



Senate Standing Committees on Economics

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26 July 2024

Dear Committee Chair

The Australian Aluminium Council (the Council) represents Australia's bauxite mining, alumina refining, aluminium smelting and downstream processing industries. The Council welcomes the opportunity to provide feedback to the Future Made in Australia Bill 2024 [Provisions] and related bills [the Bills].

The Council welcomes the inclusion of green metals, including alumina and aluminium, in the Government's Future Made in Australia (FMIA) agenda, to ensure these vital industries may continue to benefit communities and workers, as they have done for almost 70 years. These reforms, if well designed and delivered over a transformational time scale, should capitalise and continue to build on Australia's comparative advantages, support the transition to net zero and strengthen economic resilience and security. This will be achieved through targeted public investment to provide economic incentives that garner private investment at a scale that develops priority industries in line with Australia's national interest. This targeted investment should provide the transitional support needed as Australia's infrastructure and energy systems develop, and energy returns to being competitive.

The Council welcomes the Bill's focus on green metals, renewable hydrogen, and low carbon liquid fuels, as some of the aspects which are critical to achieving net zero emissions. The provisions supporting the research, development, demonstration, and commercialisation of these technologies are crucial for positioning Australia as a leader in the global green economy and ensuring Australian industry can compete for capital in a competitive global market. The Council notes the overlap between the FMIA, the National Interest Framework assessments and work currently underway within the Net Zero sector plans and believes there will be learnings from these which should be incorporated, not repeated.

The Council notes that the Bills, as presented, provide a high level framework for the support to be provided by the FMIA agenda, which is being supported by detailed consultation. In this context, the Council draws the Committee's attention to the detailed submissions made by the industry on Green Metals<sup>1</sup>. This submission highlights key aspects of the proposed legislation that align with the aluminium industry's goals and offers recommendations to further enhance its effectiveness in fostering a future in which alumina and aluminium continue to be made in Australia.

### **Support is required to attract private sector investment in industrial transformation of green metals**

Recent analysis by the Council compared industry policy measures in Australia with other key aluminium and alumina producing jurisdictions<sup>2</sup> and found more is required to ensure appropriate policy settings are in place to support a positive future for this strategically important industry. The Council supports the use of targeted public investment in both decarbonisation and ensuring delivered energy costs are internationally competitive, as an important step in reducing long-term carbon exposure de-risking investment decisions and accelerating technology cost reductions through deployment and learning. Different forms of incentive are required to contribute to reducing the green production cost gap:

<sup>1</sup> <https://consult.industry.gov.au/unlocking-green-metals> and <https://aluminium.org.au/wp-content/uploads/2024/07/240712-Aluminium-Response-Green-Metals.pdf>

<sup>2</sup> <https://aluminium.org.au/wp-content/uploads/2023/11/Aluminium-Critical-Mineral-Report-Nov23.pdf>

### 1. *Production Credits.*

This policy pathway is being used effectively in a range of jurisdictions, including the US, China, India and Europe, to incentivise production of low carbon products and inputs into the clean energy supply chain. The credits are typically priced in a manner that bridges the relevant regional or global low carbon production premium, through an implied cost of carbon required to support investment. The policy should be specifically relevant to aluminium metal production and could be doubly incentivised into domestic downstream manufacturing, such as extrusion, solar panel production etc.

### 2. *Transformational Infrastructure and Technology Funding.*

The Council welcomed the announcement of the A\$1.7 bn Future Made in Australia Innovation Fund in the 2024-25 Federal Budget for the deployment of innovative technologies and facilities linked to priority sectors, including green metals, low carbon liquid fuels and clean energy manufacturing such as batteries. The Council notes the enablement of the Fund in the Provisions is a step in addressing technology funding, and that actual Fund design will be a matter for later engagement and consultation.

The Council also welcomes the expansion of remit of Export Finance Australia (EFA) to be able to make domestically focused investments, where support is not available through existing funds. However, in this expansion, clarification is needed to ensure that provisions are in place to ensure funding through EFA and other agencies is aligned with the transition to the net zero economy.

While the Bills represent the first tranche of legislation for FMIA, the Council encourages parallel prioritisation of incentive definition and design in the context of the Government's consultation on Green Metals. Specifically, the 'Transformational Infrastructure' theme and mechanisms that help defray the upfront capital costs to the sector of large-scale decarbonisation.

Here, the existing Powering the Regions Fund remains two orders of magnitude smaller (relative to GDP) than similar programs in other jurisdictions like Canada, Europe and Japan. The scale being offered must be significantly increased with a fixed commitment to co-fund 50% of all low carbon industrial capital investment across existing and new assets for both on and off-site investment. This will allow industry to then cost efficiently and competitively demonstrate technological innovation and deliver regional infrastructure upgrades, such as transmission. This would be particularly relevant for the alumina industry, where the principal barriers to decarbonisation are:

- the capital cost of on-site transformation to low carbon production methods; and
- the need to upgrade regional electricity infrastructure to deliver the requisite energy to the sites in a mid-stream industry, to maintain the potential to create future value.

### **Aluminium is one of the commodities most widely used in the global transition to a clean energy future<sup>3</sup>.**

It is also recognised for its importance to both economic development and low emissions transition. Aluminium use is highly correlated with GDP, so as countries urbanise, per capita use of aluminium increases. It is expected that by 2050, global demand for aluminium will nearly double<sup>4</sup>. While an increasing proportion will be met through recycled aluminium, there will still be a need for increased production of primary aluminium requiring a comparable increase in global bauxite mining and alumina refining rates. With the right policy settings, bauxite, alumina and aluminium will have a central role in Australia's transformation to a clean energy superpower, with policy support to be commercially and environmentally sustainable.

The aluminium industry has been operating in Australia since 1955, and over the decades has been a significant contributor to the nation's economy. The industry includes six large bauxite mines plus several smaller mines which collectively produce around 100 Mt per annum making Australia one of the world's largest producers of bauxite. Australia is the world's largest exporter of alumina with six alumina refineries producing around 21 Mt per annum of alumina. Australia is the seventh largest producer of aluminium, with four aluminium smelters and additional downstream processing industries including more than 20 extrusion presses and production of

<sup>3</sup> <https://www.worldbank.org/en/topic/extractiveindustries/brief/climate-smart-mining-minerals-for-climate-action>

<sup>4</sup> International Aluminium Institute High Substitution Scenario

metal powders and aluminium coatings. Aluminium is Australia's top manufacturing export. The industry directly employs more than 19,000 people, including 6,600 full-time-equivalent contractors. It also indirectly supports around 60,000 families, predominantly in regional Australia. The integrated nature of bauxite mining, alumina refining, aluminium smelting and extrusion processes in Australia means that efficient and effective regulatory processes for each step are critically important to the ongoing operation of the overall system.

### **Australia's natural resource advantage**

Australia's historic advantage in the aluminium industry stemmed principally from its substantial high quality bauxite reserves, early investment in an integrated industry supported by Government, historic energy advantage and access to a skilled workforce with expertise mining and mineral processing. While Australia maintains its bauxite reserves, it has lost its historic energy advantage and there is increasing pressure on a limited skilled workforce.

In his 2019 book, 'Superpower: Australia's Low-Carbon Opportunity', Ross Garnaut discussed Australia's potential to best utilise its abundant bauxite reserves by leveraging Australia's renewable energy potential to create a competitive advantage in aluminium production by reducing energy costs to produce low carbon aluminium. The single biggest opportunity to decarbonise the energy intensive, vertically integrated Australian aluminium industry is through the combination of electrification or conversion to low emissions fuels for existing industrial processes and decarbonisation of the national electricity supply. The Council believes that Government support is needed, in the form a production credit, until Australian energy costs reduce in line with projections. Similarly, Rod Sims has argued that turning Australia's bauxite into green aluminium using low-cost renewable energy could reduce global emissions by around 1%<sup>5</sup>.

The key to success in these scenarios is to ensure that Australia's bauxite resources continue to be able to be economically accessible, that low cost renewable energy is available and prioritised for use by industries such as the alumina and aluminium processes needed to convert the bauxite and that Australian industry is sufficiently able to attract the necessary financial support during the transition. Australia's alumina and aluminium industries are located in key regional hubs<sup>6</sup>, which have been identified as part of Australia's transition a net zero economy. These green metal industries can create the baseload, flagship offtake agreements in these key locations that can encourage additional investment and renewable energy to support other industries to be developed.

Department of Industry, Science and Resources has recently forecast<sup>7</sup> that earnings for Australian exports of aluminium, alumina and bauxite are expected to rise from \$16 billion in 2023–24 to \$18 billion in 2025–26. More than \$14B of this comes from the alumina and aluminium industries, as value adding mineral processing sectors. Australia is one of the very few countries which has bauxite mining, alumina refining, aluminium smelting and aluminium extrusion industries, making aluminium one of the few commodities in which the raw materials are mined and are processed all the way to a consumer product right here in Australia. However, there is an opportunity to leverage this existing industry further. The bauxite (aluminium ore) mined in Australia produces around 20 Mt of primary aluminium; more than 13 times Australia's current production. So, while the existing aluminium industry in Australia is a successful example of vertical integration, it is far from being at capacity and there is economic opportunity for Australia to be gained under the right policy conditions.

### **Firmed and reliable, low emissions, internationally competitive energy is the single biggest opportunity**

While the cost of variable renewable energy generation has fallen dramatically, the delivered cost (including transmission and distribution) of firmed electricity has not. The cost of firming renewable energy supply is likely to be one of the largest differentiators of Australia's future competitiveness for electricity-intensive industries. The single biggest factor in determining the location of future refining, smelting and manufacturing locations is reliable, internationally competitive, low emissions energy. New large scale renewable energy, firming and

<sup>5</sup> <https://iceds.anu.edu.au/news-events/news/australia%E2%80%99s-new-dawn-becoming-green-superpower-big-role-cutting-global-emissions>

<sup>6</sup> <https://www.pmc.gov.au/news/address-national-press-club>

<sup>7</sup> <https://www.industry.gov.au/publications/resources-and-energy-quarterly-june-2024>

transmission assets to meet the needs of a decarbonising aluminium industry must be developed in a timely fashion to enable emissions associated with the industry to be reduced at scale. The Council believes that while the long term solution is renewable electricity, gas will have a necessary bridging role in lowering carbon emissions from refineries in the medium term, while low emissions alternatives are further developed and rolled out in the future.

Similarly, the biggest opportunity to accelerate alumina and aluminium decarbonisation is to expedite the scale and pace of Australia's electricity transition, while ensuring this electricity is prioritised for use by value adding industry and is available at internationally competitive prices. Currently deployment of abatement opportunities in alumina refining can be limited by the availability of electricity at scale. Clear plans to support the transformational scale of investment required in the energy transition will help promote investment in the development and deployment of key decarbonisation technologies.

There is no transition without transmission and in both the National Electricity Market (NEM) and the South West Interconnected System (SWIS) increased effort is needed to continue to progress future state transmissions networks, to support the large volume of renewable energy required to offset not only existing coal fired generation, but also increased demand for facilities to electrify once this technology becomes viable. As Australia looks to identify opportunities for new industries, it is important that the electrification needs of existing industry are considered as a priority under FMIA. For example, the SWIS does not have the generation nor transmission capacity to electrify one alumina refinery, let alone three. The fundamental pillar of global competitiveness is low-cost renewable energy, firming and transmission. Despite recent announcements, such as the expansion of the CIS<sup>8</sup>, the scale of the investment at this stage does not match the scale of investment of Australia's competitors. The Council is concerned that if transmission and supporting infrastructure is delivered in the manner and at the pace it has been historically, this will become the rate limiting step in the transition<sup>9</sup>.

#### **Australia must be sufficiently competitive to be able to attract global decarbonisation investment.**

While the Bills outline significant investment, this needs to be considered in the context of global competition. Australia is in a global clean energy race, competing for both capital and skilled workers, while other nations undertake their own transition of their sectors such as aluminium. Compared to international competitors, Australia has low rates of investment relative to the size of its economy. Capital follows the strongest investment signals and Australia's energy and industry policy signals are currently too weak to attract globally relevant industrial abatement and investment capital.

The Mission Possible Partnership<sup>10</sup> highlighted that a global investment of approximately US\$1 trillion will be required for the aluminium sector transition. Considering the size of the Australian aluminium industry (~3% of the global industry), an investment of US\$30bn would be necessary to deliver the same outcome. The scale of investment will vary depending on site specific, technology and infrastructure but would be significant at a facility level. Policy support needs to be commensurate with the scale of these significant investments.

The funding under FMIA specifically allocated to the green metals sector is, at this stage, unclear but needs to be commensurate with the scale of the challenge and the funding available internationally to accelerate the development and deployment of innovative production technologies in Australia. For example, while the Council appreciates the creation of a dedicated Powering the Regions Fund (PRF) Critical Inputs to Clean Energy Industries (CICEI) stream the program, at \$400m, is currently two orders of magnitude smaller (relative to GDP) than similar programs in other jurisdictions like Canada, Europe and Japan. By comparison, with the PRF, under the Inflation Reduction Act the United States Department of Energy has recently announced<sup>11</sup> a US\$500 M (AUD ~\$760M) grant to a single facility - Century Aluminum - to build the first greenfield domestic primary aluminium

<sup>8</sup> <https://minister.dcceew.gov.au/bowen/media-releases/delivering-more-reliable-energy-all-australians>

<sup>9</sup> <https://www.worley.com/~media/Files/W/Worley-V3/documents/our-thinking/from-ambition-to-reality/from-ambition-to-reality-report.pdf>

<sup>10</sup> <https://missionpossiblepartnership.org/wp-content/uploads/2022/10/Making-1.5-Aligned-Aluminium-possible.pdf>

<sup>11</sup> <https://www.energy.gov/oced/industrial-demonstrations-program-selections-award-negotiations>

smelter in 45 years. This new facility will rely on carbon-free electricity and will more than double primary aluminium production in the U.S. This is seen as increasing the strategic ability of the U.S. to not only compete on a global scale, but to increase capacity to meet growing demand and be a source of the security and diversity of aluminium supply chains in the U.S.

**Australia’s integrated aluminium industry means an efficient overall regulatory framework is needed**

Additionally, FMIA must have regard to non-financial means of support – particularly the streamlining of regulatory approvals and coordination of State and Federal policies – that are critical to lowering investment barriers.

A suite of government policies<sup>12</sup> and frameworks, including environmental approvals, are required to decarbonise Australia’s domestic manufacturing in order to establish a ‘green metal’ industry in Australia. Australia’s historic advantage in the aluminium industry stemmed principally from its substantial high quality bauxite reserves. The success of Australia’s green metals industry requires an integrated system of policies, including those which support ongoing approval to mine Australia’s bauxite reserves. While seeking to maintain Australia’s highest standards for ESG, it is also worth considering that global demand will continue to be met from elsewhere if not provided by Australia. The current capacity remains vulnerable to both domestic policy and geostrategic risk. In this context, the Council draws the Committees attention to the submission<sup>13</sup> made by the Council to the current Inquiry into the Nature Positive (Environment Protection Australia) Bill 2024 and related bills.

In Australia, none of bauxite, alumina and aluminium are currently considered Critical Minerals. Aluminium is included as a Strategic Material, but this listing lacks any other supporting policy framework. Australia’s failure to address this is a lost opportunity in its policy setting framework. The Council believes the Strategic Materials list requires urgent review and would instead be better addressed as a part of the Critical Mineral List<sup>14</sup>.

**The Aluminium sector can build from a strong record in delivering community benefit**

Australia’s existing aluminium industry is already predominantly located in regional Australia (Figure 1). The majority of the more than 19,000 employees live in the regions in which they work and there is often intergenerational employment at sites. In regions like Cape York, bauxite mines can have indigenous participation rates of 30%<sup>15</sup>. In the regions in which the Council’s members operate the intent is to provide financial benefits but also education, training, cultural heritage protection and employment.

There are already workforce and skills shortages across many industries and regions that impact on the alumina and aluminium industry and will be exacerbated during the transition. The scale of the workforce and skills required for transformational abatement projects and new industries should not be underestimated, nor should the impacts of this on the pace of abatement. These challenges are, however, not unique to the aluminium sector and maintaining the existing assets in these regions will, in fact, help maintain a trained and agile workforce which can adapt to future opportunities.

Decarbonisation is an electrification story - large scale wind and solar, distributed solar, household and grid scale energy storage, increased electricity transmission and distribution, electric vehicles and the electrification of industry, in particular, mining and alumina refining. As a result, there will be significant demand for those with electrical skills including electrical discipline engineers, electricians, process control engineers and analyser technicians, electric vehicle mechanics. This demand will occur across all sectors in the economy. These skills are strongly linked to STEM subjects at high school and historically male dominated industries. These professions are likely to attract high salaries, good conditions and offer long term career prospects that are suitable for a range of employment arrangements including “fly-in fly-out”, regional and metro-based roles, full

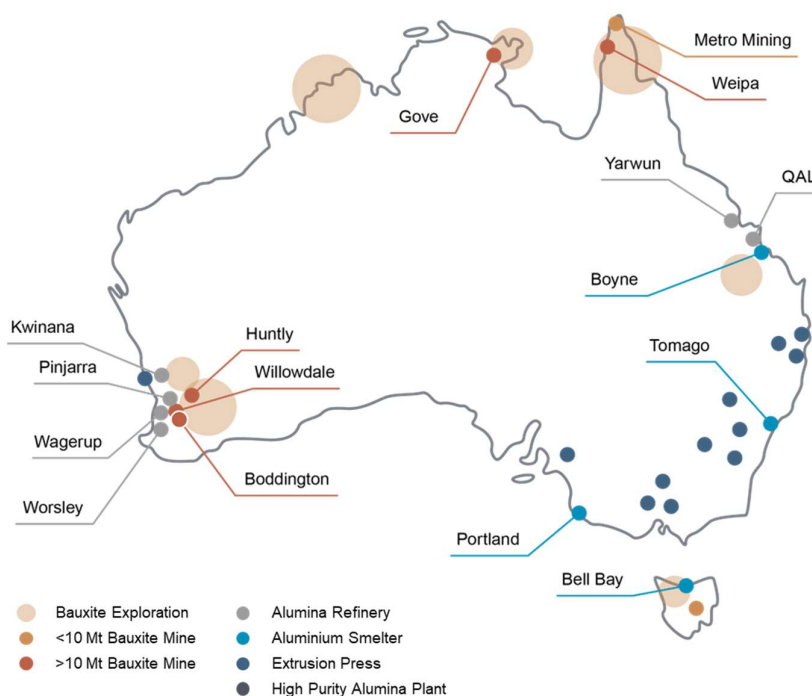
<sup>12</sup> The Council has made a detailed submission to the Government’s Green Metals Consultation Process which is available from <https://aluminium.org.au/news-category/submissions/>

<sup>13</sup> <https://aluminium.org.au/wp-content/uploads/2024/07/240712-Aluminium-Nature-Positive-Environment-Information-Australia-Bill-2024.pdf>

<sup>14</sup> <https://aluminium.org.au/wp-content/uploads/2023/08/230817-Aluminium-Critical-Minerals-List-Update.pdf>

<sup>15</sup> <https://www.metromining.com.au/media/33566/metro-investor-presentation-noosa-conference-nov-2022.pdf>

and part time, site, office and home based locations. Ensuring there are enough suitably qualified workers will require the largest, and therefore most diverse, pool of talent. The promotion of STEM and the encouragement of both male and females into these careers is paramount to achieving decarbonisation. This should include re-training mature employees into these roles. Given the aluminium industries location in regional Australia this can help upskill thriving communities into the future.



**Figure 1. Aluminium Operations in Regional Australia**

### **Conclusion**

While the Council welcomes the introduction of the Bills, these reforms need to be carried out in the context of the suite of government policies and frameworks which are required to decarbonise Australia's domestic manufacturing in order to establish a 'green metal' industry in Australia. The most effective, in order are:

1. Delivery of firm and reliable, low emissions, internationally competitive energy
2. Support for the capital investment for decarbonisation and the transition of energy contracts noting that this will need to be a combination of production credits and transformational capital funding; and
3. Predictable streamlined approvals for the whole value chain from mine to market including infrastructure needed to ensure alumina and aluminium can continue to be made in Australia in the future.

The Future Made in Australia Bill 2024 represents a pivotal step towards a sustainable and resilient future for Australia, one where Australia not only meets its net zero targets but also becomes a global leader in the green metals industry. The Council looks forward to working collaboratively with the Government to realise the full potential of this agenda. The Council is happy to provide further information on any of the issues raised in this submission.

Kind regards,

[Redacted]  
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Australian Aluminium Council  
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