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Submitted to:
Modern Manufacturing Strategy Road Maps

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Of the six National Manufacturing Priorities outlined in the Modern Manufacturing Strategy, which would you like to comment on?

Resources Technology and Critical Minerals Processing

Which areas of pre-production, production and post-production do you think should be included in this National Manufacturing Priority?

In development of the National Manufacturing priorities, the Australian Aluminium Council believes there is considerable value in focussing on the existing vertically integrated mineral processing and manufacturing sector, including the aluminium industry. There are opportunities for Australia to leverage these existing domestic supply chains to rapidly strengthen its domestic capabilities.

The Australian aluminium industry has been operating in Australia since 1955 and has been a significant contributor to the Australian economy since this time. The industry is globally comparatively young and well maintained. The industry includes five bauxite mines (>10 Mt per annum), six alumina refineries and four aluminium smelters in addition to downstream processing such as extruders and distributors. Australia is the world's largest producer of bauxite and largest exporter of alumina, and the sixth largest producer of aluminium. As such, the upstream industry should be considered as three processes which each have their own globally significant standing. Australia's aluminium industry is a key employer and contributor in the communities in which we operate. In 2019 we:

- Directly employed more than 15,000 people;
- Provided income for another 40,000 families;
- Paid $1B in wages, at a rate nearly double the Australian manufacturing average;
- Spent more than $4 B in our local communities; and
- Contributed more than $15B to the Australian economy in export revenue.

For decades, aluminium has been part of the solution to Australia's energy, security and regional economic challenges. For example, the southern hemisphere's first aluminium smelter was built to overcome national security risks following the second world war. Bell Bay in northern Tasmania was chosen as the site because of its deep-water port and the state's hydroelectric generating capacity. Portland in far western Victoria, was chosen in the early 1980s as the location for a new smelter

because it enabled socio economic development of the region and provided a baseload customer for new generation and a new transmission line across the state.

While the reasons for building aluminium capacity may change over time, our competitive position in manufacturing aluminium need not. Demand for aluminium continues to grow in a decarbonising world as its lightweight, infinitely recyclable properties make it more and more the metal of choice in cars, planes and trains; in mobile devices, in packaging and in construction.

Why are these areas important to this priority?

Within the regions in which the industry operates, there is not only high-quality direct employment at mines, refineries, smelters and extruders, but also the opportunities for local manufacturers to grow where the aluminium industry provides a baseline of work on which they can then build. For example, Keppel Prince in Portland began in 1968 specialising in the aluminium and forestry industries. While maintaining a long-term maintenance and full-service partnership with Portland Aluminium Smelter since 1986, for the last twenty years Keppel Prince have also expanded to be at the forefront of renewable energy production. This regional capability with associated infrastructure underpinned by the aluminium industry is an important enabler for low emissions technology development and manufacturing.

The aluminium industry is committed to strong local content, local procurement and local participation. However, the supply chain must also be competitive, including for raw material supplies. Supply chains for supply to the alumina refineries, aluminium smelters and downstream processes are highly specialised. There are opportunities to further develop the competitiveness within these domestic supply chains, broadening the opportunities for Australian manufacturing.

Equally, the COVID-19 pandemic has underscored the importance of electricity intense manufacturing domestically, supporting a productive and resilient economy. The COVID crisis has demonstrated the advantages of not only the ability to value add within an almost exclusively domestic supply chain but also the importance of local industry which provides the underpinning market for our dependent contracting and manufacturing sector. This capability was able to pivot to meet rapidly changing domestic needs such as sanitiser, face shields and ventilators. Energy intensive industry provides not only current regional jobs, but also supports the smart Australian jobs of the future.

What are the opportunities for scaling Australian manufacturing in this priority area?

In the downstream sector, COVID- 19 interrupted import supply chains for customers who previously sourced materials internationally. This, combined with significant disruption in shipping logistics, meant many companies with international supply chains needed to look for local solutions. Australian aluminium extruders were able to step into the breach to avoid more significant impacts on other sectors, such as building and construction, by replacing imported supply chain elements with domestic production. For example, solar rail, window and door products reverted to Australian based production to keep their businesses and customers supplied. This experience also applied across critical market segments including defence, heavy transport, ship building, medical equipment, building and construction (residential, commercial and industrial), medical, energy and infrastructure projects. A strong domestic aluminium extrusion sector helps ensure that broader economic activity is able to continue in times of national crisis like COVID-19.

While Australia exports the majority of the primary aluminium it produces, around 120,000 tonnes of it is further processed domestically by local manufacturers. This is an important market for billet from

Australian smelters. Every tonne of imported extrusion material impacts on the Australian portfolio and ultimately their cash margin. The Australian extrusion market in total is estimated at around 190,000 tonnes. Australia's nine extruders have a nameplate capacity of 150,000 tonnes, however at the moment around 20 per cent of this capacity is idled. Support for the Australian aluminium manufacturing sector could see a growth in domestic production including a restart of this 30,000 tonnes of idled capacity; and more jobs for Australians.

A report by the CM Group in May 2020 (http://www.world-aluminium.org/media/filer_public/2020/05/28/initial_assessment_of_the_impact_of_the_covid-19_on_global_al_demand_.pdf), found even accounting for the COVID-19 pandemic, the 30-year global outlook for aluminium demand is strongly positive with a forecast compound annual growth rate of 3.8% over the 30-year period to 2050, resulting in annual demand of approximately 335 million tonnes per year by 2050 (across both primary and secondary aluminium consumption). This is consistent with World Bank projections of 100 million tonnes of primary aluminium metal production by 2050 (http://pubdocs.worldbank.org/en/961711588875536384/Minerals-for-Climate-Action-The-Mineral-Intensity-of-the-Clean-Energy-Transition.pdf). The World Bank found that as aluminium is used across a broad range of low emission technologies, it is less susceptible to changes in technology deployment, and it has the highest absolute levels of demand from any of the minerals included in their analysis. As the world's largest producer of bauxite and largest exporter of alumina, and with a wealth of energy resources, Australia should be well placed to capitalise on this competitive advantage in the future.

What are the challenges to seizing these opportunities, and what are your proposed solutions?

The biggest challenge facing industry is the delivered cost of energy. While gas price, supply and stability are expressly addressed in the Strategy; the measures to support reliability and competition in the electricity market are not.

Electricity in the Australian market has in recent times been consistently priced in the fourth quartile of global prices for electricity intensive manufacturing. Internationally competitive electricity prices which would drive growth in the electricity intense sector, would require a long-term stretch goal of delivering a first quartile electricity price, with an initial target of achieving second quartile electricity prices. This would move Australia's electricity intensive industries currently facing the question of survival, to being facilities able to attract capital investment and from there through to being able to capitalise on our national energy competitive advantage.

Australia's industry is seeking a restoration of international competitiveness. Efficient deployment of technological changes will support the transition of economically important industrial sectors such as alumina and aluminium, enabling a greater manufacturing sector. In deploying these technologies, Australia will also need to address its relatively high cost capital costs, compared to international competitors.

What do you think are the measures of success for Australian manufacturing in this priority area?

For the aluminium industry, it is the delivered cost (including transmission) of electricity which drives international competitiveness. Supported by economically priced gas to firm renewables in the short term and a broader range of technologies in the medium to long term, the Council believes a short-term goal of second quartile delivered power costs, with a stretch goal of first quartile is achievable.

Do you have anything else you'd like to share with us in relation to the national priority areas or the manufacturing strategy?

The Council supports ensuring connectivity between the Modern Manufacturing Strategy, the Technology Investment Roadmap, the Low Emission Technology Statements and the King Review Technology Co-Investment Fund; as well as the announced measures to help ensure reliable gas supply at affordable prices. It is this integrated view of industry, emissions and energy policies which the Council believes is essential in helping restore Australia's competitive advantage in the mineral processing and manufacturing sectors.