SUPPORTING ALL INDUSTRIAL PROCESSES: WHAT EUROPE'S ALUMINIUM SECTOR NEEDS FROM THE INDUSTRIAL DECARBONISATION ACCELERATOR ACT

SUMMARY OF RESPONSE TO EU CONSULTATION QUESTIONNAIRE

Brussels, 7 July 2025

Introduction & key messages

The **Industrial Decarbonisation Accelerator Act (IDAA)** is a key legislative initiative in the Clean Industrial Deal. We welcome its ambition and see it as an important opportunity to support Europe's industrial base while accelerating progress towards climate neutrality.

The European aluminium value chain is a strategically important, energy-intensive industry operating in a highly competitive global market. Europe imports over half of its aluminium consumption, and the sector has limited ability to pass on rising regulatory costs, acting mainly as a price taker. For primary aluminium, electricity costs represent between 30% and 40% of production costs in Europe, with limited possibility to pass on these higher costs compared to third country competitors[1]. The industry faces growing pressure from higher energy and carbon costs compared to international competitors, while carbon-intensive, subsidized imports continue to undercut domestic producers. These challenges are worsened by ETS indirect carbon costs embedded in electricity prices and carbon and raw material costs will increase further as free allowances phase out and CBAM is implemented. Moreover, the current CBAM design presents additional challenges for the European aluminium value chain and is not considered an effective carbon leakage measure for the sector (link to our position paper).

Against this backdrop, the IDAA must reflect the strategic role of aluminium for Europe's climate and digital transitions and support the resilience of the value chain across both primary and secondary production.

To deliver real impact for our industry, the IDAA must take a comprehensive approach – supporting all decarbonisation pathways, starting from tackling the significant indirect emissions of primary aluminium production as well as the direct process emissions of all steps of the production process across the full aluminium value chain, from primary to secondary production. In particular:

1. **The IDAA must support all decarbonization technologies of all aluminium industrial processes** – not just breakthrough or first-of-a-kind technologies.

2. **A successful IDAA must look beyond direct emissions** - Primary aluminium production is an electrified and highly electro-intensive process; therefore, indirect emissions account for the largest share of our carbon footprint. Reducing these indirect emissions requires strong support for renewable and low-carbon energy deployment, improved access to affordable and reliable low carbon electricity, and facilitating Power Purchase Agreements (PPAs) by introducing measures that address shaping and

[1] DG ENER / Trinomics *"Study on energy prices and costs - evaluating impacts on households and industry's costs – 2024 edition",* September 2024 [link]

firming costs (currently the most significant barrier preventing electro-intensive industries from signing more RES PPAs). Without tackling indirect emissions and seeking solutions to reduce the cost of matching baseload demand with variable energy sources[2], the EU will fall short of unlocking the aluminium industry's full decarbonisation potential.

3. **Europe needs both primary and secondary aluminium –** The IDAA should not encourage substitution of one for the other, but instead enable the decarbonisation and long-term resilience of the entire value chain. This means boosting demand for low-carbon aluminium made in Europe through positive, supportive measures that help companies make investments, and supporting all viable production routes.

***Example**: Australia's Green Aluminium Production Credits scheme offers direct financial incentives (production credits) for smelters to switch to renewable electricity, focusing on cutting indirect (Scope 2) emissions. With a €2 billion budget, it provides payments per tonne of low-carbon aluminium over ten years. It has already enabled major investments, including Rio Tinto's massive renewable power deal, while smelters in most European countries are still struggling to sign RES PPAs due to the lack of equivalent measures. This demonstrates how targeted support can deliver real-world decarbonisation.*

Barriers to industrial decarbonisation

Our sector continues to face several persistent barriers to decarbonisation, which we highlighted in both the general and targeted questionnaires as well as stakeholder interviews. These include:

- **High energy costs** remain a central challenge. The lack of tools to effectively match variable renewable energy sources (RES) with constant industrial demand – leading to high shaping and firming costs – makes it extremely difficult to reduce indirect emissions cost-effectively.
- **High capital and operating expenditures (CAPEX/OPEX)** for decarbonisation technologies are a major hurdle, particularly in the absence of predictable long-term support frameworks. Existing mechanisms often fail to protect first movers from high R&D risks.
- **Limited support for indirect emission reductions**, especially through Power Purchase Agreements (PPAs), leaves a significant share of emissions unaddressed. The provisions adopted in the new Clean Industrial Deal State Aid Framework (CISAF) are a step in the right direction (by explicitly acknowledging that reducing indirect emissions qualifies as 'industrial decarbonisation') but not enough, as they allow aid only in the case of on-site electricity generation[3]. There is usually not enough space for an industrial facility to produce enough renewable electricity on-site (e.g. solar rooftop could provide enough electricity to power an aluminium smelter for just one day per year) and therefore

[2] This barrier has further been highlighted in Mario Draghi, *Report on the Future of EU Competitiveness,* 2024 [Link] (p. 19); European Commission, *Transition Pathway for the European Metals Sectors*, 17 March 2023 [Link]; European Commission, *Competitiveness of Corporate Sourcing of Renewable Energy*, 2019 [Link] (p. 27); and Eurometaux, *Report on RES PPAs*, 25 October 2024 [Link].
[3] See European Aluminium position on CISAF, June 2025 [Link]

offsite production is needed via RES PPAs, but such investments do not qualify as 'industrial decarbonisation' despite the massive emission reductions they unlock.

- **A narrow focus on innovative breakthrough technologies:** the EU's industrial decarbonization efforts in recent years have primarily focused on immature, first-of-a-kind technologies such as hydrogen and CCUS. This has led to a lot of time, effort and money being spent on these technologies, but the number of investments that have actually materialized is extremely low, due to high costs and the fact that these technologies are still immature. Meanwhile, more mature decarbonization technologies have been overlooked: for example, we have received input from multiple members that their applications to the Innovation Fund lost points due to relying on electric boilers, which are considered a mature technology. Decarbonising using mature technologies should be encouraged, not blocked.
- **Massive investment gaps** persist across basic decarbonisation needs. As highlighted in the Draghi report, an estimated €500 billion annually will be required over the next 15 years for the four largest EU industrial sectors, including aluminium. Currently, this level of financing is not available. European Aluminium's Net-Zero by 2050 science-based decarbonisation pathways report estimated a starting figure of approximately €33 billion of investments into new technology deployment needed in order to transform the industry and meet the attributed carbon budget aligned with the 1.5°C scenario under the Paris Agreement[4].

National subsidy schemes are often overly complex, not adapted to business timelines, and ultimately unfit for purpose. Similarly, infrastructure barriers – such as a lack of access to low carbon electricity – directly block the decarbonisation of key sites.

Permitting

Lengthy and complex permitting processes remain a major barrier to industrial decarbonisation across the EU. Member States currently hold competence over permitting, resulting in fragmented regulatory frameworks and inconsistent prioritisation of decarbonisation projects. This regulatory divergence, combined with insufficient administrative capacity and a lack of experience with innovative technologies, significantly delays progress.

To address these challenges, several best practices should be promoted across Member States:

- Establishment of "one-stop shops" to coordinate procedures and reduce administrative burden;
- Increased digitalisation of application and tracking processes;
- Tacit approvals in cases of unjustified delays;
- Dedicated permit facilitation teams to guide companies through complex procedures;
- Fast-track procedures for industrial decarbonisation projects of strategic importance.

[4] European Aluminium, Net Zero by 2050: Science-based decarbonisation pathways for the European aluminium industry, 14 November 2023 [Link].

Permitting delays are particularly problematic for cross-border infrastructure and supply chain investments, which are essential for decarbonising energy-intensive industries. Improved regulatory alignment and faster permitting are crucial.

Industrial clustering is promising approach to streamline permitting and improve project coordination, especially in terms of gaining political visibility and government support. However, clusters can also introduce complexity when several interdependent projects must advance in parallel. Coordination challenges, particularly around shared infrastructure (e.g. transport networks), can result in delays unless well-managed.

Priority industrial decarbonisation projects

Access to finance remains a key barrier for the aluminium industry. Companies face market and regulatory uncertainty, financial and technological risks, and high energy costs. **Introducing a narrow category of "priority projects" with too strict eligibility requirements could risk excluding viable investments.** Support should be broad and flexible to reflect diverse decarbonisation pathways and applicable technologies across the aluminium value chain.

Lead markets and IDAA voluntary label

Creating lead markets for clean industrial products *can* support decarbonisation, but only if designed carefully. When it comes to aluminium, downstream sectors are often unwilling or unable to pay green premiums. While public procurement could be a useful lever, it is often constrained by limited budgets. Nonetheless, transparent and well-designed sustainability requirements in procurement can help shape the market and stimulate demand for low-carbon products.

Additional complexities are:

- **carbon footprint differences are harder to quantify than in other sectors, like steel or cement, due to lack of consistent definitions and standards.**
- green premiums for low-carbon aluminium in Europe remain negligible and insufficient to reflect real decarbonisation costs. While helpful in principle, they are not sufficient on their own. In the short term, increasing demand will be essential to making green premiums more effective.
- lifecycle benefits and the value of recycling are frequently overlooked, despite their significant climate advantages.

Voluntary labels can play a role in increasing transparency, but their impact depends entirely on design. Generally, companies often feel compelled to comply with multiple schemes, even when they are technically voluntary. In practice, this creates cost and complexity without necessarily driving investment or uptake. In either case **labels should aim to support industry decarbonisation efforts and bring added value.** They should be aligned with broader EU sustainability frameworks, backed by robust data while avoiding duplication or over-reporting burden. If, as proposed, the Commission relies solely on the EU ETS methodology (which covers direct emissions), it risks overlooking relevant indirect emissions and results in a distorted picture of the carbon footprint of aluminium products.

Low-carbon content requirements to create demand for decarbonised aluminium must be realistic, flexible, and tailored to sector-specific decarbonisation challenges. **There is growing interest from downstream sectors in sourcing low-carbon products, but delivering truly green solutions requires significant upstream investments in clean technologies, infrastructure, and willingness to pay by aluminium end consumers.**

For aluminium, indirect emissions account for the vast majority of the footprint. As mentioned above, addressing them requires affordable access to renewable electricity, long-term PPAs, and financial support for clean energy infrastructure.

Decarbonisation via recycling is also a key lever, but to avoid downcycling and achieve high-quality secondary aluminium, investment is needed in scrap collection, sorting, and low-carbon furnaces. **Importantly, the focus should be on decarbonising all production routes – not shifting from primary to secondary, which risks weakening the overall value chain.**

Some certified low-carbon aluminium products already exist, but the **lack of harmonised definitions, consistent reporting standards, and mandatory disclosure creates confusion in the market**. Complex products further complicate comparability. Without standardised, transparent rules, buyers cannot reliably distinguish between low- and high-carbon products. This is particularly problematic for imported materials, where carbon footprints are difficult to verify, and where Guarantees of Origin (GOs) can be used to falsely claim renewable electricity use.

Poorly designed requirements, or overly rigid thresholds, could backfire – leading to substitution with cheaper, more polluting materials like plastics or conventional steel. That would undermine the EU's climate goals and further weaken the already declining domestic primary aluminium production.

European content requirements can help boost demand for **European-made** products, if the **definition also includes EEA and EFTA countries**. If designed flexibly and in close dialogue with industry, they can promote resilience, secure value chains, and support jobs across **Europe**.

Effective design would include options like: minimum EU-based value creation; thresholds for specific material sourcing or processing steps; and traceability or proof-of-origin systems. However, **these measures must reflect market realities and cost structures**, especially given the high regulatory and energy costs faced by European producers.

Introducing such requirements in downstream sectors could stimulate new investments, but if poorly implemented, they risk raising costs and harming competitiveness. The best way to support European content is to create an enabling environment for industry: affordable energy, reduced regulatory burden, and consistent support for innovation and deployment of clean technologies.

Therefore, the creation for a voluntary low carbon label for the upcoming IDAA Regulation needs to be carefully designed to combine both low carbon and made in Europe requirements, as well as focusing on decarbonising all production routes – not shifting from primary to secondary production, which risks weakening the overall aluminium value chain in Europe.

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