



Alcoa Portland Aluminium's Ella Kohlman invites people to find out more about the important silver metal the company produces.

# A silver thread in our present and future

**Strong, lightweight, durable and 100 per cent recyclable, the importance of aluminium should not be understated.**

Used in all manner of things – from buildings to vehicles, food and drink packaging to electrical and medical equipment – the second most widely used metal in the world is firmly embedded in our everyday life.

But it is also playing a major role in the green energy future we are striving for.

"Aluminium is fundamental to our energy systems due to its light weight and excellent conductivity," Australian Aluminium Council CEO Marghanita Johnson said.

"It's used in solar panels, wind turbines and electric vehicles.

"It helps reduce weight and increase energy efficiency, playing a crucial role in energy storage such as batteries and transmission lines.

"Moving towards a clean energy future relies heavily on aluminium, especially for electricity transmission systems and power plants."

For these reasons, the International Energy Agency has recognised aluminium as an essential commodity for green energy generation, storage and distribution, as well as the production of electric vehicles.

Countries like Canada, the United States and Europe have identified aluminium as a critical mineral for decarbonisation.

For the same reason, the Federal Government has included aluminium on the country's strategic minerals list.

Put all this together, and it is not surprising that global consumption of aluminium has nearly tripled since 2001 and is expected to almost double again by 2050.

Meeting this demand through responsible and sustainable production is widely recognised as one of the sector's biggest challenges in the decades ahead – a challenge which Alcoa Australia President and Operations Vice President Elsabe Muller firmly believes Alcoa is up to.

"For more than 60 years, our Australian operations have been helping meet aluminium demand in a responsible way," she said.

"We mine the key ingredient for aluminium – bauxite – in Western Australia's Peel and upper South West regions and rehabilitate the land afterwards, returning the jarrah forest.



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**– Marghanita Johnson, Australian Aluminium Council**

"About 75 per cent of all land we have mined has been rehabilitated and this process is ongoing.

"We then value-add to this ore by turning it into alumina at our nearby WA refineries.

"The alumina is then shipped to our smelter in Portland, Victoria, as well as other locations around the world, to be turned into aluminium.

"Through the process, we directly employ about 4700 people – mainly in regional WA and Victoria – and spend about \$2.7 billion annually with some 1500 Australian businesses."

There is no questioning Alcoa's credentials when it comes to the aluminium industry.

Dating back to 1886, Alcoa was a major player in the invention of the commercial aluminium industry with a world-changing discovery which made production affordable.

From there, the use of the versatile metal took off.

Ms Muller said Alcoa was now focused on reinventing the aluminium industry for a sustainable future.

"One of the major ways we're working to do this is through a revolutionary new method of aluminium production

called ELYSIS, which eliminates direct greenhouse gas emissions from the traditional smelting process," she said.

Traditional aluminium smelting uses carbon anodes, which produce carbon dioxide emissions as a by-product.

In contrast, ELYSIS technology employs non-carbon anodes, resulting in the emission of oxygen, rather than carbon dioxide.

This groundbreaking technology launched in 2018 as a joint venture with Rio Tinto recently reached larger-scale demonstration status.

Ms Muller said another way Alcoa was driving reinvention was through modernisation of the alumina refining process.

"We have gathered a team of global experts at our Australian headquarters in WA to work on innovative technologies aimed at eliminating the need for fossil fuels, along with reducing freshwater use and waste," she said.

Ms Johnson agreed that while poised for prosperity, the aluminium industry had to evolve and continue a push

towards eco-friendly production.

"To keep producing sustainably in the future, the industry is working on new technologies in alumina refining, with much of this cutting-edge research happening right here in Australia," she said.

"We're also looking to use renewable energy, including firming, to replace our current electricity use and fossil fuels.

"The single biggest opportunity to decarbonise the industry is through the electricity supply, which can help with direct electrification and open other possibilities like using hydrogen."

Ms Johnson said Australia's biggest challenge right now was to keep its mines, refineries, smelters and downstream manufacturing operating through the energy transition.

"If these facilities are lost, the potential for Australia to become a green metals producer will be lost as the skills and infrastructure will not be rebuilt," she said.

"With the right policy settings, we can not only retain our existing industry but also, in the long term, capture more of the opportunities offered by growth in the international aluminium market."



Australian Aluminium Council  
CEO Marghanita Johnson.