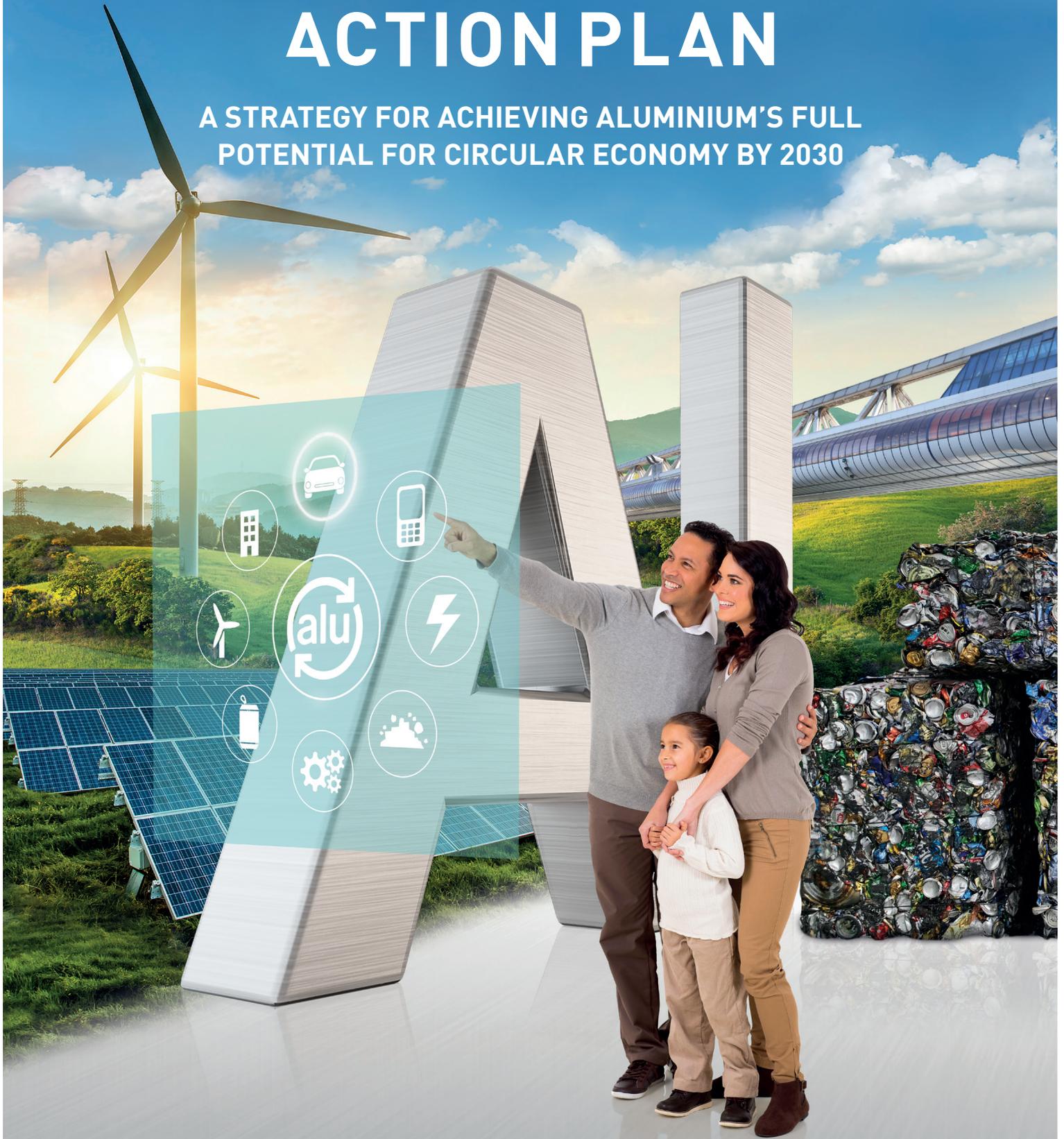


CIRCULAR ALUMINIUM ACTION PLAN

A STRATEGY FOR ACHIEVING ALUMINIUM'S FULL
POTENTIAL FOR CIRCULAR ECONOMY BY 2030



EXECUTIVE SUMMARY



EUROPEAN ALUMINIUM

INTRODUCTION

Circularity is a strong component of the EU's proposed European Green Deal, and its ambitions to mitigate climate change and avoid CO₂ emissions. Achieving a truly circular economy also creates substantial new opportunities for business growth in Europe.

The aluminium industry is committed to helping to deliver the European Green Deal, building on its long-standing commitment to sustainability.

The sector has already achieved a reduction of 55 percent in direct CO₂ emissions since 1990. Furthermore, European Aluminium's Vision 2050¹ articulates a clear plan for the development of a decarbonised, circular and energy-efficient aluminium value chain in Europe by 2050. The Vision 2050 presents future scenarios for aluminium that illustrate the potential for CO₂ emission reductions in primary production of up to 70% by 2050, helping the sector to achieve its full strategic potential.

Aluminium has the potential to achieve full circularity by 2030

This Action Plan builds on the aluminium industry's Vision 2050, with a focus on recycling and provides policy recommendations for the sector to achieve full circularity.

Aluminium is a circular material, capable of being recycled multiple times without losing its original properties (lightness, conductivity, formability, durability, impermeability and multiple recyclability).

Aluminium recycling rates are among the highest of all materials. In Europe, recycling rates are over 90 percent in the automotive and building sectors, and 75 percent for aluminium cans². These recycling rates for aluminium are achieved due to well-developed collection systems – especially for vehicles reaching their end-of-life, building scrap and used beverage cans; high scrap sorting rates; low losses when aluminium is re-melted to recycled metal; and a high-quality end product which can be used in high value applications. The result is a system driven by the intrinsic value of the metal. Recycling aluminium in Europe can thereby avoid high CO₂ emissions by replacing carbon-intensive aluminium imports.

The aluminium recycling process requires only 5 percent of the energy needed to produce the primary metal, resulting in greenhouse gas emissions of 0.5 tonne CO₂ eq/tonne recycled aluminium (gate to gate). It does not include the inherent carbon footprint of the aluminium scrap.

The aluminium industry is keen to seize the opportunities presented and to drive the changes needed. It is important to ensure that all end-of-life aluminium products are collected and recycled efficiently in Europe to maximise aluminium recycling rates and to keep the material in active use.

¹ Vision 2050, European Aluminium's contribution to the EU mid-century low carbon roadmap, March 2019
<https://european-aluminium.eu/vision-2050/>

² For comparison, the actual recycling rate of plastic is in the region of 10 percent (Material Economics).

POTENTIAL SCENARIOS FOR RECYCLED ALUMINIUM IN EUROPE

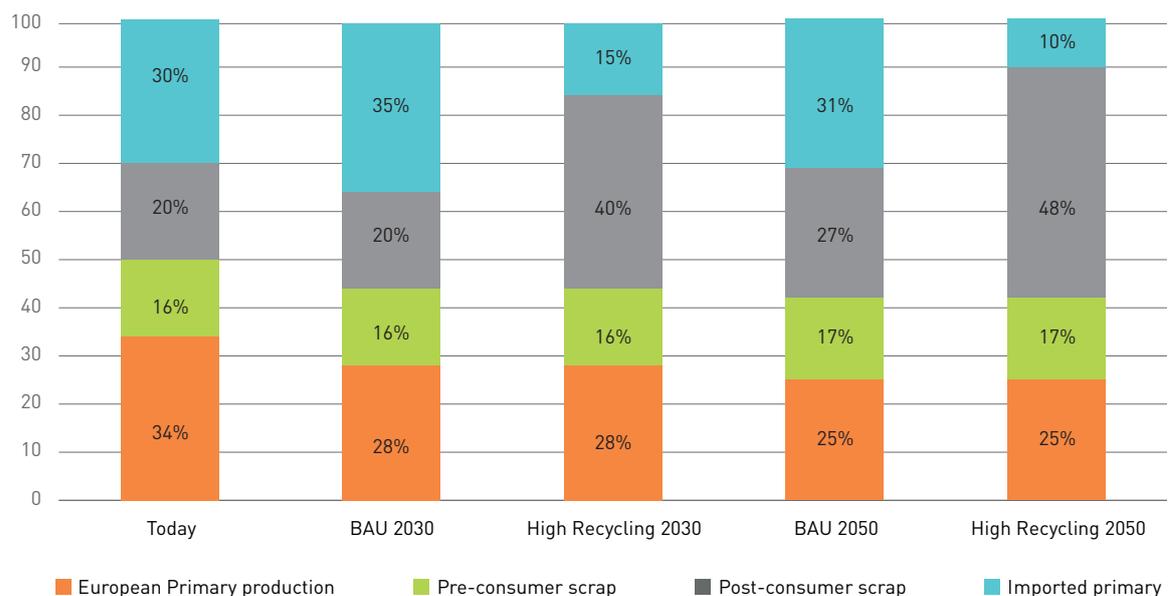
The present Circular Aluminium Action Plan forecasts available aluminium scrap between 2030 and 2050 and CO₂ emissions savings based on these and different scenarios for high recycling scenario compared to a business as usual scenario:

- Based on the forecast consumption, the amount of post-consumer aluminium available for recycling will more than double by 2050. It will increase from 3.6 million tonnes per year in 2019 to 6.6 million tonnes in 2030, reaching 8.6 million tonnes by 2050.
- By mid-century, 50 percent of our needs for aluminium could be supplied through post-consumer recycling. Today, recycled aluminium (pre- and post-consumer scrap) represents 36 percent of the aluminium metal supply in Europe.
- According to estimates, aluminium recycling could reduce CO₂ emissions by up to 39 million tonnes per year by 2050, which corresponds to a reduction of 46 percent of CO₂ per year in 2050; achieved mostly by replacing carbon intensive primary aluminium imports with recycled domestic post-consumer aluminium.
- As a consequence of this high recycling scenario, the volume of imported aluminium sold in Europe would also decrease, reducing Europe's import dependence while generating €6 billion (bn) per year for the European economy.

Both primary and recycled aluminium will be needed in order to meet demand. Keeping production within the EU, however, is both economically and environmentally beneficial. Today primary production in Europe is three times less carbon intensive than the primary production in China.

Metal supply - 2019, 2030 and 2050

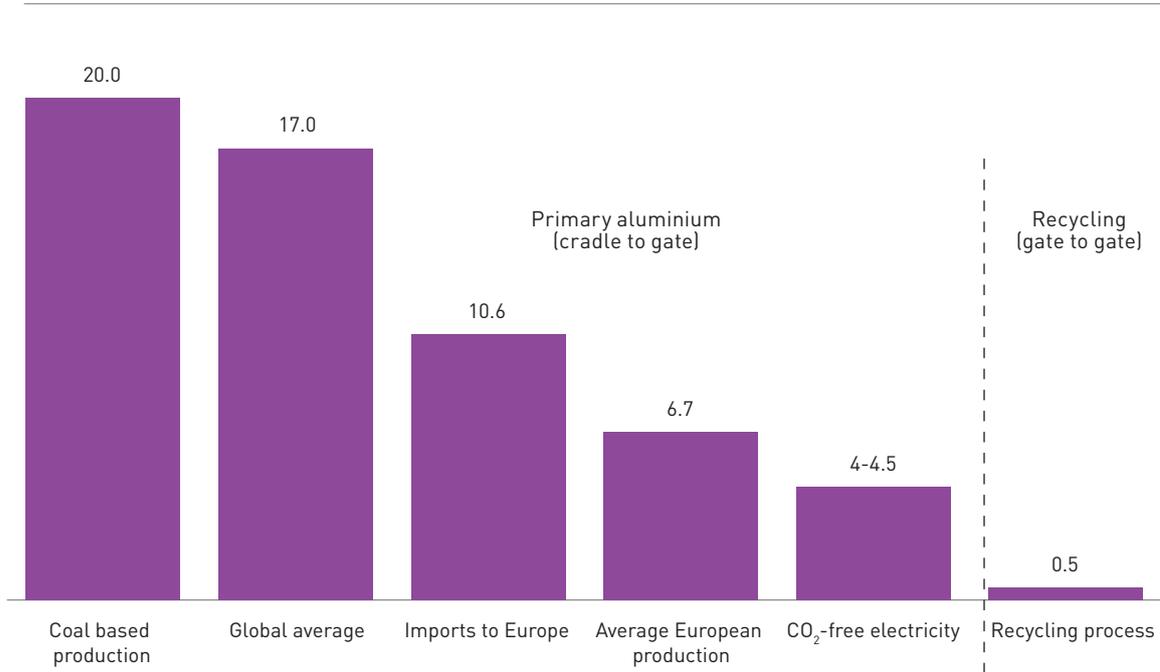
Source: CRU, 2019.



Greenhouse Gas emissions of primary aluminium production and recycling process

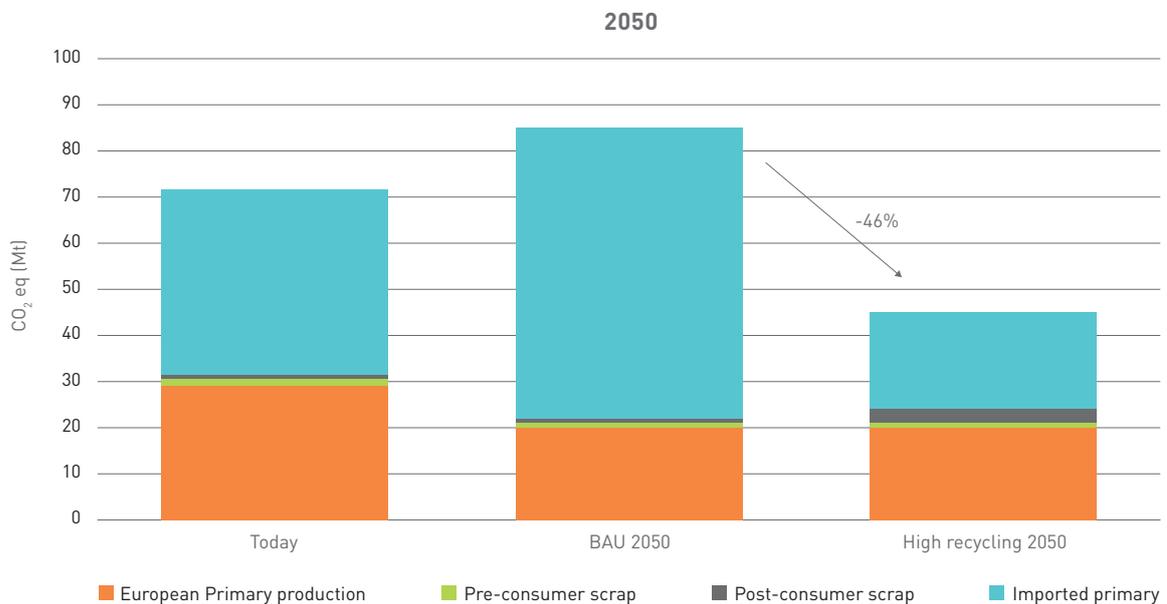
Source: Coal based production and global average: Life cycle inventory data and environmental metrics for the primary aluminium industry, World Aluminium, 2015. Addendum, August 2018.
Other: Environmental Profile Report 2018, European Aluminium

Tonne of CO₂-eq/tonne of production



CO₂ emissions avoided by replacing import of primary aluminium with recycled aluminium in Europe

Million tonnes CO₂ eq per year, 2019 and 2030 (Business as usual (BAU) or high recycling)



- “Business as usual” (BAU) scenarios consider imports with carbon footprint equivalent to average imports today and the equivalent proportion of recycled aluminium.
- “High recycling” scenarios consider imports with the worldwide average carbon footprint and a high proportion of post-consumer recycled aluminium.
- All scenarios assume an efficient recycling of pre-consumer scrap as it is today. (If pre-consumer scrap would not be recycled, it would need to be replaced by primary aluminium).

ALUMINIUM STRIVES FOR MORE

Aluminium has the potential to be a key driver to Europe's transition to a climate-neutral and circular economy. It is a vital metal, creating a wide variety of products and materials that are essential contributors to achieving a greener future for Europe. By combining aluminium with different alloying elements, a wide range of properties can be obtained (lightweight, durability, conductivity, formability). Thanks to these unique properties, aluminium helps other sectors to achieve their own targets for CO₂ emissions reduction; in particular the transport sector.

The aluminium industry wants to ensure that all types of scrap generated are of high quality and that they are minimised and recycled in the most efficient way.

One of the biggest challenges is meeting the demand growth taking place in the automotive sector. The use of aluminium in the automotive sector will continue to increase, as lightweighting and other benefits that aluminium provides will be important for the electric vehicles of the future. However, the use of recycled (also named 'secondary') cast aluminium, specifically for engine blocks, may in fact fall, as cars with combustion engine drive trains will occupy a smaller market share.

A further significant challenge for the sector in Europe is the export³ of 1 million tonnes of aluminium scrap to other regions (mainly Asia). Even though this scrap is highly likely to be recycled due to its high value, its export represents a loss for the European economy.

As the amount of end-of-life aluminium grows, the industry must find new uses for it. An increase in car production is unlikely to absorb the increasing volume of high-quality post-consumer aluminium scrap; at the same time, increased exports would result in the EU losing a valuable resource.

There is an opportunity to lay the foundations for a perfect circular material system. Such a system should reduce – if not eliminate – the various “loopholes” linked to losses of end-of-life material in the collection and recycling phases. Providing more information on the recyclability of material being introduced into the market, and consistently demanding design for circularity would ensure higher rates of collection, sorting and recycling. A perfectly circular system should limit exports of scrap provided that recycling facilities operate at the high environmental health and safety standards required in Europe. Achieving these targets will require investment in re-melting and refining capacity, as well as more efficient sorting within the overall value chain to improve the quality and quantity of material recovered.

³ CRU data of exported post-consumer aluminium scrap

EUROPEAN ALUMINIUM POLICY RECOMMENDATIONS

To make the investments required to create a perfectly circular system will necessitate a fair market and predictable regulatory framework. Today, carbon intensive imported aluminium comes at a cost to both the environment – in terms of pollution – and to a fair aluminium market. Artificially cheap imports can render European investments in recycling uneconomic, meaning Europe currently loses many of the advantages that increased recycling could bring.

Addressing this challenge will require strong support from policy makers and strong collaboration along the whole recycling value chain. The new Circular Economy Action Plan should create the right incentives to promote circular business models to take advantage of the enormous potential that lies ahead for the aluminium industry in Europe.

European Aluminium’s policy recommendations aim to ensure – firstly - circular material handling along the entire value chain starting with the design of products; and – at the same time - to create adequate incentives for circular solutions and products, to stimulate investment in collection and sorting and to foster innovation of production processes.

Our recommendations are summarised in the table below and are developed in our full report: https://european-aluminium.eu/media/2929/2020-05-13-european-aluminium_circular-aluminium-action-plan.pdf

Circular material handling		Incentives for circular solutions and products	
Designing circular products	Remove barriers in the internal market and loopholes in the legislation	Support innovation in collection, dismantling and sorting technologies	Stimulate innovation in melt purification and recycling-friendly alloys
Improve collection and sorting	Limit scrap exports	Recognise the role of recycling in mitigating climate change	Stimulate demand for circular solutions
<p>Further stimulate collaboration along the value chains As an overarching principle, it is essential to improve collaboration along the value chains. There will be no circular economy if the business models behind it are still based on the old “linear” approach.</p>			
<p>Enforcement: Ensure implementation of the current legislation Enforcement of existing legislation is a second condition for an effective circular economy. In particular it is vital to enforce the new requirements under the Waste Framework Directive (e.g. phasing out of landfill) and the Packaging and Packaging Waste Directive (e.g. ensuring Member States report the correct recycling statistics using the new reporting methodology).</p>			

ABOUT EUROPEAN ALUMINIUM

European Aluminium, founded in 1981 and based in Brussels, is the voice of the aluminium industry in Europe. We actively engage with decision makers and the wider stakeholder community to promote the outstanding properties of aluminium, secure growth and optimise the contribution our metal can make to meeting Europe's sustainability challenges. Through environmental and technical expertise, economic and statistical analysis, scientific research, education and sharing of best practices, public affairs and communication activities, European Aluminium promotes the use of aluminium as a material with permanent properties that is part of the solution to achieving sustainable goals, while maintaining and improving the image of the industry, of the material and of its applications among their stakeholders. Our 80+ members include primary aluminium producers; downstream manufacturers of extruded, rolled and cast aluminium; producers of recycled aluminium and national aluminium associations are representing more than 600 plants in 30 European countries. Aluminium products are used in a wide range of markets, including automotive, transport, high-tech engineering, building, construction and packaging.

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