

# **Decarbonisation of the Aluminium Industry Status of Progress in 2026**

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## **Abstract**

The aluminium industry needs to decarbonize against a turbulent backdrop of wars, trade tensions, energy crises and supply-chain disruptions — yet the underlying trend is slow but real.

IAI data show that emissions intensity is steadily declining, and since 2020, global emissions have stabilized, decoupling from production growth.

This presentation takes stock of where the industry genuinely stands in 2026.

Recycling - is the most accessible lever - it will however structurally cover less than half of global demand by 2050. The primary aluminium route decarbonisation is more challenging, but solutions are known. Three big levers represent roughly 80 % of the global challenge.

Decarbonising the electricity is not a technology problem, but a matter of huge investments in the power generation and grid. In February 2026 EGA announced a PPA (power purchase agreement) with the aim of covering almost half of its primary output. In the Nordics, a new project (Arctial in Finland) is designed around renewable electricity from the start, and it positions also the smelter as an active element for the stability of the Finnish power system.

We will review also the technology portfolio, from inert anodes and electrified calcination to carbon capture, highlighting technology providers (such as Coolbrook, Verdox, GreenCap, SaltX and others) who have made real progress, moving from slideware to steel in the ground.

We will also present a concrete case of decarbonisation plans, using the Levelized Cost of Abatement (LCOA) and the Marginal Abatement Cost Curve (MACC) as important techno-economic tools for ranking options and making decisions.

Applied to a real case roughly a quarter of the abatement potential could pay for itself with carbon tax above 100 USD/t CO<sub>2</sub>, especially with decarbonized heat solutions at the refineries, while Carbon Capture and Storage (CCS) remains the largest lever at the smelter, but at a materially higher price.

**The technology has made great progress. It is not main the barrier.**

**What is missing now are positive business cases.**

The presentation will develop also what are the winning market and regulatory conditions for a decarbonized industry: carbon prices and border adjustment beyond Europe that cover the full footprint. Price for low-carbon metal must strengthen, and carbon data must become trusted across the supply chain.

**Keywords:** Decarbonisation of the aluminium industry, Levelized cost of abatement (LCOA), Marginal abatement cost curve (MACC), Carbon tax, Carbon capture and storage (CCS).