



# NET-ZERO INDUSTRY ACT

## ALUMINIUM: A KEY ENABLER OF GREEN TECHNOLOGIES

### POSITION PAPER

21 April 2023

#### Summary & key messages

[European Aluminium](#), the voice of the entire aluminium value chain in Europe, welcomes the recent release of the Net-Zero Industry Act (NZIA). Together with the Critical Raw Materials Act (CRMA), this proposal constitutes a long-overdue first step towards recognizing the need for a European industrial policy that helps secure access to the raw materials needed to underpin the twin transition and increase the Union's strategic autonomy.

However, to deliver the Union's decarbonization objectives, the NZIA must reflect the role of strategic raw materials such as aluminium in the manufacturing of net-zero technologies. The NZIA and the CRMA need to work in parallel by means of a full value chain approach. By doing so, Europe will advance in delivering and reaping the environmental, social, and economic benefits of the green transition.

Furthermore, the NZIA can only be seen as a starting point for a broader rethinking of EU industrial policy. The NZIA alone will not be enough to facilitate the targeted investments in clean tech. Turning these investment targets into a reality on the ground will depend on a number of other factors, including access to energy at competitive prices and a low regulatory burden: unfortunately, the importance of both of these factors has been systematically overlooked in Europe. Therefore, further work will be needed over the coming years in order to ensure that Europe can establish the positive business environment that will be required to entice the envisaged investments.

Production of raw materials needs to be increased in Europe. If not well calibrated, the NZIA will only benefit imports and not local production of strategic raw materials. For aluminium, we import half of the European demand from third countries, which produce with a much larger carbon footprint. If we support high carbon imports, we will undermine the objectives of the NZIA.

Aluminium is at the foundation of solar panels, wind turbines, electric vehicles, grid infrastructure and much more. All these technologies, listed in the NZIA Annex as "Net-Zero technologies", are dependent on our metal. As an example, for every MW of solar capacity deployed, 21 tonnes of aluminium are needed. Increasing solar PV capacity from today's 136 GW to 320 GW by 2025 and 600 GW by 2030, as proposed by the EU Solar Strategy, will require an additional 4 and 10 million tonnes of aluminium respectively<sup>1</sup>.

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<sup>1</sup> For more information on interlinks between aluminium and solar energy, see our paper [https://european-aluminium.eu/wp-content/uploads/2022/10/european-aluminium\\_aluminium-in-solar\\_position-paper.pdf](https://european-aluminium.eu/wp-content/uploads/2022/10/european-aluminium_aluminium-in-solar_position-paper.pdf)

If we add the production of wind turbines, heat pumps, batteries, electrolysers to produce renewable hydrogen, the related infrastructure (e.g. pipelines, storage, cables), the building sector and the increasing demand for electric vehicles, this figure keeps on increasing. In total, to successfully implement the European Green Deal, studies show that the aluminium demand – just for the production of clean tech - **will reach 5 million tonnes per year by 2040, equivalent to 30% of Europe’s total aluminium consumption today**<sup>2</sup>.

Losing the European Aluminium value chain is something the EU cannot afford. Enhancing the European aluminium value chain through accelerating<sup>3</sup> recycling whilst preserving and increase European primary production, must be a strategic priority for the EU to avoid the risk of growing dependencies on imports while also reducing emissions across the economy, given the unique climate mitigation potential of secondary aluminium production<sup>4</sup> and the lower environmental impact of EU primary production compared to third countries’ equivalents. As demonstrated by the war in Ukraine and the impacts of the ensuing reduction of gas imports, an excessive reliance on third countries can put the EU in precarious situations.

With this in mind, European Aluminium calls for:

- Complementarity between the CRMA and NZIA to secure a sustainable supply of metals to Net Zero Technologies in Annex I of the Regulation by preserving production of aluminium in Europe across the full value chain (from bauxite mining, alumina refining and primary production all the way to transformation and fully leveraging recycling).
- A clarification on the definition of components in the NZIA to facilitate the uptake of projects promoting the production of sustainable European secondary and primary aluminium and to create synergies between RES producers and other low carbon technology providers. This will facilitate the production of RES technologies that can both decarbonise aluminium production and use sustainable aluminium produced in Europe.
- The inclusion of more low-carbon technologies in Annex I is crucial to support the green industrial transition in Europe. For instance, the production and use of Inert Anode technology, the production of Alumina or recycled aluminium with Hydrogen, and other projects that aid the European industry in transitioning from fossil-based energy sources to carbon-neutral ones should be added to the annex. This will ensure that all available tools are supported to jumpstart the green industrial transition in Europe.
- There is a need for workable and increased support for funding both operating costs and capital expenditures for clean technology value chains across enterprises of all sizes.

<sup>2</sup> KU Leuven, Metals for Clean Energy, 2022, <https://eurometaux.eu/media/jmxf2qm0/metals-for-clean-energy.pdf>

<sup>3</sup> Seeing the massive increase in aluminium demand to fulfil green transition objectives, we will need to scale up aluminium recycling to increase the availability of secondary aluminium, while continuing as well to produce primary aluminium, as secondary production alone will not be able to meet all the demand. By 2050, if there was to be 100% end-of-life recycling, secondary supplies would meet around 60% of global demand. Source: Energy Monitor, March 2023 <https://www.energymonitor.ai/tech/why-recycling-is-no-golden-ticket-to-endless-critical-minerals/>

<sup>4</sup> China’s share in all the manufacturing stages of solar panels (such as polysilicon, ingots, wafers, cells and modules) exceeds 80%. For more information, IEA, Solar PV Global Supply Chains, July 2022, <https://www.iea.org/news/the-world-needs-more-diverse-solar-panel-supply-chains-to-ensure-a-secure-transition-to-net-zero-emissions>

- To ensure regulatory coherence, a contribution to resilience, such as the origin of a product from a single county of supply for more than 65% during the previous year of the call for tender, should be added to the selection criteria in Article 10, similar to Article 19. It is necessary to clarify the criteria for 65% of supply for a given component from a single source of supply, and the 10% threshold for "disproportionate costs" beyond which contracting authorities are not obliged to apply sustainability and resilience contributions in public procurement (Article 19, para. 4) must be increased.
- An overarching focus on the competitiveness of strategic European industries when designing and proposing policies in other important areas (e.g. climate, environment, trade).

## Embed a European Value Chain approach in the NZIA

Aluminium, and other strategic raw materials will play a key role in reaching the ambitious goals set by the European Green Deal. Our industry is a key enabler of a low-carbon<sup>5</sup> and circular economy<sup>6</sup>, and plays a unique role in Europe's transformation to a more sustainable and digital economy. The NZIA must spur the production and the recycling of aluminium, by supporting net zero projects touching upon both the production of low carbon technologies and their material components, and supporting the industry's transition to carbon neutral energy sources.

To this end we would propose to:

- Include clearly in the scope of the proposal (article 2) the aim to support the entire supply chain of net zero technologies, including raw materials production and components.
- Clarify the definition of components in Article 10 (Net Zero Strategic Projects) to ensure these projects can also support the production of primary and secondary aluminium in Europe to supply the needed technologies in the scope of the Regulation.
- Contribution to resilience (e.g. origin of a product from one single county of supply of more than 65% during the previous year of the call for tender) should also be added to the selection criteria in Article 10, along the same lines of Article 19 to ensure regulatory coherence. The criteria of 65% of supply for a given component from one single source of supply should also be clarified.
- Contribution to resource efficiency and circularity should also be added to the selection criteria in Article 10.

<sup>5</sup> Minerals, such as Aluminium, "that are both "high-impact" and "cross-cutting" will be used in a wide range of technologies and a great amount of them will be required to meet projected demand in a low-carbon world. One example is aluminium: it is used widely for both energy generation and storage technologies, with roughly 103 million tons of aluminium needed to supply 87% of solar PV and a range of other clean energy technologies to achieve a below 2°C future. Aluminium is thus a "critical" mineral because it will be necessary for the clean energy transition." Source: World Bank (2020), The new kids on the block: redefining "critical" minerals essential for a clean energy future (worldbank.org)

<sup>6</sup> Aluminium remains one of the most recycled materials on earth with almost 75 per cent of the aluminium ever produced still in use today: <https://european-aluminium.eu/wp-content/uploads/2022/10/european-aluminium-environmental-profile-report-2018-executive-summary.pdf>

- The current 10% threshold for “disproportionate costs” beyond which contracting authorities are not obliged to apply sustainability and resilience contributions in public procurement (Article 19 para 4) must be increased. The current proposal considers any European product that is at least 10% more expensive than an imported one as “disproportionate”. However, European products are usually more expensive as a direct consequence of European policies. For example, the revised ETS in combination with the CBAM will increase the cost of producing aluminium in Europe by 43%<sup>7</sup>, which would automatically prevent European aluminium (or likely even clean tech produced using European aluminium) from being able to benefit under Article 19 NZIA, not because producing aluminium in Europe is inherently more expensive than in other regions, but because of regulatory costs imposed by the EU. Therefore, the 10% limit must be increased in order to reflect the cost impact of EU regulation.

## Complementarity between the CRM Act and the NZIA

The NZIA expressly excludes raw materials covered by the CRM Act from its scope (article 2). This approach goes against the aim of the Green Deal Industrial Plan and largely compromises effectiveness of the acts themselves: if we are to develop European clean technology value chains, we need to support the production and reduce the regulatory burden of the entire supply chain.

The NZIA and the CRM Act respond to different challenges that are interlinked: the NZIA tackles the need to reduce regulatory burdens imposed on projects, while the CRM Act tries to support the upscaling of local production of raw materials. The two must go hand in hand and complement each other.

Restricting NZIA support to raw materials not covered by the CRM Act undermines the objective of re-shoring existing manufacturing capacity of clean technologies to Europe and will only accelerate raw material dependencies.

Currently, 50% of the primary aluminium production is curtailed in Europe because of high energy prices, but also from overdrawn regulatory burdens. Aluminium would highly benefit from support under the CRM Act and the NZIA.

European Aluminium would strongly urge policy makers to include aluminium in the scope of the CRM Act, in alignment with the scientific conclusions of all supporting materials to the Act(s) and deleting the mention of exclusivity in article 2 of the NZIA, to ensure strategic raw materials can benefit from support under the two acts. **This would ensure a full value chain approach and reduce Europe’s material dependencies.**

## Extend Support Mechanisms in the Act

### Support CapEx and OpEx

To construct an adequate framework for the development of clean technologies in Europe, more flexibility should be given to State Aid instruments to accelerate investments in new manufacturing of low carbon and circular metals to supply Net Zero Industrial value chains.

<sup>7</sup> See European Aluminium PR [here](#) “Report warns of quasi-end of European aluminium production if EU CBAM Regulation includes indirect emissions “ and CRU Study [here](#) , May 2022

The NZIA focuses on reducing administrative hurdles, which is very much needed for energy intensive industries. However, it does not open new lines of funding.

If the NZIA is to be the response to the American Inflation Reduction Act it needs to offer an increased support to operational expenditure.

We request for available State Aid instruments, such as the Temporary Crisis and Transition Framework, to support CapEx and OpEx for net zero technologies and their supply chains. The Temporary Crisis and Transition Framework (TCTF) should also be amended to reflect a positive growth instrument for electro-intensive industries, rather than a lifeline for companies struggling under excessive electricity costs.

## Include more Net Zero Technologies to decarbonise aluminium production & promote use of low carbon and circular products in transport and construction

Firstly, when it comes to technologies needed to decarbonise aluminium primary production (direct and process emissions), European Aluminium welcomes the inclusion of CCS in the scope of the proposal.

However, CCU technologies should be added as well to the list<sup>8</sup> in the annex alongside other technologies key to decarbonise the aluminium value chain. As mentioned in the Recitals of the proposal, energy intensive industries still need significant research and innovation to develop the technologies key for the decarbonisation of their value chain, and as such could benefit from the eased regulatory framework proposed by the NZIA.

Secondly, we welcome the inclusion of solar photovoltaic, batteries, wind towers, and grid technologies to the list of clean technologies in the Annex of the NZIA. But to deliver a complete green transition, other strategic clean technologies or products should be included in the scope of the proposal.

Therefore:

- We recommend adding to the list of technologies CCUS and Carbon Dioxide Removal (CDR) technologies, the production of alumina with hydrogen, biomass or electricity (TRL 4), remelting of aluminium scrap with hydrogen (TRL 5), electrification of remelting through plasma technology (TRL 6) and the development of inert anodes (TRL 7<sup>9</sup>) to accelerate our decarbonisation process and boosting green manufacturing capacity in the EU.
- Manufacturing of Net Zero products such as electric vehicles and energy efficient buildings, where aluminium can play a key role in terms of circularity and emission reduction potential, should be added to the annex.

<sup>8</sup> See [joint letter](#) Calling for the recognition of Carbon Capture and Utilisation (CCU) as strategic net zero technologies in the EU Net Zero Industry Act, April 2023

<sup>9</sup><https://www.iea.org/data-and-statistics/data-tools/etp-clean-energy-technology-guide>

For further information, please contact:

**Emanuele Manigrassi**

Senior Manager, Climate & Energy

M +32 471 73 53 06

**Léa Malfrait**

Regulatory Affairs Officer

M +33 6 83 24 37 75