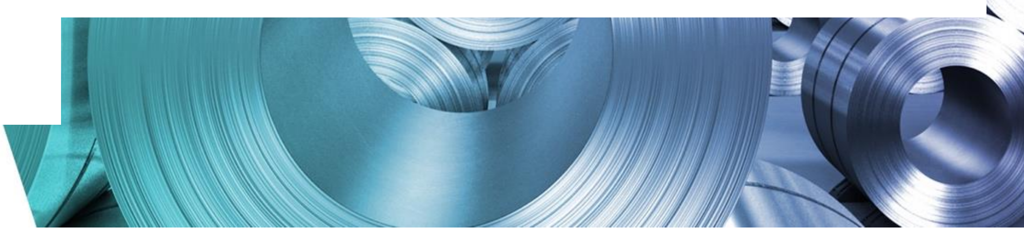
CLEAN INDUSTRIAL DEAL STATE AID FRAMEWORK: KEY RECOMMENDATIONS FOR A COMPETITIVE EUROPEAN ALUMINIUM INDUSTRY

POSITION PAPER



Brussels, 2 June 2025

Background

Achieving the EU's ambitious climate and environmental policy objectives under the Green Deal will require a rapid decarbonisation of European industry through the deployment of innovative technologies. Many of these technologies—such as inert anodes for primary aluminium smelting, hydrogen, carbon capture and storage, or the electrification of industrial processes are generally not yet commercially available or more costly than conventional alternatives.

Lowering the high energy costs in Europe is the key enabling condition to allow for more investments and projects for the development and deployment of industrial decarbonization technologies. However, the EU's wholesale electricity prices are two to three times higher than in the US and four to five times higher than in China, largely due to the indirect carbon costs passed on to electricity consumers via the EU Emissions Trading System (ETS) and significant regulatory components charged on the electricity bill of industrial consumers.

As such, aluminium production, transformation, and recycling companies face too high energy costs to make these investments in decarbonization and remain globally competitive. For example, electricity represents between 30% & 40% of primary aluminium production costs[1]. Because of this, Europe has faced declining primary aluminium production over the last two decades. More recently, nearly half of Europe's aluminium smelters have been forced to curtail or completely halt production since October 2021 due to increased energy costs.

Another key enabler of these investments is providing investors with long-term certainty that their investments will be profitable. European Aluminium's Net-Zero by 2050 science-based decarbonisation pathways report estimated a starting figure of approximately €33 billion[2] 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.

Therefore, the overarching objective of the EU's competition policy must be to remove additional financial and operational strains on Europe's strategic industries like aluminium. As such, the **Clean Industry State Aid**

[1] European Commission, *Commission Recommendation (EU) 2023/471 on energy system integration*, 2 May 2024 [Link].
[2] European Aluminium, *Net Zero by 2050: Science-based decarbonisation pathways for the European aluminium industry*, 14 November 2023 [Link].

Framework (CISAF) must help European industry bridge the cost gap involved in decarbonisation, while reducing excessive energy prices. The Framework should support both the operation of existing plants while also increase the development of those technologies needed to develop a sustainable and competitive aluminium industry.

1. Recommendation for a New Section: Allow for aid in circumstances of severe increases of natural gas and electricity prices

Today, the European Aluminium industry faces many operational pressures due to supply chain challenges, overcapacities in non-market economies due to state subsidies, and an uneven playing field regarding carbon and energy costs.

Therefore, **we ask for a similar or improved support measure to paragraph 2.4. of the Temporary Crisis and Transition Framework[3] (TCTF), which enables Member States to grant immediate support to energy-intensive industries to tackle high energy prices, to be included in the CISAF**. Indeed, lowering industrial energy costs is the first necessary step to enable the expensive investments for Europe's industrial decarbonisation and reach the Framework's overarching goal of industrial decarbonisation, while maintaining competitiveness. This would also be in line with "Action 8 - Price Crisis Preparedness" of the recently published Affordable Energy Action Plan[4].

2. Comments to Section 4.1: Aid to accelerate the rollout of renewable energy

Paragraph 32: Allow aid measures to support energy intensive industries with the **high costs of matching the variable RES electricity generation to the more stable baseload industrial consumption profiles when signing RES** Power Purchase Agreements (PPA) **[5]:**

- In the recent review of the Electricity Market Design (EMD), renewable PPAs were highlighted as key tools to lower energy costs for industrial consumers like the aluminium sector. However, industrial consumers are still not signing PPAs in significant volumes **as one key barrier is the high cost of matching the variable RES electricity to the more stable industrial consumption profile sourcing when signing RES PPAs[6].**
- Without a realistic and tailored strategy to ensure affordable, firm power for baseload consumers, industrial electrification in Europe will remain out of reach, and renewable PPAs will not constitute a viable solution for electro-intensive consumers. **Unfortunately, the only movement we have seen so far in this regard has been the consultation that was held with Member States regarding the proposed Clean Flexibility Instrument (CFI), which limits support to industrial consumers who achieve 100% hourly matching with the RES assets with which they've signed Power Purchase Agreements (RES PPAs). This is not currently possible, due to a number of barriers (both technical and economical).** Industrial consumers (including aluminium producers) can provide a certain degree of flexibility to the electricity system, and this should be encouraged to the extent that it is technically possible and economically desirable. However, industrial demand response involves considerable costs and risks for the industrial facility in question, and can therefore not be mandated, nor can it be

[3] European Commission, *Commission Recommendation (EU) 2023/471 on energy system integration*, 2 May 2024 [Link].
[4] European Commission, *Affordable Energy for All Europeans*, 26 February 2025 [Link].
[5] European Aluminium, other energy-intensive industries, and the power sector, *Antwerp Dialogue: Industrial Electrification and Competitiveness – Recommendations*, 6 December 2024 [Link].
[6] 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].

set as a pre-condition for accessing aid that is unrelated to industrial flexibility. Demand response should not be pushed as a 'solution' to make up for the EU's unbalanced energy policies.

- Therefore, the framework should provide de-risking support for this matching through, for example, mechanisms like the **Greek Green Pool scheme** (pre-notified to the Commission under State Aid number SA.102078) which provides the necessary de-risking to EIIs to sign RES PPAs without distorting the electricity market.[7] Under the scheme, the RES output from the PPAs and the EII consumption are pooled by the Green Pool Operator, who shapes the produced electricity into a supply that matches the EIIs' aggregated consumption profile, whereas part of the matching cost is supported through CO2 revenues. In doing so, the aggregation minimizes costs on both the demand and supply side, enabling EIIs to sign more corporate PPAs for new RES capacity. Through enabling access to affordable, firmed, and green power, the Green Pool further accelerates industrial decarbonization and electrification, fully in line with the recommendations of the Draghi Report and EU Industrial Strategy. T**he announced CFI should therefore be modelled by building on the Green Pool Scheme and/or include an EU-wide support scheme—or similar schemes in other participating countries—to be incorporated into the CISAF.**

Paragraph 46 states two-way Contracts for Difference (CfD) will not exceed 25 years after the aided installation starts operations**:**

- **This period is excessively long and should be reduced to 10 years to avoid overcompensation.** This would further align with the Electricity Market Design (EMD) reform which does not specify a mandatory minimum or maximum duration for CfDs. This would lower the risk of locking in outdated subsidy levels which are less dynamic and more expensive over time, due to the fact that CfD strike price does not tend to be adapted to changing market conditions and technological cost reductions

- **This paragraph should further specify that two-way CfDs should only be given to projects where at least 50% of the remaining capacity has been contracted via PPAs, building on a suggestion in the Draghi report (p. 37).**[8] CfDs negatively impact the PPA market's liquidity as they discourage RES producers from signing PPAs with industrial consumers because banks will be more likely to support state-backed systems.

Paragraphs 37 and 79 states that supported projects need to be completed and in operation within 36 months:

- This timeline is unfeasible as it would disqualify numerous investments from receiving state aid, thereby impeding industrial decarbonization efforts**.** Therefore, **we suggest removing it or extending it to 60 months at minimum to account for potential delays related to long-lead and permitting issues, external network connection delays and other unforeseen circumstances.**

Paragraph 39 mandates Member States to comply with the Do-No-Significant-Harm (DNSH) principle when giving aid:

- This would create barriers to investment and slow down project implementation, thereby delaying the decarbonisation process. **Therefore, such requirement should be removed and replaced with faster**

[7]AlCircle, *Greek metal industry in dismay as EU rejects green pool scheme*, 11 October 2023 [Link].
[8] 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].

and streamlined aid approval procedures similar to those adopted under the TCTF - like the matching aid procedure (TCTF paragraph 86) - to reach the Commission's simplification and streamlining objectives.

3. Comments to section 4.2: Aid for non-fossil flexibility support schemes

Section 4.2 should highlight that **flexibility must be voluntary, compensated and never punitive**. Given the complexity of the operations of aluminium production, transformation, and recycling, the technical limitations to demand response, and also the variability in costs between plants due to different energy markets, bidding zones, energy mixes, and network tariffs across EU Member States, a one-size-fits-all compensation scheme would unfairly disadvantage aluminium producers in certain regions. Therefore:

- **Compensation must not only exceed the lost revenue from reduced aluminium output but also cover the additional costs incurred during the recovery period.**
- **Demand Side Response can and should only serve as a secondary revenue stream after more electricity generation at competitive prices.**
- **Flexibility must be incentivised through high remuneration without negatively impacting other actors in the electricity market** (e.g., expedited grid connection, reduced transmission tariffs, or market-based valuation).
- **A separate band of network charges should be designed for flexible consumers whose intention is to solely consume electricity during times of oversupply.** Designing a separate network charging structure for these consumers will ensure baseload consumers are not required to pay more for their energy costs whilst also contributing to the decarbonisation of the industry.
- **In general, existing network charges for industrial baseload consumers like aluminium producers, that are energy intensive sectors exposed to international competition, should be lowered or at minimum maintained at current levels**. Both suggestions should be included in **any upcoming reforms to network charges like the recommendations and guidance on harmonized tariff methodologies for network charges announced in the Clean Industrial Deal.**

Paragraph 66 currently unfairly places the cost of flexibility support schemes on baseload industrial consumers for their stable consumption profile[9]:

- Aluminium smelters, as baseload consumers, are among the most stable and predictable consumers, contributing to energy savings and the integration of new low and zero carbon electricity. **Indeed, smelters** contribute minimally to the need for flexibility and **should therefore not contribute to the costs of the measure.** As the cost of non-fossil flexibility schemes should burden the actors who create this need for flexibility, **no additional costs should be placed on industries already carrying the burden of the high energy prices.**
- Primary aluminium production is dependent on a near-constant energy supply, but flexibility is possible through potline voltage adjustments or short potline shutdowns. This potential is however very limited, seasonal and dependent on national market conditions and plant configurations. The estimated costs for interrupting an aluminium smelter either completely or partially for under and

[9] See European Aluminium position paper on Industrial Flexibility, May 2025 [link]

hour can cost around €900/MWh, including €300/MWh in lost production, €100/MWh in anode costs, and €150/MWh from efficiency losses, raw material use, and equipment degradation.[10]

- Overall, the energy supply can only be cut off for up to one hour to prevent the solidification of aluminium and electrolyte potlines and restarting potlines is costly and can take several months.
- Further, the long recovery periods to restore peak efficiency of up to a week, strongly increase energy consumption, carbon intensity, and operational costs, with costs estimated at millions of Euros.
- Similarly, aluminium rolling operations and secondary aluminium production requires a near-constant electricity supply. Indeed, slowing down the process distorts the process, while stoppages increase energy use and risk material damage. Interruptions therefore undermine both energy efficiency and product quality.
- Demand side response in the alumina sector can also include fuel switching where this is possible– consuming electricity during times of ample or oversupplied renewable output and reducing consumption of electricity to zero during times of low renewable output.

4. Comments to section 5: Aid to deploy industrial decarbonisation

Scope & eligibility

Paragraphs 72, 98 and 111 outline that the decarbonisation investments eligible for aid must reduce direct greenhouse gas emissions or reduce energy consumption by at least 20%, limit the design of schemes to focus only on the reduction of direct emissions and introduce strict conditionalities for investments in electrification:

- The horizontal thresholds for reductions in direct emissions and/or energy consumption are restrictive and arbitrarily limits the numbers of eligible projects, reducing industrial output. **Thus, the targets should be set on a case-by-case basis, accounting for best available technologies,** historical energy efficiency improvement rates, and specific technical feasibilities of each EII in reducing emissions. Importantly, when assessing aid for investments, the focus should be on increasing – not reducing – production, especially for Critical Raw Materials like alumina and aluminium.
- **State Aid for reducing indirect emissions must equally support the consumption of decarbonised electricity for already electrified industrial processes like primary aluminium by building on TCTF Section 2.4.[11] The draft CISAF currently restricts the possibility of support only to investments that leads to a reduction in direct emissions. This overlooks the main decarbonization challenge for the electro-intensive primary aluminium process is to reduce the carbon footprint of the electricity supply (i.e. indirect emissions).** On average, the indirect emissions from primary aluminium smelting are 6-7 times higher than the direct emissions. Expanding the scope of the CISAF so as to also encompass support for the reduction of indirect emissions would grant already electrified industrial consumers, or those with electrification potential, access to State Aid for products that substantially lower their environmental impact by sourcing renewable energy, such as renewable PPAs. Under the draft CISAF, switching from grid or on-site fossil fuel-fired generation to renewable electricity through long-term PPAs would not be considered industrial decarbonisation, **even though it leads to significant emission reductions.**

[10] Compass Lexecon study for Metlen, *Industrial power consumption in Europe: opportunities for the power system,* to be released in 2025.
[11] See Section 2.4 of the Communication from the Commission Temporary Crisis and Transition Framework for State Aid measures to support the economy following the aggression against Ukraine by Russia, May 2024 [link]

- **State Aid is necessary to compensate EIIs for the additional costs and risks for decarbonizing their energy supply** and **help industrial processes that are not yet electrified cover additional electrification costs.**[12][13] **However, the possibility for such support cannot be linked to having to prove the consumption of "fully renewable electricity", as suggested in paragraphs 98 and 111.** Our calculations estimate that the CAPEX needed to enable a medium-sized aluminium smelter to use only "fully renewable electricity" (as defined in the draft CISAF and in the Member State Consultation on the draft Clean Flexibility Instrument as "100% hourly matching") would exceed €20 billion, an amount significantly beyond both individual companies' investment capacity and Member States' expected financial support levels. Instead, it must be recognised that adopting electric-based processes, coupled with the ongoing decarbonization of the European electricity mix, inherently leads to substantial emission reductions compared to conventional industrial processes.

Paragraph 73 sets the requirement for natural gas-fired high-efficiency cogeneration (HE-CHP) plants to achieve at least 30% energy savings or at least a 60% reduction in greenhouse gas emissions:

- **The energy-efficiency threshold for investments in the decarbonization of industrial heat should be set at the scientific threshold of 10% (compared to best-in-class separate production of heat & electricity) as specified in the Energy Efficiency Directive**. This will enable investments in HE-CHP which is currently the most efficient and low-carbon solution to cover heat demand in many industrial applications, providing reliable and low-carbon energy to EIIs like alumina producers. The support for industrial heat should target both CAPEX and OPEX, for example through CfDs and the thresholds for self-production of energy should be reduced.
- **We suggest increasing the threshold for the reuse of waste heat from 400 degrees Celsius to 500 degrees Celsius as this is the most technically viable and efficient limit**.
- **Renewable heat should also include biomass based renewable heat and the "non-biomass based" wording should be removed to ensure technology neutrality.**

Paragraph 75 specifies that at least 80% of the renewable energy or 100% of the heat for CHP produced must be used on-site for the beneficiary's own industrial activities if industrial users want to get aid for energy generation.

- This is problematic for the aluminium industry because state aid schemes would only support on-site RES production/consumption rather than industries getting RES from the grid via PPAs. Moreover, industrial users cannot sell most of the energy back to the grid as they must consume at least 80% of it on-site. **This "on site" requirement should therefore be removed**, as it does not incentivise industrial companies to use RES from the grid or through PPA contracts. Off-site models (via RES PPAs) must also be recognised given the massive volumes of electricity required by electro-intensive consumers. For example, powering a single aluminium smelter with solar energy alone would require a bigger on-site area that is nearly half the size of Brussels.

Necessity

[12] European Commission, *Transition Pathway for the European Metals Sectors*, 19 March 2025, p. 34 [Link].

[13] 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], pp. 35 and 106.

Paragraph 86 set a requirement for industrial sectors under the EU ETS (like aluminium) for a 10% GHG emission reduction when at, or below, the ETS product benchmark or for a 40% GHG emission reduction when at or above the product benchmark.

- The benchmark system can be overly complex and may introduce distortions of aid across the value chain — particularly for aluminium plants where no product benchmark exists like aluminium recycling, transformation, or alumina refining. **For higher decarbonization impact and equal treatment, these thresholds should extend beyond installations with product benchmarks to also include those under process-related emissions and fallback methodologies based on heat and fuel consumption.**
- **The current horizontal thresholds (e.g. 10% and 40%) do not reflect the decarbonisation potential in different processes and should therefore not be applied. To be more suitable for the entire aluminium value chain, we suggest Guidelines that would allow for the design of support mechanisms based on a maximum aid amount per tonne of CO_2 emission reductions achieved, combined with a requirement to apply the best available technology within the scope of the investment project.**

Furthermore, **Paragraph 86** sets a requirement for a 10% GHG emission reduction for performers performing among the 10% best performing installations and **Paragraph 92** introduces the possibility to use a funding gap methodology:

- **10% is overly strict and should be removed.** If a threshold is maintained, 2% would be a more realistic requirement applicable to the aluminium industry that would enable more projects and investments due to increased Aid Support, especially when it comes to financing decarbonisation technologies not yet available today for industry.
- **The funding gap requirement should be removed as this is not applied in other competing jurisdictions like the United States, Canada, and Australia, making them comparatively more attractive for investments. This would worsen the investment leakage where** several European companies have already shifted focus to the US and other markets due to the higher capital and operating costs in the EU, as highlighted in multiple reports including the Draghi and Letta reports.

Proportionality (aid intensity, funding gap)

Paragraphs 90 and 94 set limit the maximum financial support to EUR 200 million or 10% of a national program's budget.

- **This limit requires an increase to serve as an effective incentive for all immature and commercially unviable projects and the paragraph should include a specification for both CAPEX and OPEX support.**
- Similarly, **the maximum investment intensity of EUR 100 million per project outlined in paragraph 150 should be removed to stimulate higher private investments as EU competing regions do not have these maximum investment intensity clauses.**

Paragraph 90 sets maximum aid intensity limits for hydrogen (50%), carbon capture (30%), renewable energy and energy storage (35%), and electrification using renewable electricity (35%) and other technologies (20%).

- **To adopt a fully technologically neutral approach and reach the decarbonization targets, aid intensity must not discriminate against technologies and allocate at least 50% for all technologies**

under the development of new capacity. Similarly, the text should refer to low-carbon electricity instead of fully renewable electricity and renewable hydrogen should be replaced by low-carbon hydrogen in paragraph 82.

Also, in the context of the preparation of the *"Recommendation to Member States on how corporate tax systems can better support clean investment*", announced in the Clean Industrial Deal Communication[14]:

- **We strongly suggest that the Commission investigates the use of refundable tax credits next to loans. Refundable tax credits like Section §45X of the Internal Revenue Code under the Inflation Reduction Act offer tax credits that support the production of critical minerals, including aluminium.**
- **The EU should introduce similar credits as per the Letta report[15]** (pp. 26-27) because they offer several significant advantages over loans - including direct financial incentive to companies and individuals by reducing their tax liability - and are predictable, allowing for better financial planning. If the credit exceeds the amount of taxes owed, the excess amount is refunded, making it a powerful motivator for investment.
- This is because **loans are not the most effective form of government support** as companies find it much easier to access traditional financial markets than to obtain government loans as market loans come with much looser conditions, markets offer greater flexibility, and the process is significantly faster.

Avoidance of negative effects on competition and trade

Paragraphs 103 and 116 mandates that aid does not finance an increase of the overall production capacity of the beneficiary of over 5%:

- **We propose to entirely remove the 5% threshold or at minimum increase the threshold to 15%, in line with the threshold for activity level changes already used under the ETS free allocation in Directive 2003/87/EC.**
- Introducing such a threshold is inconsistent with the Clean Industrial Deal's objective of reindustrialization after the decreased European industrial production, as it will prove challenging to decrease the energy consumption at the level required without increasing production capacity. In fact, increasing the share of EU output meeting global demand would considerably reduce global emissions as EU primary aluminium production or alumina refining has a significantly lower carbon footprint than the global average.
- This would place EU industries at a competitive disadvantage in the global market who do not face the same restrictions. Different metrics (e.g., the emissions per produced unit in the new capacity) need to be used in the selection criteria, as emission cuts would be negative to allow for new capacity to be included. This widened scope could then create carbochlorination and inert anodes as possible new technologies for producing primary aluminium.

5. Comments to section 6: Aid to ensure manufacturing capacity in clean technologies

[14] European Commission, *Clean Industrial Deal Communication*, 26 February 2025, p. 13 [Link].
[15] Enrico Letta, *Much more than a market*, April 2024 [Link].

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We support aligning the scope of clean technologies and the possibility for support for extraction, processing and recycling of critical raw materials under paragraph 122(c) with the TCTF, NZIA (including Delegated Acts) and the list of Critical Raw Materials in the Critical Raw Materials Act to enable their recycling. Recycled aluminium only requires 5% of the energy needed to produce primary aluminium and enhances economic value by creating domestic jobs and preventing valuable materials from being downcycled into products of lower value or landfilled. We further call to expand the scope to the defence and digital sectors as aluminium is a strategic application in these sectors.

In Paragraph 122 we further welcome provisions allowing for aid for the production of new or recovered critical raw materials. However:

- **To give legal clarity, the scope for producing or recovering critical raw materials should be extended to include strategic raw materials and the 'carrier metals' which contain the critical and strategic raw materials.**
- **Aid should also be available for re-opening curtailed production capacities that have a production capacity performing at an emission level among the best performers in Europe**: restarting idled manufacturing capacity is a more efficient way of spending public money as it is less costly than building new ones. State Aid should also be given to technological solutions that are not ready to be implemented until mid-2030 to avoid only industries with mature technological solutions being granted State Aid, which leads to competitive distortion.

Finally, Paragraph 126 stipulates the aid intensity cannot exceed 15% of the eligible costs and the aid amount is capped at EUR 75 million per project, whereas the TCTF allowed a ceiling of EUR 150 million.

- **This cap should be removed in general and for Strategic Projects recognized under Regulation 2024/1252 at minimum, particularly as mining and refining projects require many CAPEX investments.**
- Investments in raw materials production are capital-intensive and need at least five years to become operational. Therefore, to incentivize investments, all aid should be granted until 2035 instead of 2030 and the measures should be approved for a longer maximum period than 5 years to guarantee financial certainty.

For more information on European Aluminium's work on EU's State Aid policies, check the "Climate & Energy Section" on European Aluminium's website.

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