydrogen and green steel).
- Global financial investment demand and attractiveness of gold as a haven for investors, increasing gold-backed exchange-traded funds. In the last decade, each significant price increase has been driven by global events like COVID-19 and September 11.

Against this context, this submission will focus on the challenges and opportunities relevant to the WA resources sector and the role the industry stands to play in our economy over the coming decades.

Diversify into, not away from our competitive advantage

WA is recognised as a stable and attractive place to invest and operate compared to competing jurisdictions with similar mineral and energy wealth. In addition to strong environmental, social and governance (ESG) credentials, the WA resources sector has a well-established advantage of competing on cost.

Drawing on a history of commodity cycles since the 1890s, CME members have made significant capital investments into end-to-end productive infrastructure, opening new high-economic output regions (including the developing new regional centres) and step-change innovations via machination and automation. As a result, WA is now home to the lowest cost sea-borne exporters of iron ore, lithium and gold and some of the world's largest LNG export projects.[10] This advantage is hard-won, despite Australia's poor comparative ranking in time and cost of exporting products.[11]

There is an immediate opportunity on our doorstep if we can secure the next wave of investment with $140 billion of resource projects in the pipeline.[12] Investment in exploration is also on the rise, proving these resources is critical for building and sustaining a future project pipeline (see graph below).

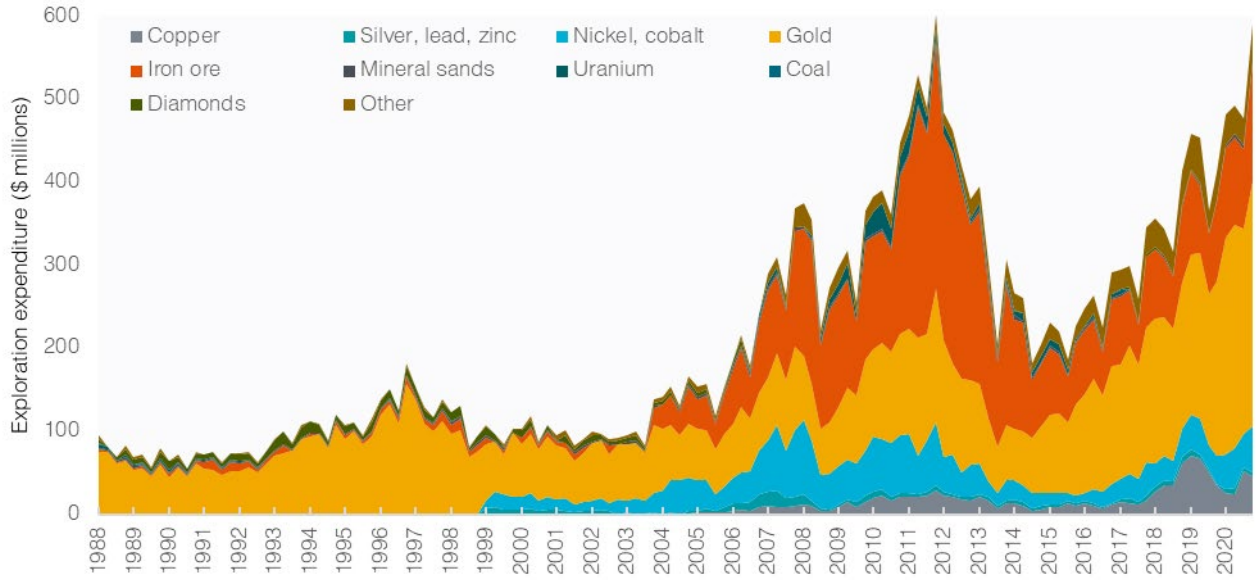

Figure 1. WA exploration expenditure on mineral commodities from September 1988 to June 2021. Source: Australian Bureau of Statistics, *8412.0 Mineral and Petroleum Exploration, Australia*, 30 August 2021 release.

[10] Government of WA, *WA's economy and international trade*, Department of Jobs, Tourism, Science and Innovation, 2 June 2021.
[11] The World Bank Group, *Doing business 2020: Australia profile*, 23 October 2019.
[12] Government of WA, *Latest statistics release*; *Industry activity indicators*, DMIRS, Safety Regulation System, 1 April 2021.

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Current commodity prices and terms of trade are favourable for expansion and new investment. The medium and long-term global outlook also remains strong (see graph below).

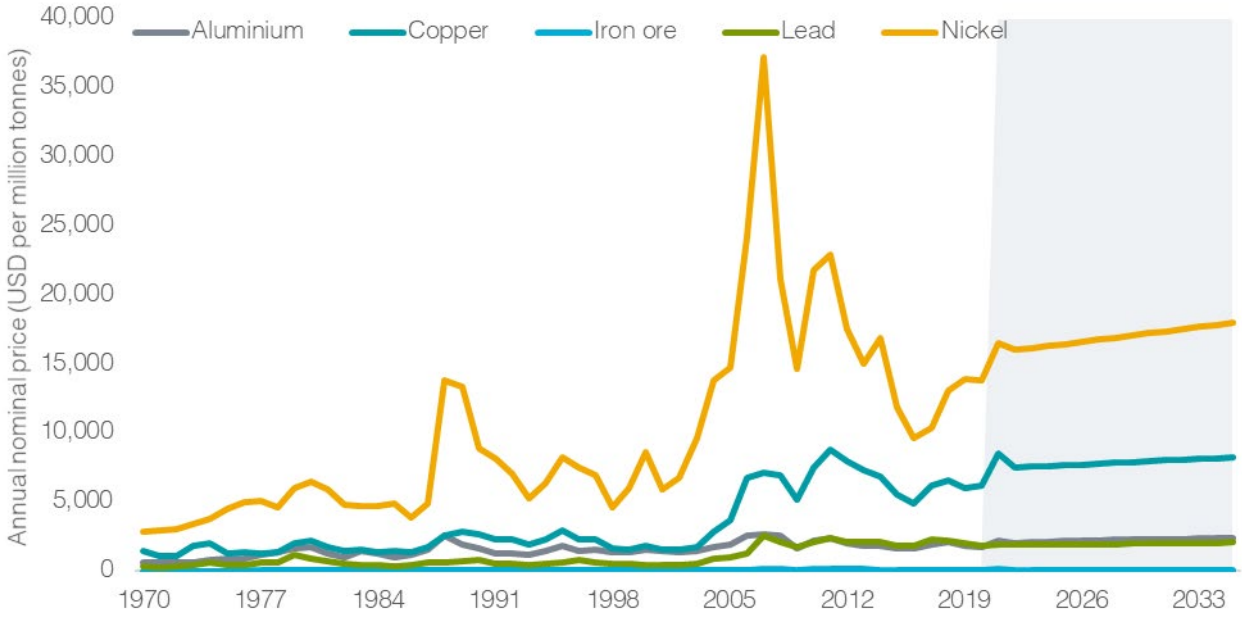

Figure 2. Projected annual nominal prices for selected commodities out to 2035. Source: World Bank Group, *Commodity market outlook*, April 2021.

Whilst recognising the competitive strengths and resilience of the WA resources sector, CME also acknowledges that unlocking and optimising this advantage will require broader diversification. CME supports the principles underpinning the McGowan Government's *Diversity WA* strategy[13] and strongly supports the pursuit of significant economic opportunities out to 2041, which focus on:

1. Building from our existing competitive advantages in minerals and energy
2. Delivering tangible improvement in the efficiency of fiscal and regulatory settings to secure future projects in the pipeline; and
3. Further diversification from the state's existing base into new and emerging downstream value-adding and adjacent industries. Specific downstream opportunities are discussed in the following sections.

Looking towards the future, efforts to diversify should focus on parts of the supply chain where the industry can sustain a competitive advantage. If not well directed, such measures could ultimately hinder future productivity growth and discourage evolving with a changing business environment. This likelihood is higher with current rates of technological advancement and industrialisation in developing countries. Therefore, CME considers State and Federal Government effort should support industry-scale commercialisation of technology or parts of the value chain adjacent to existing strengths, encouraging continued federal-state and public-private cooperation to optimise investment.

Incentivising downstream investment in value-adding processes

Looking to the future requires ambition. It also requires a clear vision to steer this investigation into productive outcomes. For example, we may identify a megatrend and question how to derive value, entice local development or do more with what we have. Such analysis should not lose sight of our strengths but should also systematically determine why we are not doing these things (or the prospective equivalent) already.

In considering downstream and value-adding processes, there are structural factors of comparative advantage that will not correct themselves with time alone, such as high labour costs and a small domestic market. These factors are further disadvantaged because of aggressive government support to nascent industries in competing jurisdictions, with industry subsidies and access to infrastructure paid for by their governments invariably higher than what can be found throughout Australia and its history.

[13] Government of WA, *Economic development framework for WA: Diversify WA*, Department of the Premier and Cabinet, July 2019.

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The Australian steel industry is an excellent example of this. Modern Australia has not been home to competitive steel industries, despite access to quality iron ore, abundant locally sourced energy supplies, coking coal, and alloying materials, all supported by efficient and competitive production processes.[14]

While each downstream opportunity will have its considerations and can leverage existing domestic capabilities to differing extents, it is vital not to overlook relevant structural factors that may present barriers to success. History can provide a helpful guide in the role these factors have played in the inability to sustainably stand up these industries and their eventual demise, i.e. the now-extinct Australian automotive manufacturing industry.

There is undoubtedly an opportunity to incentivise competitive investment in domestic downstream value-add processing when working from a position of strength in the upstream. Population growth, industrial development and an energy transition towards a low carbon economy will help underpin demand for battery and critical minerals in resource-rich jurisdictions like WA.

For example, a standard electric vehicle will require six times the mineral inputs of a conventional car, and an offshore wind plant will need 13 times more than a comparable sized gas-fired plant.[15] International competition for developing deposits and securing partnerships for these battery and critical minerals is intensifying; however, reliance on mineral wealth alone is insufficient to attract investment. Though WA is a locale for raw material extraction, it has limited recognition as a destination for value-added processing.

1. The example of magnetite

In 2020, CME partnered with the Association of Mining and Exploration Companies (AMEC) to commission Australian Venture Consultants (AVC) to study the factors impacting the competitiveness of the emerging magnetite sector in WA. A copy of the report by, *A Case for a Fair and Reflective Royalty Regime tor the WA Magnetite Industry* (the Magnetite report) is enclosed.

The Magnetite report identifies significant opportunities for growing magnetite production as a key downstream processing industry in WA. WA is enviable as it hosts substantial and geographically diverse magnetite deposits, with known deposits stretching from the Great Southern, Wheat Belt and Pilbara regions.

Efficient facilities for producing magnetite concentrate could attract value-adding investment into WA, such as pellet plants, direct reduction technologies and other forms of metallised agglomeration. As we progress towards green iron and steel production, establishing these industrial processes in WA is necessary. Opportunities include:

- Strategic future-proofing of market share – Alongside haematite production, the growth of a magnetite industry will enable WA to increase total market share in the global steel industry as demand for diverse iron feedstock increases. Developing the magnetite industry will help ensure WA maintains its competitive advantage in meeting global iron ore needs for steel production.
- Diversify WA – The development of the magnetite sector is consistent with government policy of adding value to existing mineral resources through domestic downstream processing. The ability to produce magnetite concentrate feedstock and leverage WA's competitive advantage of low emission and renewable energy resources can open up strategic pathways for a domestic green iron and steel industry in the future.
- Environmental benefits – The exothermic nature of magnetite requires less energy for pellet production than haematite, resulting in lower energy consumption, lower production costs and fewer carbon emissions. Magnetite products also typically enjoy a higher iron (Fe) content than hematite products, leading to energy, cost and emissions benefits in the iron and steel making processes. The higher Fe content of magnetite products also makes it more suitable for LNG-fuelled Direct Reduced Iron (DRI) processes, which have a much lower emissions footprint than coal-based reduction technologies, and these DRI technologies are adaptable for use with hydrogen, providing the potential for lower or zero emissions iron ore and steel production.
- Economic benefits – A sustainable magnetite industry would provide an increased base of royalty revenue and taxes paid to the State and Commonwealth Governments. Existing and advanced projects running at nameplate capacity would see WA produce 50 million tonnes of magnetite per annum (Mtpa) and place WA among the world's largest exporters of magnetite concentrate products. Economic impact

[14] AVC, *A case for building resilience into WA's lithium industry,* June 2020.
[15] International Energy Agency, *The role of critical minerals in clean energy transitions*, launch presentation, 5 May 2021.

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modelling by the South Australian Government on its Magnetite Strategy found that a typical 6 Mtpa magnetite project with a 12-year mine life beginning in 2018 would provide an estimated gross state product contribution of $700 million a year and support an annual average of 3,520 direct and indirect full-time equivalent jobs across the life of the project.

- Labour intensity and skills — Magnetite requires between 40 to 70 per cent more people than equivalent direct shipped ore hematite production. Magnetite operations are labour intensive, including many highly skilled and process management roles, reflecting the higher-value and more technical nature of the downstream value-adding processes.
- Value-adding – Magnetite concentrate can be sold as a high-quality premium product or a value-adding blend to pellet plant or sinter feeds. Mineral magnetite contains 72.4 per cent Fe, higher than hematite. Magnetite concentrate will be an essential feedstock for progressing down the value chain towards green steel production in WA.

A cost-efficient and sustainable upstream supply of magnetite concentrate in WA would be a necessary pre-condition for realising these aspirations. However, existing magnetite projects continue to face cost pressures impacting viability. The current royalty regime does not adequately account for the complexity, higher costs, and risks of producing products like magnetite concentrate. If not addressed, the current royalty setting for magnetite concentrate is unlikely to capture the present investment opportunities and, in turn, support the longer-term growth of this emerging and value-adding sector for WA.

2. The hydrogen opportunity

The vast potential of hydrogen technology has garnered a great deal of attention over several years. The WA Renewable Hydrogen Strategy sets out a series of goals to assess the state's competitive advantages. Within the Strategy and public discourse, there is a reference to hydrogen replacing or being on the scale of LNG exports and providing several opportunities, including green steel and equipment manufacturing.

CME is actively working with members to identify and frame this opportunity and work with the State Government on an iterative pathway to realising this vision. CME has recommended that this pathway involve expand focus to other types of hydrogen. While forecasts differ, standalone renewable hydrogen is not expected to be competitive within the decade, with projections often suggesting longer. The recent draft State Infrastructure Strategy puts it at 15 years. Further work from industry and the State Government is required to cement this ambition with realistic and practical progress. The LNG sector has brought tremendous wealth to the people of WA and brings valuable know-how to the aspirations to develop a local hydrogen industry. However, there remains considerable uncertainty that hydrogen will replicate this feat.

Hydrogen is likely to play a role in hard-to-abate sectors and where reliable electrification (particularly renewables generated) is prohibitively expensive in WA. Exporting hydrogen will rely upon establishing long-term trading relationships, producing at scale and competitively relative to other suppliers, and resolving technical challenges associated with transport and storage. Therefore, there are various perspectives of how wide hydrogen applications will reach and what the final export demand will be. Furthermore, while WA draws from a long history of strong trade relationships, it will have intense competition from parts of the world with similar competitive attributes and are currently, and are likely to be, much larger hydrogen producers.

Further collaborative work needs to progress to firm up the value that hydrogen can bring to WA. In the event of an export industry emerging, the project's construction phase will bring value spurred by job creation. In operation, it is as yet unclear how value will be captured for WA.

A less discussed value is the intellectual property developed through solving issues associated with the production, transport, storage, and use of hydrogen. CME notes some promising WA examples to date:

- Fortescue Metals Group and CSIRO working on metal membrane technology
- Hazer Group production technology which emerged from UWA; and
- Work through Future Energy Export Cooperative Research Centre (CRC).

The export of this know-how could prove to be highly valuable, alongside the actual production of hydrogen from within the state. If WA aspires to manufacture products associated with hydrogen production, then the analysis should consider the history of why domestic value-add does not currently occur. There are successful examples of downstream processing in the state, and we should look at these as case studies to understand what is required to make these projects bankable.

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3. Battery minerals and rare earths

CME works closely with its members and other interested stakeholders in developing a pathway for further downstream opportunities in the battery value chain. WA is the only Australian jurisdiction with a standalone battery industry development strategy that extends beyond battery electric vehicles and energy storage systems. This strategy has been important for activating market awareness, investment attraction, and groundwork for further downstream activity. With sound policy settings, refining raw materials to lithium hydroxide, nickel sulphate and rare earth chemicals will provide a future strategic industry for the state.

While some long conceived projects are now close to production and in commissioning, WA should not expect further investment to follow without ensuring active steps are taken to remain a competitive jurisdiction. Other producing countries retain considerable market power, and all future local projects will be sensitive to price fluctuations, capital availability, and securing off-takers. Many project proponents are global companies with international portfolios with multiple projects competing internally for capital.

CME members regularly reference the following opportunities for the State or Federal Government to invest in encouraging investment in further mining and refining of battery minerals:

- Strategic and general industrial areas (e.g. roads, rail, wastewater and power, etc);
- Simplification of state and federal approvals;
- Access to non-recourse loans; and
- More affordable land rates.

While the state holds competitive advantages for going further downstream – including the endowment of battery and critical minerals, a world-class mining sector and strong ESG credentials – it is also important to acknowledge the structural barriers when moving into active materials, cell manufacturing and battery pack assembly as discussed above. There are market-specific issues, such as automakers' just-in-time supply chain principles, security and proximity of supply concerns, preventing WA active materials from entering these prospective markets.

Future Charge: Building Australia's Battery Industries commissioned by the Future Battery Industry CRC estimates Australia's established market position in raw materials and refined products could deliver $3.7 billion of value-add and support 14,800 jobs by 2030.[16] This makes half of the value-added and around 40 per cent of the job creation compared to their diversified model. Indeed, the job creation and value-added in battery manufacturing and integration and services are considerably lower on both indicators compared to the mining and refining segments. Looking at how to grow participation in these segments, raw material, and refined products where the market is already established is a straightforward way of delivering additional value to the state. Future opportunities should not overshadow improvements that can grow our participation in current activities, an established strength and one with proven value.

Building on WA's position as a global leader in mining, engineering and technology services, more can be done to support and promote local companies building capability internationally. Countries with exposure to procuring critical and battery minerals consider how supply chains can be secured and how local capability and capacity can be enhanced. With the demand for such minerals set to increase dramatically in the years ahead, WA is scope to position itself as both the supplier of these minerals and the know-how supplier to improve others' capabilities. Several examples of this emerging include:

- Vulcan Energy's Zero Carbon Lithium in Germany
- Talga Group's ultra-low emission battery anode production facility and integrated graphite mining operation in Sweden, and
- Lithium Australia's (through subsidiary Envirostream) efforts to recycle batteries in the UK.

[16] Accenture and FBI CRC, *Future Charge: Building Australia's Battery Industries*, June 2021.

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4. Lithium study

In 2020, CME and AMEC commissioned a further study of the lithium-ion battery supply chain, analysing global market factors, price outlooks and operating costs.[17] At the time, the AVC report presented evidence the industry – both upstream and downstream – was facing significant uncertainty due to international competition and depressed commodity prices.

The report called for immediate State Government assistance to protect the viability of the upstream lithium industry and underpin sector growth in the medium to longer term. Positively, because of this study, the State Government did provide temporary financial assistance to marginal projects. CME greatly appreciated the State Government's pragmatic response and expected the decision to pay dividends given the outlook for these commodities and their downstream products.

It is important to note that the industry's request for State Government support was underpinned by a view that the success of our upstream lithium industry will play an important role in diversifying WA exports and the creation of new jobs and in underpinning opportunities to develop further downstream sectors.

The importance of an established and resilient domestic upstream sector cannot be understated concerning WA's downstream aspirations. There is no economic case to develop a domestic downstream lithium-ion battery industry without a competitive domestic upstream sector. This same principle applies to other potential downstream opportunities.

Competitive cost settings

As a predominately export-based economy that cannot set the price for its products, a critical determinant for attracting investment is the cost of doing business. Current and future budgets should prioritise long-term stability and sustainable economic growth. Strong financial management will be crucial to future prosperity, especially given the high exposure to trade in the economy and the pandemic's continued unknown depth and duration worldwide.

The market is also sensitive to uncertainties in geological reserve estimations, long lead times in project development, global patterns of consumption-driven demand, competing production supplies, and volatile price changes. Any increase in the cost base reduces a company's flexibility to consider future investment decisions or vary output levels to remain sustainable within acceptable margins across the project lifecycle. Ensuring a long-term, sustainable and stable cost base across the supply chain is paramount to the industry. With continued strong financial management by the Government, CME maintains no justification exists for increasing or imposing new taxes, royalties or other charges on the sector now or in the future.

Streamlining regulation

CME has long advocated that bold regulatory reform is needed to achieve critical efficiency improvements. In the absence of reform, the burden of regulation and compliance incrementally expands, making it unnecessarily complex and duplicative to obtain permits to construct and operate. The sector is looking to the State Government to deliver on its Streamline WA commitments to pursue effective, practical, targeted red tape reduction opportunities to shorten whole-of-project approval timeframes. While additional resources committed by the State Government is welcomed, demonstrable improvement is required to:

- Substantially improve inter-agency coordination, productivity and culture;
- Reduce substantive delays caused by perverse stop-the-clock metrics between agencies;
- Reduce regulatory overlap by removing unnecessary duplication in legislation and processes; and
- Reduce the associated administrative burden of reporting and compliance.

Instead of evaluating the performance of individual agencies, CME considers reform efforts should incorporate risk-based assessment frameworks and cross-agency performance outcomes to improve consistency and facilitate a tangible reduction in project approval timeframes. Given the concurrent reforms currently underway, a unique opportunity exists to clarify jurisdiction in state-based environmental and mining laws and remove duplication. While the outlook is favourable, now is the time to deliver tangible outcomes which streamline regulation and address bottlenecks across the whole Government.

[17] AVC, *A case for building resilience into WA's lithium industry,* June 2020.

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Access to a diverse, skilled workforce

Longer-term competitiveness will require access to a diverse, skilled workforce that is mobile and deployed where and when needed. The sector is committed to employing and training locally where possible. However large and complex projects and infrastructure will require experienced and often highly professionals that can practically only be sourced from interstate and overseas.

Some companies have concerningly recently revised their investor production guidance due to the skill shortages faced in WA. Based on skills demand modelling commissioned for CME and conducted by Pit Crew Consulting, the WA resources sector forecasts peak demand of an additional 40,000 skilled workers over the next four years, with a potential shortfall of 33,000 workers in 2023. This shortfall is not surprising, given job vacancies across the WA economy have been at record levels since the last construction-led boom (25,200 advertisements).[18] For example, 27 per cent of Australian businesses are struggling to find qualified staff due to a small labour pool or lack of required skills.[19]

CME is concerned prolonged disruptions to travel will further erode capacity in the domestic labour market and discourage labour mobility in the longer term. Unless this situation is improved, the acute skills shortage will stifle growth and detract from the future investment in WA. CME welcomes the initial response from the WA Skills Summit and recommends a concerted and coordinated approach to address those skills in the highest demand in the near term, including opening international skills migration pathways while continuing to deliver on ongoing commitments to WA jobs and training.

Modernising the royalty regime for value-added products

The WA royalty regime has served the industry well and stood the test of time over decades of commodity cycles. It is clear; however, the regime does not contemplate the downstream development of critical battery minerals and other future-facing commodity supply chains. It fails to accommodate the capital intensity and processing complexity for secondary or tertiary treatment domestically, for example, downstream magnetite processing. The last royalty rate review expressly excluded magnetite from its scope.[20] Offtake contracts for these products are highly competitive, sensitive and typically negotiated on long terms to underpin investment. Similarly, targeted consideration of competitive regimes to incentivise strategic development of a downstream green steel industry should form part of the $1 million value chain assessment.[21]

To expand the value chain and create complementary high-value jobs in WA, a targeted multiplier analysis and evidence base for a permanent reduction in the royalty rate on strategic intermediary and beneficiated products should be explored by the State Government. A reduction in the cost of doing business, combined with a reduced burden of regulatory business described above, will help alleviate the competitive pressures experienced in these opaque emerging international markets.

Conclusion

In summary, CME asserts the most significant opportunity for the WA economy looking out to 2041 is a focused effort on the following:

1. Building from our existing competitive advantages in minerals and energy
2. Ensure we maintain fiscal and regulatory settings to secure future projects in the pipeline; and
3. Further diversity from this existing base into new and emerging downstream value-adding and adjacent industries.

To ensure WA is well-positioned to capitalise on the $140 billion of resources sector projects currently in the pipeline and attract investment in exploration and downstream opportunities to extend this pipeline further, it is essential WA remains an efficient, competitive and forward-facing jurisdiction. Competitive tax and royalty settings, access to a skilled, mobile and diverse workforce and delivery of regulatory reform to remove duplication and meaningfully reduce approval timeframes will be critical components.

[18] Commonwealth of Australia, *IVI regional data: May 2010 onwards*, Labour Market Information Portal, May 2021 release, 9 June 2021.
[19] Australian Bureau of Statistics, *A quarter of businesses unable to find suitable staff*, media release, 24 June 2021.
[20] Government of WA, *Economic and fiscal* outlook, budget paper no. 3, Department of Treasury, 17 May 2012.
[21] Minerals Research Institute of WA.

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Should you wish to further discuss the matters raised in this submission, please contact Robert Carruthers, Director – Policy and Advocacy, on [redacted] or at [redacted]

Yours faithfully

Paul Everingham

Chief Executive Officer

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