AUSTRALIAN ALUMINIUM COUNCIL LTD

Mike Ferraro LLB (Hons)

President of the Australian Aluminium Council.

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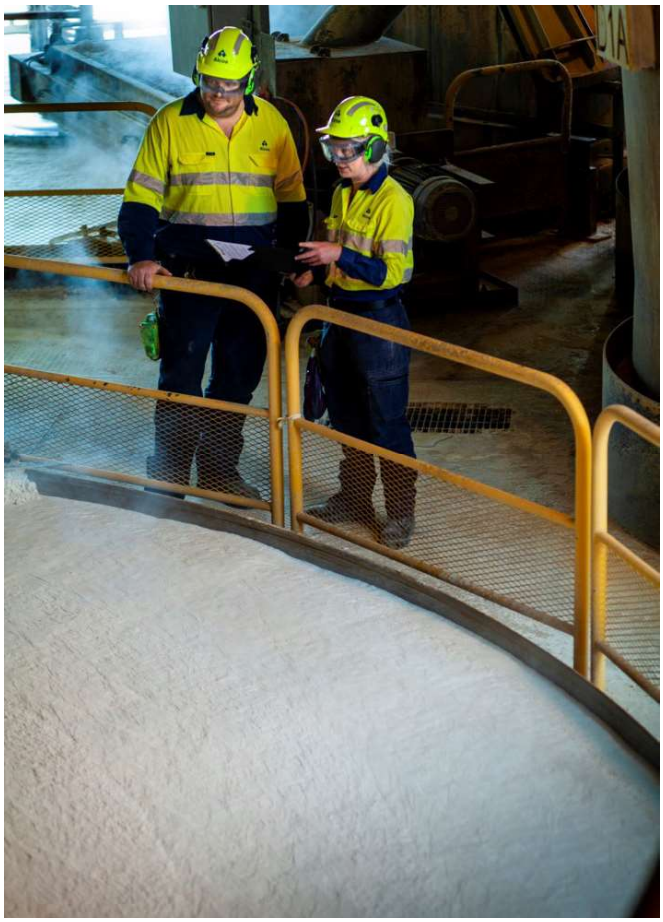
Prior to his appointment as the CEO and Managing Director of Alumina Limited in 2017, Mike was a Non-Executive Director of Alumina Limited and global head of corporate and a member of the management committee at Herbert Smith Freehills,

an international law firm. Between 2008 and 2010 Mike was Chief Legal Counsel at BHP Billiton Ltd. Mike is also a director of Alcoa Australia Ltd and the President of the Australian Aluminium Council.

AlCircle: How is the Australian Aluminium Council helping to promote sustainable bauxite mining and metal production?

Mr Mike Ferraro: Aluminium is one of the commodities most widely used in the global clean energy transition. Transitioning the world towards green energy sources will require 50% more aluminium than the electricity sector consumes today. Australia is one of the very few countries which has an integrated value chain, from bauxite mining all the way through to extrusion industries.



Today, Australia is the world's largest producer of bauxite, the largest exporter of alumina, and the seventh-largest producer of aluminium.

Australia has more than 60 years of technical experience in bauxite mining, alumina refining, and primary aluminium smelting, which not only helps us, but our customers, reach their sustainability goals.

Our members, such as Alcoa, Rio Tinto and South32's Worsley Alumina operations, all have their global alumina research headquarters in Australia, helping develop new technologies for the world. Our downstream members support the domestic supply of manufacturing aluminium extrusions in Australia.

Australian bauxite mining is regarded as having some of the highest sustainability standards in the world. In 2018, the Australian Aluminium Council co-authored the Sustainable Bauxite Mining Guidelines together with the International Aluminium Institute and the Brazilian Aluminium Association, aiming to share the expertise learned from decades of sustainable mining practices in Australia with the global industry. Sustainable bauxite mining is not a "one-size fits all" prescriptive process but involves risk management and applying technologies appropriate to the circumstances of each mine. The guidelines aim to identify and communicate the criteria and encourage emerging bauxite suppliers to improve their practices in line with the rest of the global industry. The guidelines were updated, and the second edition was published in February 2022.

The Aluminium Stewardship Initiative (ASI) provides the industry with a global certification scheme which includes not just carbon content – but Environmental, Social, and Governance issues for all parts of the value chain. Many of Australia's mines, refineries, smelters and chains of custody supply chains are certified.

AlCircle: As the Council speaks on behalf of the energy-intensive aluminium industry in Australia, can you give us an idea of the essential steps that are being taken in the region to negate carbon emissions?

Mr Mike Ferraro: Australia as a nation has committed to net zero emissions by 2050. For the aluminium sector, the biggest opportunity to reduce carbon emissions is through the decarbonisation of the electricity supply. Increased generation of renewables in the electricity sector is projected to increase to more than 80% by 2030.

Inert anodes technology could reduce more than 95% of the scope 1 emission in aluminium smelting. However, the global rollout of the technology is not expected to be widescale until post-2030.

Already having some of the lowest emission intensities in the world, Australia's alumina industry is also leading global research into new technologies to decarbonise. For example, Alcoa of Australia Limited has received funding from the Australian Renewable Energy Agency (ARENA) to test Mechanical Vapour Recompression (MVR) and Electric Calcination (EC). With electricity sourced from renewables, the two technologies could reduce a refinery's carbon emissions by 98% and reduce freshwater use by up to 70%. Additionally, Rio Tinto is in partnership with ARENA and Sumitomo to investigate the potential to decarbonise alumina calcination using renewable hydrogen.

AlCircle: With the emerging concept of decarbonisation, it is evident that recycling activities are on the rise. Does this mean it can pose a future threat to other mining and smelting activities in Australia?

Mr Mike Ferraro: Aluminium can be recycled almost infinitely, making it an incredibly sustainable material. Recycled aluminium consumes only around 5% of the energy used for primary aluminium. Demand for recycling is expected to increase due to the much lower carbon impact of melting scrap. However, there are challenges associated with the availability, collecting, sorting and recycling of secondary aluminium.

Global recycled aluminium production is expected to grow significantly in the next few decades. But it will not be enough to meet the substantial demand growth for the metal; primary aluminium is still expected to be a main source of supply in the years to come. According to International Aluminium Institute, global primary aluminium production is expected to grow by

around 15 million tonnes from 2022 to 2050.

Bauxite and alumina, being the raw material for primary aluminium production, will continue to play important roles in Australia's aluminium industry in the foreseeable future.

AlCircle: In the upcoming years, what does the Australian Aluminium Council predict to be the most flourishing sector in the aluminium value chain? What part does Australian aluminium play on a global scale?

Mr Mike Ferraro: Aluminium is an essential part of the solution for the global energy transition. The properties of aluminium deliver significant benefits to a decarbonised world. Substantial growth in aluminium demand, both primary and secondary, is forecast in the coming decades, particularly from the transport, construction and electrical sectors. Its lightweight, corrosion resistance, conductivity and infinite recyclability make it the metal for the future. Take electric vehicles as an example; on average, EVs contain over 30% more aluminium per vehicle than those powered by internal combustion.

Australia has an integrated and experienced aluminium value chain. Today, Australia's alumina already has some of the lowest emissions in the world, with an average emissions intensity of 0.7 tonnes of carbon dioxide per tonne of alumina (t CO2-e/t), compared to the global industry average of 1.2 tCO2-e/t.

There is also a focus for the entire value chain to identify technological solutions to further decarbonise, making Australia a leader in the world to make the aluminium industry more sustainable.

AlCircle: As a newly appointed head of the Australian Aluminium Council, how would you augment your organisation's functionality and propose bringing the international market into a closely-knit circle?

Mr Mike Ferraro: While being the President of the AAC, I am also a Director of the International Aluminium Institute and the Managing Director and CEO of Alumina Limited.

Our AWAC (Alcoa Worldwide Alumina and Chemicals) joint venture with Alcoa is one of the largest bauxite and alumina producers in the world. As an industry leader, all of AWAC's alumina refineries are first quartile on the refinery emissions intensity curve.

At Australian Aluminium Council, we are supportive of continuing to develop downstream manufacturing activities in Australia and to be globally competitive by supporting global carbon emissions reduction to ensure an even competitive landscape.
As the world faces more climate change challenges, I strive to work not only with the Australian industry but also with our global peers to make the global aluminium industry more sustainable through dialogue and collaboration.

For the next three decades, I firmly believe aluminium will play a critical role in global decarbonisation. Aluminium is the metal
for the future, with applications that can advance humanity.