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Department of Climate Change, Energy, Environment and Water (DCCEEW)
Via <https://consult.dcceew.gov.au/regulation-small-electrical-products-solar-pv>

19 July 2023

Dear Minister

Re: Regulation for small electrical products and solar photovoltaic systems

The Australian Aluminium Council (the Council) represents Australia's bauxite mining, alumina refining, aluminium smelting and downstream processing industries. The aluminium industry has been operating in Australia since 1955, and over the decades has been a significant contributor to the nation's economy. It includes six bauxite mines which collectively produce over 100 Mt per annum making Australia the world's largest producer of bauxite. Australia is the world's largest exporter of alumina with six alumina refineries producing around 20 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. Aluminium is Australia's highest earning 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 Council welcomes the opportunity to provide feedback to DCCEEW on its consultation paper *Regulation for small electrical products and solar photovoltaic systems* (the Paper). The Paper responds to growing e-waste stream, which contains valuable metals needed to power the energy transition. Maximising their recovery and recycling as part of a circular economy is critical to decarbonisation and resources sustainability.

Aluminium is one of the commodities most widely used in the global transition to a clean energy future¹. 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 is expected to nearly double from around 100Mt per annum to around 190Mt². 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.

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 processed into consumer products right here in Australia. However, there is an opportunity to leverage this existing industry further. For example, aluminium accounts for more than 88% of the metal in a solar panel. The aluminium frame and rail are examples of extrusions which can be made

¹ <https://www.worldbank.org/en/topic/extractiveindustries/brief/climate-smart-mining-minerals-for-climate-action>

² International Aluminium Institute High Substitution Scenario, <https://alucycle.international-aluminium.org/>

using existing manufacturing capability in Australia. For every GW of solar PV, 5.5 kt of aluminium extrusion is needed for frames and for every GW of rooftop solar, an additional 13 kt of aluminium extrusion is needed for rails and mountings. Aluminium frame and rail can be reused or recycled if circularity is considered in design. Installed solar in Australia will need more than 1.5 M tonnes of aluminium extrusion by 2050, creating a substantial increase in demand for both aluminium and extrusions. But today more than 70% all semi-finished aluminium used in Australia is imported and <3% of Australian extrusion capacity is supplied as solar rail and none as solar frame. Leveraging opportunities under the National Renewable Energy Supply Chain Action Plan for Australian aluminium to be used in the development of a solar PV industry could see Australian bauxite become Australian made solar panels. In addition, the upstream aluminium industry has a growing demand for renewables, which could further catalyse demand for manufacturing.

As aluminium is a high value commodity and infinitely recyclable, aluminium rail and frame is readily recycled at the end of its life. However, there is the potential for this to be a closed loop value chain, as articulated in recent work undertaken by the Council in conjunction with Deloitte and Coreo in 2022³ (Figure 1).

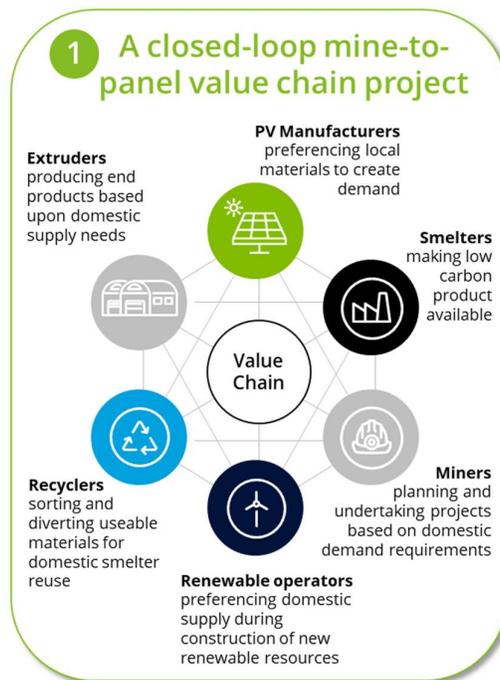


Figure 1. Opportunities for a Closed Loop Mine to Panel System⁴

The Council is happy to discuss the opportunities for Australian aluminium in Australian made solar PVs, in the context of a circular industry policy, further.

Kind regards,

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³ https://aluminium.org.au/wp-content/uploads/2022/11/Cast-Anew-Aluminium-Discussion-Paper_Public-FINAL.pdf

⁴ <https://aluminium.org.au/wp-content/uploads/2022/11/Cast-Anew-Summary-for-Website.pdf>