12 June 2026

ECGA's contribution to the call for evidence on the Industrial Accelerator Act

The European Advanced Carbon and Graphite Association welcomes the publication of the Industrial Accelerator Act, which aims to scale up European manufacturing in key sectors and technologies, strengthen demand for EU-made low-carbon industrial products, and support high-quality jobs and economic growth.

However, for the proposal to be truly effective, we believe it should be strengthened in three key areas:

- support for Union-based cathode and anode active materials,
- recognition of graphite electrodes as a critical enabling input for low-carbon steel production, and
- the design of Industrial Manufacturing Accelerator Areas as instruments that address real industrial constraints, rather than geographically limited showcase projects.

A detailed explanation is provided in this paper.

1. Union Origin requirements for batteries should cover cathode and anode active materials

The European Carbon and Graphite Advanced Materials Association (ECGA) welcomes the Commission's reported intention to establish Union origin requirements for batteries in the amended Net-Zero Industry Act and Public Procurement Directive. However, **the proposed Union origin requirements for batteries, under both energy storage and electric vehicles provisions, will concretely not lead to the local sourcing of anode active materials (AAM).** This paper sets out first our recommendations to solve this issue, and the evidence supporting it after.

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A Our policy recommendations

ECGA recommends three improvements to the Industrial Decarbonisation Accelerator Act (IAA), designed to correct the blind spot on AAM **without adding further pressure on Europe's already-strained battery manufacturers**.

A.1 Under public procurement procedures, AAM should be a mandatory Union-origin component, albeit at a low initial share that escalates progressively

Annex III of the draft IAA contains a series of similar Union origin requirements for electric vehicles bought through public procurement procedures or with public money. We assume, that for, this annex, the term ‘main specific components’ of batteries refers to those listed in the Annex to Commission Implementing Regulation 2025/1178. In which case the strategic and critical raw materials used for the production of these components are listed in the Annex I and II to the Regulation 2024/1252.

We would like the Commission to amend the Part I of Annex III as follows:

> *(d) the vehicle’s traction battery contains at least ~~five~~[**six**] main specific components of batteries, among which the battery cells, the cathode active material**, 10% of the active anode material**, and the battery management system, originating in the Union;*
>
> *The requirements set out in points d), e) and f) apply from [date]. **The requirement set out in d) for Union-origin active anode material refering to article 7 of the present regulation, including Switzerland, shalll increase progressively from 10% at [date], to 20% in 2030, 25% in 2032, and up to 40% in 2035.***
>
> ***In line with Article 11 of the proposed regulation, these requirements shall not apply if they result in a estimated cost difference of more than 25% for the final product.***

The same amendements must be applied to Part II of Annex III as well.

The share of Union-origin AAM should start low and escalate on a published timetable calibrated to the projected ramp-up of European battery-grade graphite capacity. The goal is to reduce costs for downstream users, allow time for our producers to scale up and reduce their production costs, and thus not trigger the 25% disproportionate cost exemption, as per the Commission’s impact assessment (page 135). **Our proposed schedule starts at 10% of European content per battery in the first year of**

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application (possibly 2029), rising to 20% by 2030 and 40% by 2035. This last milestone is aligned with the Critical Raw Materials Act's 40% processing benchmark.

The purpose of a low starting share is explicitly to protect battery manufacturers: 10% is economically absorbable and technically feasible given the pilot-plant capacity already running in Europe. **Whichever the exact schedule is, it should be published as soon as possible in order to make European offtake agreements bankable.**

A.2 For BESS, the freely-chosen component should be one of the electrochemically active materials

Article 34 of the draft IAA introduces amendments to the NZIA. It adds a new Annex II to the NZIA that details Union origin requirements for net-zero technologies, and battery energy storage systems in particular (BESS, see page 65 of the current draft).

Our analysis for those BESS requirements is the same as for those found in Annex III of the draft IAA. They will systematically be satisfied by a current collector or a BTMS, as these are the cheapest, simplest options. All four electrochemically active materials of batteries will be left unlocalised. Thus, we contend that the BESS rule should require that the freely-chosen additional component be an electrochemically active material (CAM, AAM, electrolyte or separator).

A.3 Disproportionate cost exemptions should be clearly limited to the cost of the final product

Article 11 and 12 of the published proposal, as well as the proposed new article 28c for the NZIA, all include disproportionate cost exemptions. These clauses are normal for public procurement procedures, as they prevent monopolies from cornering public entities and unduly raising their prices. However, the current wording of some of these articles is currently unclear.

In Article 11, the contracting authority would typically be a public entity or a subcontracted entity, and the purchased products would normally be final products, such as cars or battery energy storage systems. However, Article 11 does not explicitely states so. Thus, the scope of the words „goods, services or works“ is very general. One could infer from §3.c that any cost increase of more than 25% upstream in the supply chain is sufficient to trigger the exemption. Yet the prices of raw materials’ prices are highly variables, and the price differential between EU-made and Chinese raw materials is often higher than 25%. **Under these circumstances, Article 11 creates a large and risky loophole for European businesses.**

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Article 12 does not present the same problem to the same extent. In this article, the wording refers to the „final product or technology", which is already much clearer, albeit one might dispute what a „final technology" exactly is.

The article 28c added to the NZIA refers in its §1 to the main specific components. Then states in §2.a that the unavailability of components can lead to the waiving of Union-origin requirements. And in §2.b, it states that disproportionate costs, above 25%, can also lead to the same result. In this context, it is absolutely not clear whether the 25% threshold applies to the final product or system, such as a car, or whether costs differences upstream in the supply chain are also taken into account. Thus, **we ask the Commission to stipulate that the 25% threshold only refers to final products under Article 11, 12 and Article 28c.**

A.4 Trade defence investigations should be triggered by the repeated use of disproportionate-cost exemptions

Alinea 3.b) of Article 12 introduce a disproportionate cost exemption. This exemption is also to be found in the proposed amendments to the existing Article 26 of the NZIA The wording is the same: if the cost of the acquisition of the total system is 30% above „normal" prices, then domestic content requirements may be waived.

Our issue with that provision is that **existing prices only exist because of the widespread subsidisation of net-zero technologies and their components in China.** They should therefore not be considered as a proper baseline to evaluate whether the final cost is disproportionate or not. For example, the US Department of Commerce recently found that the fair value of Chinese export prices is 93.5% above their current level. Under those conditions, further price dumping to trigger the IAA exemption is fully possible.

To solve this issue, we propose that **local and national authorities should systematically notify the Commission when they resort to the disproportionate cost waiver. If the Commission notices a spike of notifications for a specific product, then it should start ex-officio trade defence investigations targeting that product and its components.** This will allow the Commission to determine whether the price baseline corresponds to a fair market value.

A.5 Union-origin eligibility should at least cover the EEA, the United Kingdom and Switzerland

The automotive and battery supply chains of the EU are structurally intertwined with those of its close neighbours. Notwithstanding Brexit, the United Kingdom's electric vehicle manufacturing base remains operationally integrated with continental production networks, sharing platforms, supply contracts and

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qualification procedures. Switzerland participates fully in the single market for industrial goods, and its companies are seamless participants in the supply chains of European original equipment manufacturers.

Moreover, **significant anode active material production capacity is under development in those countries. Recognising those outputs as eligible would bring additional, near-term supply and thus secure the supply-chains of the EU's car manufacturing industry.**

Finally, the geopolitical logic of the IAA points in the same direction. The Act's core purpose is to decouple Europe's clean-energy supply chains from systemic dependencies on China and to shield them from the unpredictability of US trade policy. The United Kingdom and Switzerland are stable, like-minded democracies with legal frameworks that align with Europe's values and strategic interests; they pose no risk of an overnight severance of trade flows. Instead, the Commission should draw those countries closer into a shared European resilience architecture.

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B Background analysis

B.1 AAM will rationally be the last choice among the „main specific components“ of batteries

By leaving battery manufacturers free to choose two additional components from the lists of Annex III, the Commission assumes that market forces will deliver a balanced localisation across the supply chain. Yet, based on a peer-reviewed cost-sensitivity analysis about a bottom-up cost model for GWh-scale Li-ion cell production[1], we demonstrate why this assumption fails for anode active materials.

The table below ranks the non-compulsory components by the order in which a rational battery manufacturer would choose to source them locally, considering three factors: cost sensitivity (impact on final cell cost of a 50% input price increase), ease of integration, and current EU supply status.

Pick order	Component	Cost impact (±50%, €/kWh)	EU supply status
1	Aluminium current collector	~€0.8	Established supply
2	Copper current collector	~€4.2	Established supply
3	Battery thermal management system	~€1.5	Robust, scaling EU industry
4	Electrolyte	€3.8	Scaling up
5	Separator	€4.8	Existing capacity
6	Anode active material	€3.2	No meaningful EU production; high integration risk

[1] Lechner, M., Nanz, F., Keilhofer, J., Kollenda, A. and Daub, R. (2025), „Cost Model for the Footprint Planning of Production Environments in Lithium-Ion Battery Production“. *Energy Technol.*, 13: 2402311. https://doi.org/10.1002/ente.202402311

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From a pure cost basis perspective, AAM might be relatively cheap to supply from within the EU. For example, based on the cost analysis from Lechner et al…, the total cost impact of a 50% anode material price on a 60 kWh battery pack (e.g. BYD Dolphin) would increase the final price for battery manufacturer by approximately €190. This is less than the impact of separators (+€280) or electrolytes (+€230). It is far less than the impact of CAM (+660€). So the cost burden of sourcing AAM locally is among the lowest of all electrochemically active components.

The numbers of this peer-reviewed study seem congruent with those of the Commission's own impact assessement. According to it (page 150), batteries with Union-origin CAM+AAM should cost €16 to 30€/kWh more than Chinese batteries. Since, in Lechner et…, CAM comes up at approximately +12€/KWh, that means that the Commission's own analysis sets Union-origin AAM at +4€/KWh. Thus, **the cost of a domestic-content requirement for anodes is clearly smaller than the already accepted cost for cathodes.**

Moreover, if we require only 10% of AAM to be Union-origin, the actual impact on the final cost of AAM for battery manufacturers will be far smaller. Even a +100% price increase would be easily absorbable, as this would only cause a +10% price increase for the total amount of AAM that they purchase. Such a price change is actually within normal fluctuations. **We estimate that it would result in a maximum price increase on the final system of 0.3%. This should be easy to absorb for our clients.**

Yet, notwithstanding this marginal cost advantage towards similarly pricy components of a battery cell, AAM will not be chosen absent a compulsory requirement. This is because some **other components are much easier to integrate and qualify:**

- **Current collectors** (aluminium and copper foils) are inexpensive, simple to integrate, and already produced at scale in Europe. They are the obvious first pick.
- **Battery thermal management systems** have very low cost sensitivity. They are plug-in components with minimal qualification risk, and benefit from an established European industrial base.
- **Electrolytes**, while similarly priced to AAM on a per-kWh basis, are easier to integrate chemically and benefit from existing and scaling EU production capacity.
- **Separators** have a higher cost sensitivity than anode materials, but will nonetheless be preferentially sourced locally for a reason the sensitivity analysis alone does not capture: **separators are extremely costly to transport**. Due to their fragility and low density, separator rolls are essentially shipped as air. This creates a strong natural economic incentive for

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local sourcing that does not exist for anode active materials, which are dense powders that can be shipped globally at low cost per kilogram.

- **Anode active materials** combine the worst of all factors: no meaningful EU production base, high integration complexity as an electrochemically active component (qualification cycles costing up to €10 million and lasting at least a year per customer), and no natural transport cost advantage favouring local sourcing.

Again, the Commission's projections in page 33 of its impact assessment, as well as our own projections, reinforce this calculus. By 2030, expected EU production of AAM would be 478 GWh. These numbers appear too optimistic, according to our own industry poll. We expect that, realistically, we will be able to reach 90GWh by 2030. In any case, both numbers pale in comparison with 874 GWh projected for CAM or 663 GWh for separators. In this context, the rational decision of any individual manufacturer is to avoid Union-origin AAM, as the supply is and will be most uncertain.

In short, the battery manufacturer's rational calculus will exhaust every alternative before turning to AAM. Thus, in its current form, the IAA allows battery manufacturers to satisfy their obligations with current collectors, BTMS, and one of either electrolytes or separators, without ever qualifying a European anode supplier.

C AAM satisfies all criteria under the new Article 28h of the NZIA

If the policy rationale for requiring Union-origin CAM is supply security and industrial resilience, the same rationale applies with equal or greater force to AAM.

C.1.a Union industry producing below capacity

Our members currently have 4kt of installed battery-grade graphite capacity. This is negligible compared to projected demand, and utilisation is extremely low due to the absence of offtake contracts. Only pilot plants are currently running (in France, Norway and Switzerland). Scaling these to a commercial output level would bring European capacity to 20 kt within a year. Additional projects in Finland, Spain, Sweden and Switzerland could raise it to 90 kt by 2030, ie a **supply-to-demand ratio of roughly 20% in 2030**.

However, investment decisions depend on credible demand signals. Due to the high qualification costs, offtake contracts below 30kt are generally insufficient to make projects bankable. This could change with

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domestic content requirement, but currently, European battery manufacturers have no incentive to begin qualifying European anode material suppliers.

C.1.b Contribution to economic security and resilience

According to the consultancy Wood Mackenzie, and to the Commission's own impact assessment (page 12), the EU depends on China for over 95% of its processed battery-grade graphite. This concentration exceeds even the dependency levels for cathode active materials. It is one of the most acute single-country vulnerabilities in the EU's raw materials supply chain. Battery-grade graphite is listed as a strategic raw material by the EU precisely for this reason. NATO's assessment has also flagged graphite as a critical raw material.

The International Energy Agency's 2026 report on „Energy Technology Perspectives" provides a quantitative assesssment of the economic risk for our downstream clients:

> *Each month of a halt in battery supply-chain exports from China would lead to an estimated loss in output of USD 17 billion from electric car factories elsewhere, with facilities in the European Union accounting for over half of the losses.*

In other words, if the EU does not act steadfastly towards a reshoring and securing of the battery-grade graphite industry, it will be **putting at risk around €90B of annual European industrial output**. For comparison, that is equivalent to one fifth of the current turnover of the German car industry.

C.1.c Technological progress

According to the International Energy Agency, silicon-graphite composite anodes are progressively gaining market share, with approximately 30% of anodes now containing silicon. However, **even the most advanced silicon-doped anodes contain at least 85% graphite by weight.** Graphite is therefore projected to remain the primary anode material until at least 2035. Sodium-ion batteries, the only commercially emerging chemistry that avoids graphite entirely, remain limited to low-energy-density applications such as urban vehicles and stationary storage, with global manufacturing capacity at barely 100 GWh compared to approximately 1,500 GWh for lithium-ion.

C.1.d Demand for the relevant net-zero technologies

According to Wood Mackenzie, global demand for battery-grade graphite is projected to grow approximately sixfold between 2025 and 2050. **Cumulative investment of €14–18 billion would be required in the EU alone by 2035 to meet the Critical Raw Materials Act's 40% local content processing**

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target for anode active materials. Excluding anode materials from Union origin requirements removes the demand signal that would justify this investment.

C.1.e Share of product in total production value of the downstream sector

The sensitivity analysis by Lechner et al. (2024) demonstrates that anode active materials account for a moderate share of total cell cost. This means that the cost burden of a compulsory AAM origin requirement on battery manufacturers would be lower than that of the already-mandated cathode active materials. **This undermines any argument that AAM inclusion would be disproportionately costly.**

C.1.f Impact on competitiveness, costs, and greenhouse gas emissions

Impact on costs.

The sensitivity analysis referenced above confirms that the downstream cost impact of sourcing AAM locally is contained. Under our scenario where 100% EU-sourced anode material with a 50% price premium over Chinese imports, **the impact on a 60 kWh battery would be approximately €190, or roughly 2-3% of total pack cost. However, we propose that those requirements be lowered to only 10% of the AAM used in the EU, which results to a cost of increase of 0.2/0.3% only for the entire car. This is well within the range that public procurement premiums and auction design parameters can absorb.**

Impact on greenhouse gas emissions.

The CO_2 footprint of European battery-grade graphite is a fraction of its Chinese counterpart, at below 3 kg CO_2-equivalent per kilogram compared to 15–25 kg. This discrepancy is primarily due to the widespread use of legacy and less efficient processes in China, but also partly explained by the country's coal-dependent electricity grid.

C.2 10% requirements for starters: orchestrating the scale-up of the entire European value chain

Most European cell manufacturers are undergoing growth pains. They struggle in establishing efficient large-scale operations with high efficiency rates. Moreover, they are under sustained margin pressure from Chinese competition. These combined factors have led to the pause, downsizing or cancellation of a number of gigafactory projects. As per the association Recharge, projected European capacities by 2030 went from 1530 GWh to 600 GWh between 2022 and 2026.

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At an average ratio of 1kg of graphite per 1KWh, this manufacturing capacity loss translates directly into a drop of 930 kilotons in potential demand for our members. We are therefore very aware that any instrument that imposes a sharp, front-loaded increase in bill-of-materials costs would lead to a Pyrrhic outcome. A European anode industry has no future without its European clients. To avoid that outcome, we detail our proposed plan on the next page, then further explain why this plan should be successful.

Year	Union origin AAM share	Ramping-up steps
2026	**0%**	The IAA is approved with a clear timeline. Businesses plan the application of domestic content requirements starting in 2029. Existing pilot plants get qualified. New lines are added to increase the capacity from the current 4 kilotons to 20 kilotons. Since the installation of a new production line on an existing plant takes at most one year, our producers will be ready.
2029	**10%**	As of 2026, the European demand for battery-grade graphite is estimated at 170ktons by the consultancy Benchmark Intelligence. As demonstrated here above, we should be able to supply 10% of that demand is technically feasible for our members, and economically manageable for European battery manufacturers. Thus 10% should be manageable.
2030	**20%**	According to Benchmark Intelligence, European demand for battery-grade graphite is expected to reach 350kt. 20% of 350kt is 75kt. Reaching that capacity will require the addition of new AAM capacity across Europe. This target is achievable if (1) EEA producers keep on ramping up from 10kilotons to 20kilotons or more, and (2) if domestic content requirements also cover Switzerland (+10kt capacity announced by 2030). Both conditions need to be fulfilled in order to ensure that capacity will indeed be available. Indeed, existing EEA producers will need to build new plants if they want to achieve that target, and that takes more time than just adding a new production line to an existing plant.
2032	**25 %**	All current projects are online, including those of our members in Spain and Fniland which should bring each an additional 10 kilotons of capacity. Thus, the total European capacity should amount to 100 kilotons. This should correspond to 25% of a total European demand around 400 kilotons (as per Benchmark Intelligence). At this stage, the European industry will be maturing and finally

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Year	Union origin AAM share	Ramping-up steps
		achieving economies of scale.
2035	**40 %**	Aligned with the CRMA processing benchmark. Given the current state of our industry, this goal seems far-fetched. However, if our members have successfully crossed the commercial „valley of death“, they should be able to continue ramping-up faster than previously. Indeed, it is more complicated to scale from pilot-plant level (2kilotons) to large-scale level (20kilotons) than to double capacity by building a second or third factory based on the model of an existing large-scale plant.

C.2.a A low starting share to trigger technology transfers

The obvious advantage of a low starting share is technical and financial feasibility. Given the cost (up to €10M per supplier qualification), it would not be realistically possible for European battery manufacturers to qualify several low-volume suppliers before 2029. However, qualifying just one is doable.

Moreover, low-but-mandatory starting shares have a less obvious but arguably just as important advantage: they amount to compulsory technology transfer. The technical specifications of each battery-specific AAM are proprietary. Thus, **if a battery manufacturer has to blend 10% of European AAM with 90% Chinese AAM in the same cell, the Chinese supplier will have no practical alternative but to cooperate with the European supplier on technical alignment.** This is the kind of technology transfer that European industrial policy should be actively seeking. Several ECGA members are already pursuing such partnerships, and we regard this as the most realistic route to genuine European scale-up.

C.2.b Bankability does not depend on exact percentages but on predictability

Offtake agreements for battery-grade graphite are signed 3–5 years ahead of cell-line commissioning, and project-finance lenders require visibility over the life of the offtake. A requirement that starts at 10% during the first year and is progressively escalated later by renewed legislative action is not bankable. A requirement that starts at the same level or even lower but has a clear trajectory to 40 % in 2035 is bankable.

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2. Graphite electrodes should be recognized as enabling input for low-carbon steel (C23/NACE 23.99/ PRODCOM 23.99.14 – including graphite electrodes)

Our message is critical: No policy protection – No graphite electrodes – No EAFs – No low carbon steel – No sustainable climate targets.

The European Advanced Carbon and Graphite Materials Association welcomes the provisions of the Industrial Accelerator Act regarding clean steel requirements in public procurement. However, we believe that an essential enabler needs to be recognised within the overall clean steel framework. Graphite electrodes should be explicitly acknowledged as a key enabling technology for low-carbon steel, as they directly address the core technical and economic bottlenecks that determine whether Europe's decarbonisation ambition can translate into industrial reality.

The Construction Products Regulation (CPR) does not define "low-carbon steel" or prescribe production routes. Instead, it requires standardised disclosure of lifecycle environmental performance, particularly CO_2 emissions, aligned with EPD methodologies. This makes the framework technology-neutral but outcome-focused: products are compared based on measured emissions rather than how they are produced.

In practice, however, production routes remain decisive, as different processes yield significantly different carbon intensities. While no specific route is mandated, technologies such as electric arc furnace (EAF) are currently better positioned to achieve lower emission levels. The actual definition and thresholds for "low-carbon steel" therefore depend on downstream policy instruments (e.g. procurement rules or industrial legislation), which will build on CPR-provided data.

This approach is reinforced by the requirement to monitor emissions using established EU methodologies under the Carbon Border Adjustment Mechanism (CBAM) (Regulation (EU) 2023/956) and the EU Emissions Trading System (EU ETS), including detailed monitoring and data quality rules, ensuring that emissions are calculated on a consistent and comparable basis for both domestic and imported products. In this context, electric arc furnace (EAF) production currently represents the most viable and, in practice, necessary pathway to lower-emission steel, particularly when combined with low-carbon electricity and recycled inputs. Consequently, key

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inputs to EAF production, such **as graphite electrodes**, should be explicitly recognised in the Act as critical enablers of clean and circular steel.

Thus, ECGA recommends the inclusion or recognition of the graphite electrode as a critical input in the low-carbon steel lifecycle.

A Proposed amendments

Recital (22) - with insertion or footnote (pages 20 – 21)

"...... Considering the importance of both primary and secondary steel production for the long-term resilience of the Union industrial base, such requirements should be based on classes of performance that acknowledge the different decarbonisation efforts of the technological routes, while also rewarding circularity, including by adjusting emission intensity thresholds based on the percentage of scrap metal used in production for those product categories that typically require primary steel production, where necessary.

**In this context and given the central role of electric arc furnace-based production in enabling lower-emission and circular steel pathways, inputs that are indispensable to such processes, including graphite electrodes, are vital for achieving low-carbon performance."*

Footnote

**Graphite electrodes are a critical enabling input for electric arc furnace steelmaking, supporting clean and circular steel production through scrap recycling, improved energy efficiency, and reduced emission intensity.*

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Chapter III - Strengthening the Union's strategic industrial value chains (page 14)

Article 11(2) — with insertion or footnote (page 43)

"For public procurement procedures referred to in Part I of Annex II and Part I of Annex III, contracting authorities and contracting entities shall apply the Union origin requirements and low-carbon requirements* laid down therein in accordance with Articles 8 and 10."

Insertion or *footnote: In applying the requirements referred to in this Article, due consideration should be given to critical upstream inputs enabling low-carbon production pathways. Graphite electrodes constitute a key input for electric arc furnace steelmaking, supporting clean and circular steel production through scrap recycling, improved energy efficiency and reduced emission intensity.

Another possible insertion is in the Annexes to IAA (pages 2-3)

Annex II, Part I

"Where, in the context of public procurement procedures launched on or after 1 January 2029 falling within the scope of Directives 2014/23/EU, 2014/24/EU or 2014/25/EU, where the contracts, works contracts or work concessions include the procurement of products from energy-intensive industries, contracting authorities shall require the following minimum percentage shares:

(c) Steel, and any product the performance of which depends mainly on steel, intended for use in buildings, infrastructure and motor vehicles for civil purposes* ***: at least 25% of the total volume of steel used shall be low-carbon."*** ***

Footnote

In this context, the electric arc furnace (EAF) route represents the most mature pathway for low-carbon steel production, relying on scrap recycling and, where available, low-carbon electricity.* ***Graphite electrodes,* *critical for EAF, can support the steel decarbonisation goals*

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OR

Annex II, Part 2
Part II – Other forms of public intervention

For schemes established or updated on or after 1 January 2029 that benefit households or companies and that primarily aim to support the construction or renovation of buildings for residential and commercial purposes and infrastructure, and the lease and purchase of motor vehicles for civil purposes, Member States, regional or local authorities, bodies governed by public law, or associations formed by one or more such authorities or bodies governed by public law, shall ensure that only beneficiaries that comply with the following minimum requirements are eligible:

*(a) steel, and any product the performance of which depends primarily on steel: at least 25% of the total volume of steel used in the product or project that receives support shall be low-carbon;**

Footnote

****Graphite electrodes, as a critical input for electric arc furnace (EAF) steelmaking, can support the achievement of low-carbon steel thresholds***

B Why the graphite electrodes sector should be recognised under the Industrial Accelerator Act

(C23/NACE 23.99/ PRODCOM 23.99.14 – including graphite electrodes)

European steelmakers face structurally higher electricity costs, exposure under the EU ETS framework referenced throughout the Act, and global overcapacity pressures highlighted in the recitals. To remain viable while meeting the strict carbon-intensity thresholds defined under the Act, they must extract more output per unit of energy and reduce reliance on fossil reductants.

Graphite electrodes, advanced carbon materials characterised by exceptional electron mobility, deliver precisely these system-level gains. In electric arc furnace production, central to Europe's low-carbon steel pathway and recognised under the steel labelling framework, their high electrical conductivity enhances arc stability and lowers specific electricity consumption, directly

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influencing indirect emissions calculations as required under ETS and CBAM. In hydrogen-based direct reduced iron routes, which fall within the industrial transformation measures being accelerated, they improve electron transfer and reaction kinetics, stabilising high-temperature processes and reducing energy intensity per tonne of steel.

This translates into measurable carbon reductions, improved process economics, and stronger resilience against volatile input costs, outcomes fully aligned with the Act's objectives on competitiveness, industrial autonomy, and economic security set out in its opening recitals. Strategically, graphite-based materials also strengthen EU industrial resilience by reducing dependence on imported fossil carbon and certain critical inputs.

Market structure: a structural competitiveness gap. Electric arc furnaces (EAF) currently account for only around 45% of EU steel production. While this is above the global average (~30%), it remains significantly below key competitors such as the United States and Türkiye, where EAF production reaches approximately 70%, supported by mature scrap-based models and more competitive cost structures.

As the sector transitions towards low-carbon steel, production is increasingly aligned with electrified routes. In this context, producers with a higher share of EAF capacity are structurally better positioned to compete, both on cost and on compliance with emerging clean steel demand.

This creates a fundamental misalignment for the EU. Even with access to global markets, EU producers face a structural disadvantage due to their lower EAF share. In a context of persistent global overcapacity and import pressure, this undermines both the competitiveness and long-term resilience of Europe's clean steel industry.

Expanding EAF capacity is therefore not only a decarbonisation objective, but a strategic necessity for maintaining global market relevance.

We, thus, believe that the recognition of graphite electrodes in the Act can send a powerful market signal.

Trade environment: necessary but insufficient relief. Recent political signals suggest a potential easing of transatlantic trade tensions. **In March 2026**, the European Parliament supported a reduction of tariffs on US goods, while the United States indicated a willingness to lower tariffs

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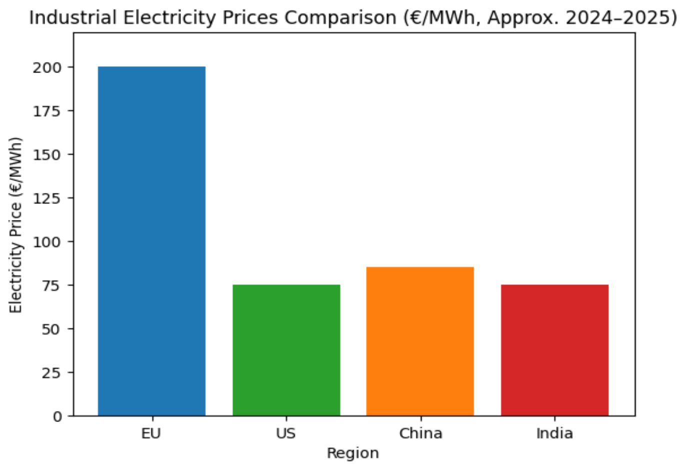
on steel- and aluminium-containing products to around 15%, down from levels of up to 50% introduced under Section 232.

However, these developments remain uncertain, with timelines and implementation details still under negotiation. More importantly, even a full removal or reduction of tariffs would not be sufficient to restore EU competitiveness in the medium to long term.

Trade pressures extend beyond tariffs. Structural imbalances—such as global overcapacity in **graphite electrodes**- drive a trade intensity of around 70%, far exceeding the 20% threshold required to qualify for indirect cost compensation under the ETS State Aid Framework. This highlights the scale of external exposure faced by the sector.

In this context, trade policy can only provide partial relief. Without addressing the underlying production imbalance, namely the EU's lower share of EAF-based production, EU steelmakers will continue to face structural disadvantages in key export markets, regardless of tariff developments.

Energy prices, and particularly the price and volatility of electricity in the EU, have become a significant issue, further exacerbated by geopolitical tensions and the crisis in the Middle East since **2023–2025**. We are facing an unprecedented situation in which vulnerabilities are exposed, and the cost is high. If the graphite electrode industry disappears from Europe, similar challenges could arise in the decarbonisation of steel, increasing dependence on third countries. In such a scenario, prices could rise under external control and demand, and the EU's ability to manage its own steel decarbonisation pathway could be constrained.



Generated by ECGA (2026), based on data from IEA, Eurostat, U.S. EIA, NDRC (China), and CEA (India)

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Carbon costs: graphite electrode producers also face carbon costs under the EU ETS, currently around €70–80/tCO_2, which further increases pressure on the sector. While carbon capture could, in theory, reduce direct emissions, its application remains limited in this context. Capture costs are typically in the range of €80–150/tCO_2, and can be higher depending on process conditions, often exceeding or matching the ETS price. As a result, carbon capture is unlikely to provide a cost-effective solution for the sector, particularly given the importance of indirect emissions linked to electricity consumption.

Thus, recognising graphite electrodes explicitly within the low-carbon steel framework, **whether under in the Annexes, Annex II Part 1 or 2, Chapter III (public procurement), or through clarification in Chapter VII governing the steel label**, would complement the Act's demand-side architecture with the necessary supply-side efficiency lever. Such recognition would provide regulatory clarity, support eligibility under industrial innovation and decarbonisation funding instruments, facilitate access to accelerated permitting mechanisms, and ensure coherence between critical process inputs and the Act's broader objectives on competitiveness, resilience, and strategic autonomy.

Low-carbon steel will ultimately be secured not only through regulatory standards but through the technologies that make those standards commercially viable. Graphite electrodes are not an ancillary input; they are a multiplier for efficiency, decarbonisation, and competitiveness. If Europe intends to lead in clean steel rather than merely regulate it, enabling technologies such as graphite electrodes must be at least formally acknowledged within the policy architecture established by the Industrial Accelerator Act, if not also supported.

C A technical explanation

The blast furnace-basic oxygen furnace (BF–BOF) route remains the dominant pathway for primary steel production in the EU, keeping the steel industry at a disadvantage compared to the US. Using iron ore, coke, and limestone in a high-temperature process where carbon acts both as the fuel and the reducing agent. This makes emissions structurally embedded in the process, not just energy-related, resulting in typical emissions of around 1.8–2.3 tonnes of CO_2 per tonne of

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crude steel.[2] The system is heavily dependent on metallurgical coal and offers limited potential for direct electrification due to the chemistry and extreme heat requirements involved.[3] As a result, the blast furnace route accounts for the majority of global steel sector emissions and represents a long-term decarbonisation challenge, particularly given its capital intensity and asset lifetimes of several decades. While options such as carbon capture are under development, they remain uncertain in terms of cost and scalability, reinforcing the blast furnace as a structurally carbon-intensive baseline compared to more flexible, electricity-based production routes.[4]

[2] International Energy Agency (IEA), *Iron and Steel Technology Roadmap*, 2020 (updated datasets 2023).

[3] World Steel Association, *Steel Statistical Yearbook*, latest edition.

[4] European Commission, *EU Industrial Strategy & ETS data*, 2023.

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Electric arc furnaces (EAFs) and blast furnaces (BFs) produce steel in fundamentally different ways.

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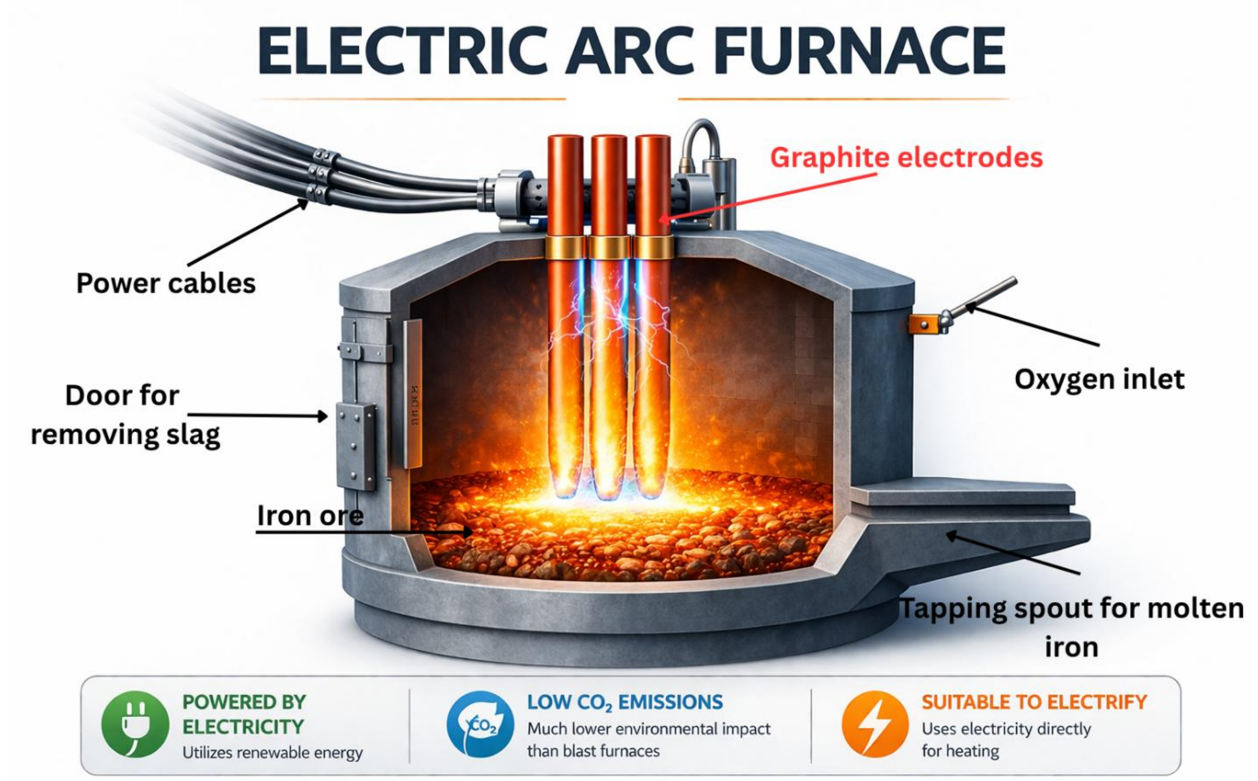
An electric arc furnace works differently.



Source: ECGA Rendering, 2026, based on data from European Commission

Unlike blast furnace production, the electric arc furnace (EAF) route does not rely on the chemical reduction of iron ore using coal. Instead, it melts recycled iron units, primarily scrap steel, using high-current electricity delivered through graphite electrodes, which generate an electric arc. As a result, coke is not required as a reductant, and the process avoids the carbon-intensive reduction reaction that is inherent to primary ironmaking.[5]

[5] International Energy Agency (IEA), *Iron and Steel Technology Roadmap*, 2020 (and 2023 updates).

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Emissions are therefore largely determined by the carbon intensity of the electricity supply. When powered by low-carbon electricity, EAF steel production can reduce emissions to as low as ~0.2–0.4 tCO_2 per tonne of steel, compared to ~1.8–2.3 tCO_2 for the blast furnace route.[6]

From a systems perspective, blast furnaces are large, continuous, coal-dependent assets with high fixed emissions and limited operational flexibility. In contrast, electric arc furnaces are modular, can ramp up and down more easily, and are compatible with both renewable electricity and hydrogen-based direct reduced iron (DRI) inputs.[7] This makes EAF technology structurally aligned with electrification strategies and industrial decarbonisation pathways.

Put simply, blast furnaces are built around coal chemistry; electric arc furnaces are built around electricity. One is inherently carbon-intensive. The other is a **scalable enabler** of clean power systems.

Our message is simple: No policy protection – No graphite electrodes – No EAFs – No low carbon steel – No sustainable climate targets.

Aspect	BF–BOF	EAF
Inputs	Iron ore, coal (coke)	Scrap steel, DRI
Energy	Fossil fuels	Electricity
CO_2 emissions	High (~1.8–2.3 tCO_2/t)	Low (~0.2–0.4 tCO_2/t*)
Carbon role	Essential to process	Not required
Flexibility	Rigid, continuous	Flexible, modular
Circularity	Low	High (recycling-based)
Decarbonisation	Limited (needs CCS)	Mature pathway

[6] World Steel Association, *Steel Statistical Yearbook*, latest edition.

[7] European Commission, *Clean Steel Partnership / EU Industrial Strategy*, 2023.

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3. Manufacturing Accelerator Areas should address real industrial constraints

The European Union is entering a decisive phase in its industrial and energy transition, where access to affordable clean energy, electrification, and industrial competitiveness are no longer parallel objectives but structurally interdependent. **Industrial Acceleration Areas** can enable this transition, but only if they are designed as instruments that address real industrial constraints rather than as geographically limited showcases.

If these areas concentrate advantages in selected locations without broader applicability, they risk creating structural distortions across the Union. A significant share of Europe's industrial base, particularly strategic energy-intensive sectors such as those under C 23 (included in Annex I to the IAA legislative proposal), would remain exposed to persistent barriers, including high energy costs, infrastructure bottlenecks, and regulatory fragmentation. For these sectors, relocation is not a viable adjustment mechanism. Production assets are fixed, capital-intensive, and embedded in regional economies. **The effectiveness of the CBAM would be undermined if companies were encouraged to relocate production. Such an outcome would increase the risk of carbon leakage, shifting emissions rather than reducing them, while potentially weakening the competitiveness of European industry.**

Decarbonisation must therefore also occur or be supported on-site.

Against this backdrop, Industrial Acceleration Areas must be designed around concrete enabling conditions, with mechanisms to extend their benefits beyond physical boundaries. Otherwise, it risks **undermining the goal of the Act, which is to protect and support the listed strategic industries such as C23, NACE 23.99.14.**

A possibility would be to implement these areas under an umbrella arrangement, whereby companies not physically located within an Acceleration Area can associate with it and access certain enabling conditions without relocation.

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We recognise that, due to physical constraints, companies outside the area may not be able to benefit from all advantages, such as preferential grid access,[8] or proximity to infrastructure. However, a range of non-physical enablers, including regulatory support, financial mechanisms, and certain energy-related measures, can still be applied beyond the immediate geographic perimeter.

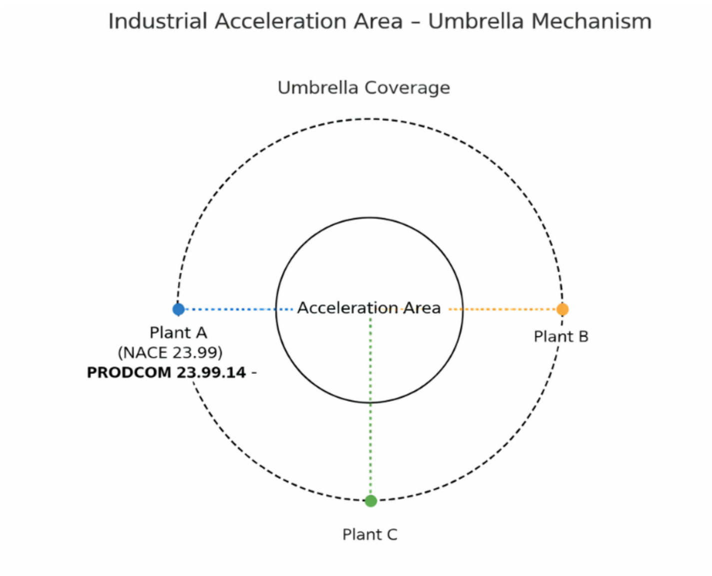

Illustration of proximity-based inclusion of product-level industrial activities (e.g. PRODCOM 23.99.14) within Industrial Acceleration A-rea frameworks

Source: ECGA analysis, 2026 (conceptual illustration)

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[8]Regarding energy-intensive industries, this issue is already being addressed by the **Grids Package**.

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A Strategic Importance of the Sector Across Industrial Value Chains – Protection is needed

Our sector (NACE 23.99 / PRODCOM 23.99.14 – under C23) is of systemic importance to Europe's industrial base due to its role across multiple value chains. In the EU, graphite is essential for refractories, foundries, batteries, and advanced materials, and is critical for electric arc furnace (EAF) steelmaking, which only accounts for around 45% of European steel production. Graphite electrodes are consumed at 1.5 to 3 kg per tonne of steel, directly linking demand to industrial output.

Beyond traditional uses, graphite is increasingly embedded in strategic technologies, including batteries, fuel cells, electrolysers, wind energy, and semiconductors. At the same time, Europe remains highly import-dependent, particularly for processed graphite, exposing key industrial ecosystems to supply and competitiveness risks. **Strengthening the graphite sector is therefore essential for both industrial resilience and decarbonisation. We are all witnesses now to how dependencies can create a real economic crisis.**

B Strategic Context: Why This Matters for Energy-Intensive Industry

Sectors under C23, NACE 23.99, specifically PRODCOM 23.99.14, are greatly affected by third-country overcapacities, with **trade intensity reaching approximately 75% over the past three years**, far exceeding the >20% trade intensity requirement under EU ETS State Aid compensation. **At the same time, they are highly electricity-intensive and directly exposed to volatility in energy markets.**

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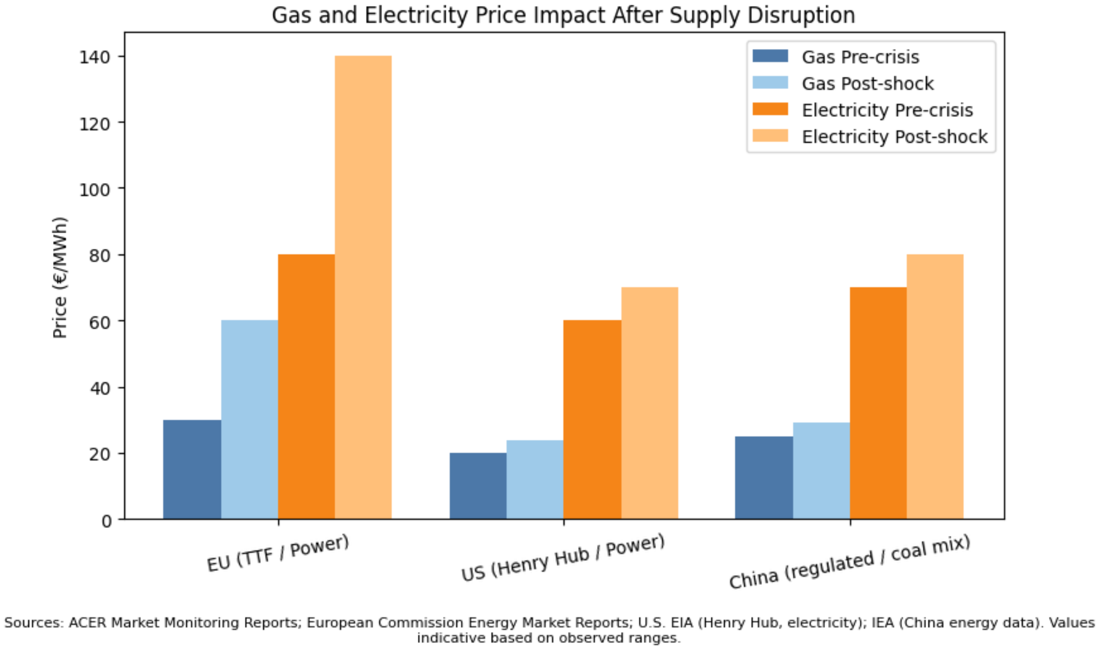
Recent geopolitical developments, including disruptions affecting global energy flows through the Strait of Hormuz, have reinforced this vulnerability. Even short-term risks have translated into price spikes in gas markets, which continue to feed directly into European electricity prices. In parallel, some MS have adopted rapid policy responses, including **temporary tax reductions and energy cost interventions**, highlighting the increasing divergence in industrial support frameworks.



ECGA generated, 2026.

This burden further adds to the carbon costs the industry experiences, with an average cost of **~€60 – €100/tCO_2.**

This combination of high trade exposure, energy intensity, carbon costs under EU ETS, and fixed asset base creates a structural constraint: these sectors must decarbonise under conditions that are currently more costly and less predictable than those faced by global competitors.

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C Enabling Conditions that should be delivered under Industrial Acceleration Areas

C.1 Addressing Price Volatility through PPAs, CfDs and CCfDs

Industrial Acceleration Areas must guarantee **reliable access to long-term, affordable clean energy**, which remains a critical condition for industrial decarbonisation.

Currently, access to Power Purchase Agreements is constrained by:

- *Counterparty risk*
- *Lack of credit guarantees*
- *Fragmented national frameworks*

As a result, many industrial actors, particularly in energy-intensive sectors, are unable to secure long-term price stability.

Acceleration Areas must therefore:

- *Provide **public-backed guarantee mechanisms** for industrial PPAs*
- *Enable **risk-sharing structures** to facilitate long-term contracts*
- *Ensure that industrial consumers can access renewable energy at predictable and competitive prices*

However, restricting such mechanisms to specific geographic zones would distort competition. These conditions must be accessible to installations associated with the areas through **proximity-based arrangements**, not limited to those physically located within them. If a company is not in the respective area, under an umbrella arrangement, they should have the same conditions for PPAs as those who are actually on site. **For a strategic sector such as graphite and carbon, this is a must.**

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C.2 Grid Access, Infrastructure and Electrification Readiness

Grid access has become a binding constraint on industrial electrification.

In several Member States:
- Grid connection delays exceed **5 to 10 years**
- Industrial projects face uncertainty regarding connection timelines and queue positions

Acceleration Areas must therefore:
- Guarantee **priority grid access for industrial decarbonisation projects**
- Ensure **binding and transparent connection timelines**
- Implement **clear and non-discriminatory queue management systems**

At the same time, these measures must be embedded in broader system-level reforms, such as the Grids Package. Limiting priority access to specific areas risks creating a two-tier system, where infrastructure availability depends on location rather than industrial need.

C.3 Permitting and Administrative Acceleration

Permitting remains a systemic bottleneck across the Union, affecting both industrial installations and energy infrastructure.

Acceleration Areas should:

- Introduce **accelerated permitting procedures** for:
    - Industrial electrification
    - On-site renewable generation
    - Storage and flexibility solutions
- Provide **one-stop-shop administrative frameworks** to reduce complexity and improve predictability

C.4 Energy Taxation and Cost Relief

Energy taxation continues to represent a significant cost component for energy-intensive industries. The Acceleration Area part of the proposal should include **recommendations** for member states on this issue **to incentivise** investment in decarbonisation technology.

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Recent geopolitical shocks, including those linked to disruptions in global energy routes, have demonstrated that governments can act decisively by:

- *Reducing or suspending energy taxes*
- *Reducing or removing VAT*
- *Introducing targeted cost relief measures*

Industrial Acceleration Areas should incorporate:

- **Reduced or zero taxation on low-carbon electricity consumption**
- Targeted fiscal measures to support electrification

Moreover, these are some of the measures that can be extended beyond the physical boundaries of the areas. **Industrial installations linked through umbrella arrangements must also be eligible, ensuring a level playing field across regions.**

Given current cost pressures, **energy taxation policy is not a marginal issue; it is a determining factor for industrial viability**.

C.5 ETS Interaction and Carbon Cost Exposure

Energy-intensive sectors under C23, NACE 23.99, PRODCOM 23.99.14 are already subject to significant cost pressures from the EU ETS, both directly and indirectly through electricity prices. Acceleration Areas must address this interaction by:

- Ensuring that participation in decarbonisation pathways does not lead to disproportionate cost burdens
- Considering the continuation or adjustment of free allocation mechanisms for exposed sectors
- Exploring targeted compensation mechanisms where necessary

Without such adjustments, the cumulative cost burden risks undermining the very investments that the policy aims to incentivise.

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C.6 Cross-Border Cooperation, Industrial Clusters, and CCUS Economics

Industrial Acceleration Areas can be a perfect fit for CCUS pilot projects. However, differences in financial capacity and infrastructure availability across Member States mean that national approaches will not always be sufficient on their own.

For sectors with limited decarbonisation options, CCUS remains a necessary pathway, but current economics remain challenging. With average capture costs around €120/tCO_2 exceeding EU ETS prices, a structural gap persists between the cost of abatement and the cost of emissions. This affects investment decisions regardless of where installations are located.

At the same time, industrial clusters, particularly in sectors under NACE 23.99 and PRODCOM 23.99.14, are unevenly distributed across the Union. Some Member States host significant industrial activity but do not have access to domestic CO_2 transport and storage infrastructure, while others may have more developed infrastructure or greater financial capacity to support it. In this context, cross-border cooperation can play a role alongside national frameworks. It allows for situations where:

- **CO_2 is captured in one Member State's Acceleration Area**
- **Transport and storage take place in another**

From an industrial perspective, the key issue remains the overall cost burden. Whether operations are domestic or cross-border, the combination of capture, transport, and storage costs cannot realistically be borne entirely by operators if CCUS is to scale. This is especially relevant in cross-border cases, where additional logistical steps could otherwise increase costs further. **The cost of capture has an ~€80–120/tCO_2, which is higher than the carbon costs under ETS, so it is not viable for industry to bear the cost.**

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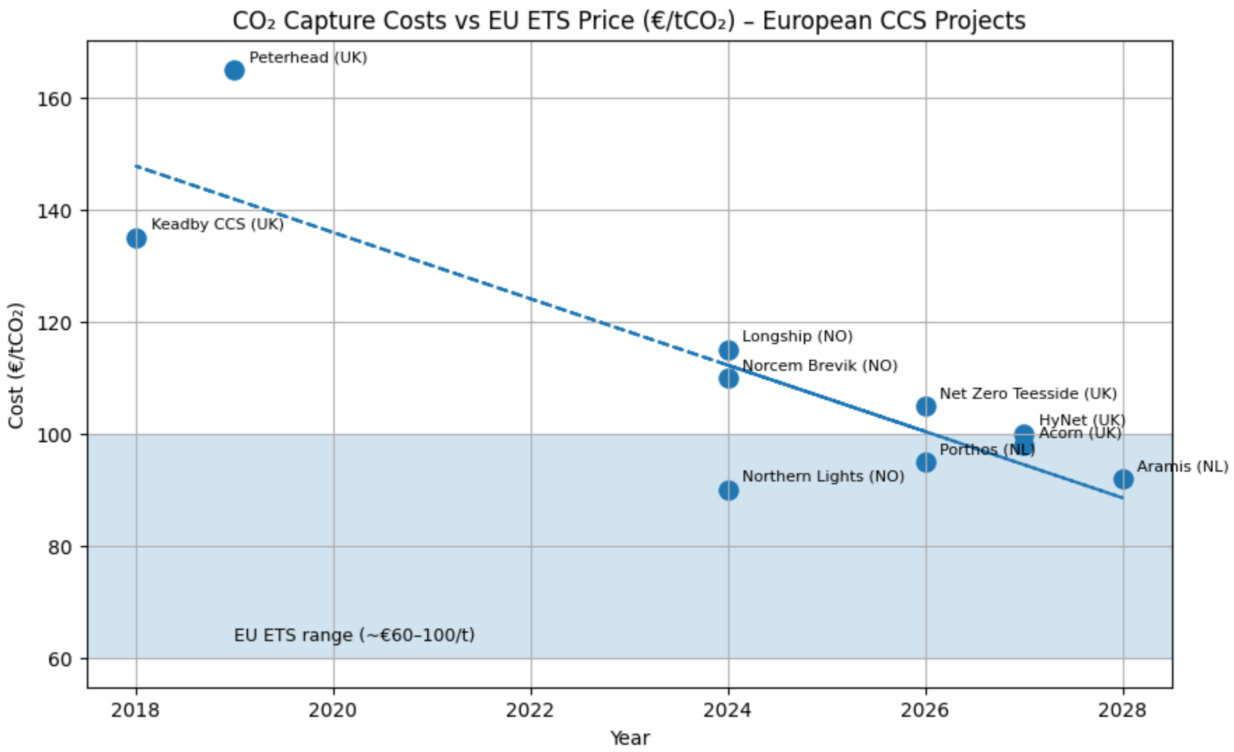

Source: ECGA generated (2026), based on European CCS project estimates and EU ETS price range (European Commission).

Thus, **the development of demand for captured carbon remains relevant**. Where CO_2 can be utilised, such as in fuels, chemicals, or food applications, this can provide an additional revenue stream. In practice, this means that either:

- **part of the capture and transport cost is offset, or**
- **revenues from utilisation contribute to improving the overall business case**

For example, a NACE 23.99, under the proposed Industrial Acceleration Area, could receive reimbursement for the capture of the CO_2 from the revenue generated by the utilisation of captured carbon. In any case, it is vital to emphasise that the cost of CCUS cannot fall on our industry.

Without some combination of cost support or revenue generation, CCUS is unlikely to be commercially viable at scale, regardless of whether it is implemented domestically or across borders.

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D Conclusion

Industrial Acceleration Areas can contribute meaningfully to Europe's industrial transition, but only if they are anchored in practical enabling conditions and embedded within a broader system-wide framework.

The priority is not the physical designation of zones, but the delivery of conditions that allow industry to decarbonise while remaining competitive. This requires:

- Access to affordable and reliable energy
- Removal of structural barriers to electrification
- Support for energy-intensive, trade-exposed sectors where they operate

A strictly geographic approach risks undermining these objectives. By tying benefits exclusively to physical location, there is a real risk of excluding parts of the industrial base that these measures are intended to support.

For Acceleration Areas to function effectively, at least part of their benefits must not be constrained by physical placement. Companies should be able to:

- Apply to be associated with the nearest Acceleration Area
- Access its enabling conditions without requiring relocation

At the same time, access to enabling conditions through an Acceleration Area should not limit or replace other forms of support available to industry. Participation in an Acceleration Area must complement, rather than constrain, broader support measures.

Without this flexibility, the framework risks creating fragmentation, distorting competition, and limiting impact. **It risks undermining the very scope of those areas, and this is to support the listed strategic industries.**

The European Advanced Carbon and Graphite Materials Association (ECGA) is the voice of Europe's advanced carbon and graphite industry. Established in 1995 and based in Brussels, ECGA represents and supports the sector in EU policymaking and industrial development.

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ECGA members supply indispensable materials for strategic European value chains, including steel and aluminium, batteries and energy storage, advanced manufacturing, aerospace, defence, nuclear applications, industrial lubricants and electronics. Together, they represent more than €3 billion turnover in Europe and cover 100% of EU-based production of natural graphite, Soderberg anodes and pastes, cathodes, graphite electrodes and battery anode material.

As graphite is recognised as a critical and strategic raw material, ECGA works to strengthen a competitive, innovative and sustainable European graphite value chain. Through policy engagement, industry coordination and communication, ECGA advocates for resilient supply chains, fair competition, circularity and the role of carbon and graphite materials in Europe's energy transition, industrial competitiveness and strategic autonomy.

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