EU ELECTRIFICATION ACTION PLAN: KEY MEASURES FOR A COMPETITIVE ALUMINIUM VALUE CHAIN

POSITION PAPER

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Background

Aluminium is the base metal for achieving the EU's competitiveness, strategic autonomy, and defence, climate, and technological transitions. It has been recognised under the Critical Raw Materials Act and Net-Zero Industry Act as a strategic raw material for countless green applications, from grids and renewable energy infrastructure to electric mobility, heat pumps and energy-efficient buildings. To meet the EU's energy transition targets, the additional demand for aluminium in Europe will reach 5 million tonnes per year by 2040, equivalent to an increase of 30% compared to Europe's total aluminium consumption today.[1][2] A competitive European aluminium industry is therefore vital for achieving the objectives of the EU's Electrification Action Plan.

The prerequisite for electrification is an affordable, low-carbon electricity supply at scale. Yet, European industrial gas and electricity prices are two to five times higher than in the US and China, largely due to carbon costs, regulatory charges on industries' energy bills, and regulatory restrictions and costs that complicate renewable and nuclear generation across various Member States.[3] Such costs have increased further due to the war in the Middle East. While gas prices have seen their steepest increase since March 2022, average wholesale electricity prices in the EU have increased by around 30% since the start of the conflict. These price spikes have affected Europe more than competing regions, further weakening the international competitiveness of European industry.[4]

Therefore, **the upcoming Electrification Action Plan and the review of the post-2030 renewable and energy efficiency frameworks must deliver internationally competitive electricity prices and cost conditions for energy-intensive industries.** In doing so, it would reconcile the energy security and affordability objectives of the EU's energy framework with its sustainability goals. This paper outlines four necessary measures for the Electrification Action Plan and legislative proposal on grid charges announced in the Accelerate EU package.

Action 1: Adopt de-risking instruments to achieve internationally competitive electricity prices

The EMD and initiatives under the Clean Industrial Deal focus on decreasing energy prices by increasing the uptake of Renewable Energy Sources (RES) Power-Purchase Agreements (PPAs). Although **energy-intensive**

[1] KU Leuven, Metals for Clean Energy, 2022,
[2] European Aluminium, Aluminium in Solar, September 2022
[3] European Commission, *Report on Energy Prices and Costs in Europe*, February 2025.
[4] Please see our response to the crisis in our letter here.

industries will always buy a part of their energy on the spot market, baseload PPAs can help reduce their exposure to market volatility. However, EU RES PPA deals have dropped off significantly in the last two years.[5]

The primary reason is that there is currently no solution for addressing the biggest barrier that electro-intensive consumers face when trying to sign RES PPAs: the risks and costs of matching intermittent renewable energy to the more stable industrial consumption profile of energy-intensive industries. Another barrier is that the dominant PPA type on the European market, physical pay-as-produced PPAs, does not provide price stability for baseload consumers such as aluminium producers. Pay-as-produced PPAs **mean consumers only receive electricity when renewables are producing, occurring when prices are low, zero, or even negative**. When renewable output is low, baseload consumers must therefore purchase the remaining volumes on the wholesale market at high prices. At the same time, uncertainty regarding future grid costs, the continuation of indirect cost compensation beyond 2030, and other regulatory cost components critical for industrial competitiveness further discourage aluminium producers from entering PPAs.[6]

Thus, the Action Plan should include the following measures to enable the aluminium industry to sign PPAs:

- **De-risking mechanisms for the cost of matching renewable energy supply with base load industrial consumption**, as per the Draghi report (Part B, p. 35).[7] To reduce these costs, the demand for renewable PPAs from electro-intensive consumers could be aggregated by a third-party aggregator, and the matching costs should be backed by a state aid scheme via public auction, following the Greek Green Pool Scheme.[8] Such support should prioritise the most exposed energy-intensive industries over baseload consumers who already capture a significant share of PPA supply.[9] To date, no such EU-level de-risking measures have been considered, including in DG Energy's latest Recommendation on PPAs;
- **Support schemes that support bundling RES PPAs and batteries for energy-intensive consumers, with support for residual firming costs.** Such bundling improves the batteries' business case by spreading the high investment costs for building on-site storage capacity and reducing renewable curtailment;
- **A technologically neutral EIB PPA guarantee** scheme that derisks all low-carbon energy sources;
- **Measures reducing barriers to cross-border PPAs**, such as the one-year maximum length for the purchase of cross-border transmission rights, which is incompatible with longer PPAs;[10]
- **Under Contract for Difference (CfD) schemes, prioritise projects that have signed PPAs with electro-intensive consumers**, building on a suggestion in the Draghi report (p. 37) and the EMD provisions;
- **Implement the other recommendations in European Aluminium's Response to the Call for Evidence on removing barriers to PPAs and Position Paper on the Electrification Action Plan.**

Further state aid support is also essential to protect energy-intensive industries from carbon leakage. Such support is crucial as aluminium is one of the most exposed sectors as a price-taker and highly electro-intensive sector exposed to international trade. **Therefore, to avoid carbon leakage, the upcoming review of the ETS Directive should extend indirect cost compensation beyond 2030 to reduce the burden of carbon costs**

[5] RE-Source Platform, *PPA deal tracker,* May 2026.
[6] See further details in European Aluminium's Position Paper on the Electrification Action Plan.
[7] This was unanimously recognised by both the power sector and energy-intensive industries as the key barrier for electro-intensive industries to electrification (see recommendation 1 b at p. 6 of the Antwerp Dialogue Recommendations on Industrial Electrification & Competitiveness).
[8] For more information, see European Aluminium's Position Paper on the Electrification Action Plan.
[9] According to the European Commission's 2020 Impact Assessment, aluminium production - with a carbon leakage indicator (CLI) set at 1.062 - is correctly listed among the top sectors at the highest risk of carbon leakage, due to its electro-intensity and trade intensity.
[10] Van Delzen A., Van Nuffel L. (2026), *PPAs and CfDs in the EU: barriers and uptake*, European Parliament.

embedded in electricity prices. For our other recommendations on Indirect Cost Compensation, please see our position paper on the ETS review.[11]

Action 2: Optimise grid efficiency and balance industrial network costs among all consumers

The drive to decarbonise the electricity sector using variable renewables is placing growing pressure on electricity grids. The increasing intermittency of electricity supply will further necessitate public investment in storage, grid modernisation, capacity mechanisms, flexibility and supply security, raising costs for consumers. As such, network charges and other consumer costs are expected to increase to cover these costs, at a time when these costs are already higher than in the US and four times higher than in China.[12]

To increase the bankability of electrification, the cost burden placed on electricity consumers should be reduced. Thus, to level the playing field with competing regions, the Action Plan, the Grids Package, and the grids proposal announced in Accelerate EU should:

- **Guarantee all surcharges, taxes, levies and network charges placed on the most exposed energy-intensive industries cumulatively do not exceed 0,5% of the gross value added**;
- **Set a cap of €1.2/MWh on network tariffs for the most exposed energy-intensive industries**, mirroring the regulation for power producers in Regulation 838/2010 (annex part B.) and balancing costs among governments, producers, and consumers;
- **Leverage EU-level and national public financing and guarantees to alleviate the cost burden of network tariffs.** This should include lower network charges for industrial consumers exposed to carbon leakage, which should be extended to future grid costs and capacity mechanisms;[13]
- **Design a targeted band of network charges for flexible consumers whose intention is to solely consume electricity during times of oversupply**, ensuring baseload consumers like aluminium producers are not required to pay more for their energy costs;
- **Prioritise improving grid efficiency to maximise capacity and minimize costs of grid upgrades for consumers.**

Action 3: Provide upfront OPEX and CAPEX support for all industrial electrification technologies

The high and volatile OPEX of current electrified processes and the unavailability of affordable, low-carbon electricity already put price pressures on the aluminium industry. If already electrified plants are curtailing production because of too high electricity prices in Europe and unfair global competition, it is very unlikely that aluminium upstream and downstream production processes - still relying mainly on gas – can make these investments. Therefore, both upfront private investment and public support are critical to bridge the initial high investment costs and decades-long CAPEX and OPEX of deploying and developing decarbonisation technologies.

As such, we recommend the Action Plan to:

- **Facilitate access to affordable, low-carbon electricity, which offers the most impactful short-term opportunity to reduce the European aluminium industry's emissions;**

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[11] European Aluminium, *Reforming the EU ETS for a Competitive & Decarbonised European Aluminium Value Chain Post 2030*, May 2026.
[12] WindEurope and VaasaETT, *Revamping electricity bills for a competitive and secure Europe*, April 2025.
[13] This is also recognized in Recommendation 3C of the Antwerp Dialogue Recommendations on Industrial Electrification and Competitiveness, published by the energy-intensive industries and the power sector, December 2024.

- **Direct at least 50% of CAPEX and OPEX support to electrifying energy-intensive industries at the highest risk of carbon leakage via the Industrial Decarbonisation Bank for at least 15 years.**[14] The three to five-year support windows under current EU support schemes are misaligned with aluminium decarbonisation cycles, which require power cost visibility over 10+ year payback horizons;
- **Enable Member States to subsidise the OPEX costs of energy-intensive companies for the electrification of carbon-intensive production processes**, including subsidising the increased OPEX caused by fuel switching through state aid measures like CCfDs;
- **Ensure an equal treatment of electrification technologies in funding and permitting rules,** in line with technological neutrality under the Clean Industrial Deal (page 1);
- **Encourage the use of refundable tax credits for electrification, following DG TAXUD's Recommendations on Tax Incentives for the Clean Industrial Transition,** which offer several significant advantages over loans, including a direct reduction in companies' tax liability and greater predictability.

Action 4: Voluntary and remunerated demand-side response to recognise sectoral limitations

DSR policies under the Action Plan and the review of the post-2030 renewable and energy efficiency frameworks must accommodate the limited potential and technical, regional, and economic constraints for demand-side response (DSR) across the aluminium value chain. Aluminium smelters already stabilise the energy system through their continuous energy offtake, further integrating renewables. Most production processes are inherently continuous: beyond a few hours of flexibility, interruptions risk material damage and costly efficiency losses. Therefore, any DSR should remain voluntary by avoiding schemes that penalise baseload consumers, like sector-agnostic flexibility targets. To the same end, it should be compensated through high remuneration, including expedited grid connection.[15]

For more information,.see the "Climate & Energy Section" of our European Aluminium's website.

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[14] As noted, aluminium is among the sectors that are the most vulnerable to indirect carbon costs.
[15] For more information, please see our position paper on flexibility here, the Clean Industrial Deal State Aid Framework here, and SmartEn's study on flexibility here.