

EsadeGeo OCTOBER 2025

Climate Dumping and the Limits of CBAM: Seizing a Narrow Window of Opportunity

Introduction

When the European Commission launched its Carbon Border Adjustment Mechanism (CBAM) in July 2021, it broke with two decades of scepticism toward border measures. The proposal responded to a mounting contradiction: often, every extra tonne of CO₂ avoided inside the European Union (EU) by imposing climate regulations on EU businesses and products was in turn matched by an imported tonne produced from jurisdictions with laxer climate constraints, particularly on carbon-intensive sectors such as steel, aluminium and fertilisers. The events that have followed its proposal further underscore why such a mechanism was essential. The Covid-19 pandemic and its economic effects, Russia's weaponisation of gas after its 2022 invasion of Ukraine, and climate events that put energy prices under stress, such as record droughts that curtailed French nuclear output, all put European industry against the ropes.

CBAM is intended to close that gap. Envisioned to enter in full force in 2026, during its transitional phase (2023–2025) importers in six sectors (iron and steel, aluminium, cement, fertilisers, electricity, hydrogen) have been required to report embedded emissions. But starting in 2026, importers will be required to buy CBAM certificates at the weekly ETS price, while free ETS allowances will be phased out gradually until 2034. The scheme promises to level the playing field, curb the phenomenon known as climate dumping, and push foreign regulators toward carbon pricing schemes, hoping for a climate-themed Brussels effect. Yet, these years of pilot reporting have exposed practical and political weaknesses. Technical loopholes, legal ambiguity and rising geopolitical pushback all threaten to dilute the mechanism or cause brand new issues associated with its full implementation.

This brief argues that CBAM, as it stands, is a necessary but not sufficient mechanism for the goal that it aims to accomplish. Unless its flaws are corrected, the instrument will fall short of both its economic and environmental objectives. This is because CBAM is a single tool, while climate dumping is a system-wide problem. The EU, therefore, needs a broader policy mix; one that distinguishes among the different channels of carbon leakage, integrates electricity-market reform, and positions CBAM as part of a plurilateral carbon-pricing club. Moreover, this brief argues that unless CBAM triggers a strong mirroring effect in other major-emitting economies, its enforceability will weaken over time as new challenges arise, making the so-called "Brussels effect" crucial to CBAM's survival within an increasingly tight timeframe.

1. Why CBAM Became Inevitable: From Social-Cost Theory to Strategic Autonomy

The intellectual origins of border adjustments trace back to the early 1990s, when William Nordhaus translated global greenhouse-gas damage into the social cost of carbon (SCC) and argued that trade-neutral carbon taxes should mirror this externality. The idea was not widely popular among policymakers except for some Nordic countries; Europe instead launched a cap-and-trade scheme in 2005 with low allowance prices and generous free allocations throughout its first decade. These kept market prices below firms' actual carbon costs until the Paris Agreement, which raised global ambition.

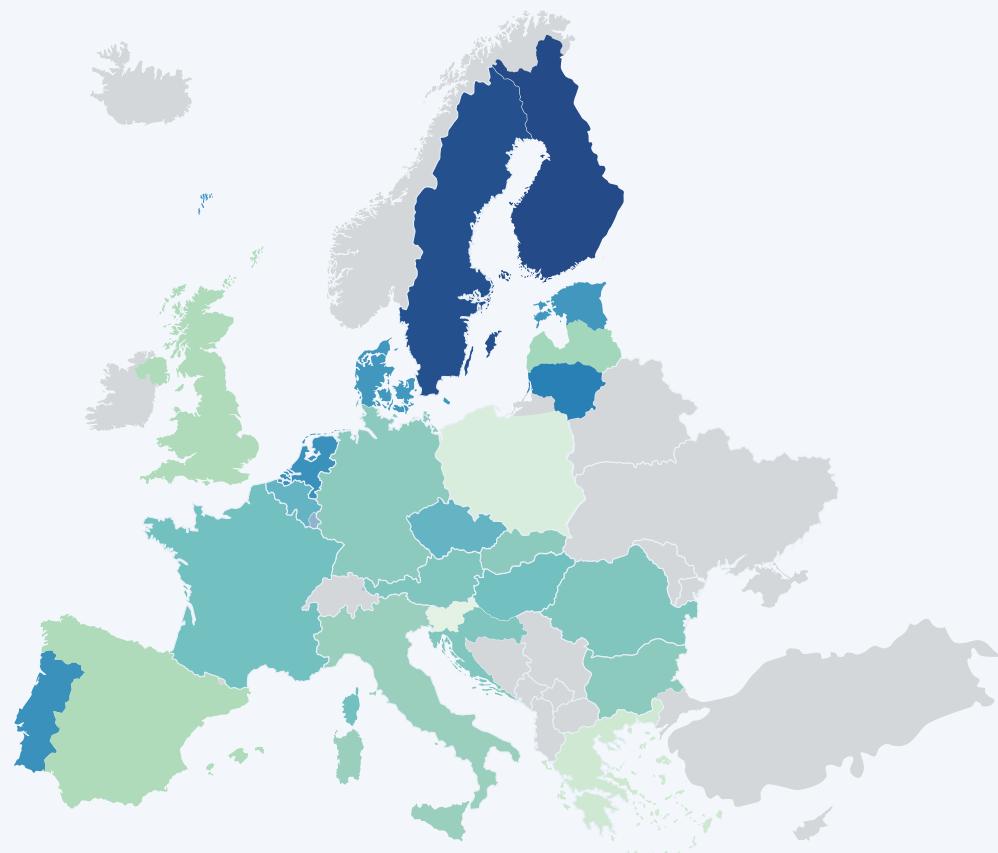
After the EU lifted its 2030 reduction target in 2020 to at least 55% below 1990 levels, successive ETS reforms tightened free-allowance supply. By 2020 a considerable share of allowances was still free, but that share will fall from 2026 on as CBAM enters in full force. In parallel, the EU has mobilised about €1.8 trillion through NextGenerationEU and the 2021-2027 Multiannual Financial Framework, at least 30% of which is earmarked for climate and energy projects that support climate-compatible industrial competitiveness.

Figure 1. Change in gas demand.

Percentage change, total 2022 to 2024 versus the average across 2019-2021

Source: Jugé, M., McWilliams, B., & Zachmann, G. (2025, June 16)

Percentage reduction



Note: the data show total reduction in gas demand across countries since January 2022.

Early evidence may indicate that these internal frameworks delivered on its aims to a certain extent: EU gas demand in 2022-2024 fell yearly between 11% and 18% below the 2019-2021 average (Jugé, M. et al, 2025), installed solar-photovoltaic capacity increased considerably, and wind turbines generated 17.6% of the Union's electricity, surpassing natural gas for the first time (Brown, T., & Jones, D., 2024). However, products imported into the EU embodied about 40% of the Union's consumption-based footprint and more than half of reported ETS-sector emissions in 2022. Domestic decarbonisation is therefore still partially offset by climate dumping abroad.

This way, the EU's initial hesitancy gave way once it realised that border measures were needed to reinforce internal climate ambition and security, neutralise accusations of causing industrial flight due to climate-related policies, and avoid penalisations for imposing protectionist trade advantages to its own industries. This last point is among the most relevant, as CBAM is in principle designed to survive World Trade Organisation's scrutiny.

The politics of competitiveness, however, run deeper than carbon prices alone, and other global actors are developing their own frameworks to strengthen their industrial competitiveness in global markets. CBAM therefore serves a dual function: supporting Europe's clean industrial transition and encouraging climate-conscious policies worldwide.



2. CBAM in the Real World: Design Strengths and Operational Gaps

The CBAM regulation adopted in April 2023 codifies some specific structural features, so already in the transitional reporting period analysts have identified some key weakness: other than for reporting purposes, CBAM ignores indirect emissions, such as those electricity-related, in aluminium, iron and steel, and hydrogen, as only cement and fertilisers are required to include them. This is important because, in aluminium, for instance, about 70% of total CO₂ comes from the huge amount of power used in smelting rather than the electrolytic process itself. Inside the EU, that power already carries a carbon cost because generators pass the ETS price on to consumers through electricity bills. Imports, however, escape any similar charge. The gap is widened by Europe's marginal-pricing power market: the most expensive plant sets the price for all electricity, so when gas prices spike, the carbon surcharge rises too. As a result, EU producers pay for these hidden emissions while foreign competitors do not.

Simultaneously, a parallel asymmetry arises in carbon hedging. Large EU producers routinely purchase EU Allowances several years into the future, locking in prices, whereas most non-EU exporters are lacking comparable access to the futures market. If prices rise considerably, foreign exporters would bear a substantially higher carbon cost than their EU competitors, undermining CBAM's goal of competitive neutrality, the EU's image in the world, and the appeal and ability to influence of the single market.

Indeed, legal challenges and tensions with other countries, especially those in the Global South, have been part of a very vocal response. Russia's WTO consultation (DS639) has alleged that continued free allocation for EU producers violates the national-treatment rule, while Brazil's government has threatened to invoke its new Economic Reciprocity Law, enabled to target instruments such as CBAM specifically, to impose counter-tariffs on CBAM-covered goods if it causes an impact on its exports. India's external affairs minister has described the mechanism as an unacceptable unilateral measure, and South Africa has mentioned a possible formal complaint, citing differential capabilities between North and South countries. The Commission insists that CBAM is climate regulation, not trade discrimination, because free allocation will disappear by 2034; in turn, critics retort that exporters must finance CBAM from day one, whereas European producers enjoy a nine-year period to adapt. With this degree of legal uncertainty, investment decisions and policy proliferation may be affected by the differing levels of acceptance to CBAM measures worldwide.

Partner reactions diverge as well: Turkey, heavily exposed through steel and cement exports, is drafting an ETS with partial CBAM reciprocity, hoping for exemption status, albeit still far from being closely aligned with EU ETS. The United Kingdom has opened negotiations in May 2025 to link its ETS with the EU's, which would remove UK goods from CBAM, virtually solving the issue. Australia, South Korea and Taiwan are studying similar border levies, while the United States has remained ambiguous, though the Trump administration has criticised CBAM while pursuing so-called reciprocal duties that seem to, at times, reference the instrument. Finally, China has condemned CBAM rhetorically, but it has also been piloting additional regional internal ETS markets and is now focused on expanding its national ETS system.

The global image is a fragmented mosaic: ICAP's 2025 report counts 38 ETSs currently in force, two more than the previous year, a further 11 under active development, and barely any aligned in scope, benchmarks or free-allocation rules. Still, the fact that the trend has extended, and continues to do so, and that the legal attempts against it are arguably diminishing, shows a certain level of success of the intended Brussels effect. The question is not only whether the trend will stick, but whether it will happen fast enough.

Indeed, a final strategic constraint, and arguably the most existential one for the survival of climate-related trade regulations, concerns the durability of Europe's leverage on the subject. This is because the credibility of CBAM as a driver of international convergence will endure only if the world's major exporting economies, such as China, raise their domestic carbon prices to roughly 70% or more of the EU ETS level by the time free allocation ends in 2034. If that threshold is not met, the possibilities of CBAM ceasing to function as an inducement are high, turning instead into a unilateral trade barrier that erodes political support abroad and within parts of European industry.

In that scenario the EU's capacity to enforce an ever-higher carbon price, both at the border and within its single market, would diminish rapidly. The Commission would either have to dilute its climate standards or accept a permanent loss of competitiveness in external markets. The mechanism's effectiveness is therefore intensely time-bound: the success of its impending full implementation, as well as reforms and negotiations surrounding it, must accelerate carbon-price convergence over the next decade, while the Union commands sufficient economic weight to shape global decarbonisation, or face an uncertain future.



3. A Reform Agenda: Aligning CBAM with a Broader Climate-Industrial Strategy and Turning it into a Catalyst for Global Price Convergence

Delivering CBAM's promise requires more than incremental technical fixes; it calls for a fully articulated strategy that links carbon accounting, leakage safeguards, and diplomacy in a single architecture, and does so with the aim of compelling other countries to raise their ETS.

A first priority is comprehensive carbon accounting. Indirect electricity-related emissions must be incorporated into aluminium, steel and, in due course, all CBAM sectors, so that foreign producers face the same full carbon bill already embedded in EU power prices. At home, liability should be calculated on the basis of grid-average intensity, instead of the fossil marginal unit, aligning domestic and border costs. The Affordable Energy Action Plan, launched earlier this year, offers the vehicle for synchronising power-market reform with that accounting upgrade, which is a pre-condition for demanding reciprocity abroad.

Second, carbon-leakage protections should be reshaped so they encourage trading partners to move toward the same carbon price. Free ETS allowances would be kept only for sectors that can still show a credible risk of production relocation and that sell into markets where no comparable carbon price exists; the amount of free allocation would shrink each year against a tightening performance benchmark. For goods exported out of the EU, the Commission could introduce a small, strictly limited refund, paid from CBAM revenue, that repays a company's verified ETS cost but only up to the carbon price, if any, charged in the destination country. This mirror treatment would give foreign governments a direct reason to raise their own carbon prices: the higher their domestic price, the larger the refund their exporters receive. It would also foster CBAM's existential need to achieve higher global ETS prices before the mid-2030s.

Third, diplomacy must convert CBAM from a trade tool that incorporates environmental fairness into an admission ticket to a carbon-pricing club. The Commission should make clear that jurisdictions achieving 70% or over, depending on their exports size, of carbon-price parity with the EU by 2034 will earn phased CBAM relief to enhance their own transition. Finalising ETS linkage with the United Kingdom, deepening the Swiss agreement, and promoting structured talks with Canada, Japan and other partners to encourage ETS price convergence, especially China or India, would demonstrate that ETS price alignment can unlock preferential market access and reduce trade friction.

One way to sell this idea would be to earmark part of the projected annual CBAM revenue to finance decarbonisation infrastructure in least-developed countries, turning the mechanism from a perceived penalisation and trade hazard into a source of global public goods. Another would be to emphasize technological neutrality and bind it to CBAM, allowing countries to choose their own path to green production and investors to trust that their chosen method will not be phased out any time soon, to speed international convergence.

Regardless, CBAM will only serve European clean industrialisation if it accelerates the rise of carbon prices in the world's principal exporting economies to a level broadly comparable with the EU ETS. That is, unless China, India and other large producers reach roughly 70% of the European price by the mid-2030s, when free allocation disappears, the mechanism might lose its pulling power. That outcome would not merely cost Europe its industrial edge based on the current proposition; it would also undermine the principle of climate action and an open trading system reinforcing rather than undercutting each other.

Ultimately, CBAM's success will depend not just on its internal coherence but on whether it catalyses credible carbon pricing abroad. This requires a dual-track strategy: firm in its enforcement, yet open to coordination. Recent academic work underscores this point, showing that cooperative climate clubs—where carbon pricing is jointly enforced through collective trade policy—may offer a more effective and sustainable solution than unilateral border adjustments. To that end, the EU should not only refine CBAM but also leverage it as a stepping stone toward building a broader coalition of climate-aligned trading partners.



Conclusion

CBAM has already shifted the global conversation: countries and companies are adjusting, trading partners and competitors are drafting their own carbon-pricing schemes, and policymakers worldwide now treat climate ambition as a trade variable to wield. Yet the mechanism still stands on fragile ground. Above all, CBAM's ability to endure depends on whether it catalyses a rapid rise in carbon prices abroad. If the European benchmark climbs while major exporters linger far below 70% of that level, the measure will not be a convergence tool, but the reason why the EU's claim that deep decarbonisation and open markets can reinforce one another might falter.

Thus, CBAM must become a broader, better structured, more specialised climate-industrial strategy that rewards performance, safeguards legitimate competitiveness concerns and invites partners into joining the carbon-pricing club. Extending full carbon accounting to all sectors, tightening but targeting leakage shields, earmarking a share of revenues for green investment in developing countries and, above all, offering phased relief to jurisdictions that approach EU-level prices can turn CBAM into a positive engine of global convergence. Europe's willingness to complete that reform agenda over the next decade will decide whether CBAM becomes the cornerstone of the climate-compatible trading system that it is envisioned to be.

Bibliography

Brown, T., & Jones, D. (2024). *European electricity review 2024*. Ember. <https://ember-climate.org/insights/research/european-electricity-review-2024>

Chen, Z.Y., Zhao, L.T., Cheng, L., & Qiu, R.X. (2024). How does China respond to the Carbon Border Adjustment Mechanism? An approach of global trade analysis. *Energy Policy*, 185, 114486. <https://doi.org/10.1016/j.enpol.2024.114486>

European Commission. (2000). *Green paper on greenhouse-gas emissions trading within the European Union* (COM(2000) 87). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52000DC0087>

European Commission. (n.d.). *Development of the EU ETS (2005–2020)*. https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/development-eu-ets-2005-2020_en

Farrokhi, F., & Lashkaripour, A. (2025). Can Trade Policy Mitigate Climate Change? *Econometrica*, forthcoming. <https://www.econometricsociety.org/publications/econometrica/0000/00/00/Can-Trade-Policy-Mitigate-Climate-Change/file/20153-5.pdf>

International Carbon Action Partnership. (2025, April 8). *Emissions trading worldwide: ICAP status report 2025*. International Carbon Action Partnership. <https://icapcarbonaction.com/en/publications/emissions-trading-worldwide-icap-status-report-2025>

IEA (2024a). *Global EV Outlook 2024: Trends in electric-vehicle batteries*. International Energy Agency. <https://www.iea.org/reports/global-ev-outlook-2024/trends-in-electric-vehicle-batteries>

IEA (2024b). *Renewables 2024: Executive summary*. International Energy Agency. <https://www.iea.org/reports/renewables-2024/executive-summary>

Jugé, M., McWilliams, B., & Zachmann, G. (2025, June 16). *European natural gas demand tracker*. Bruegel. <https://www.bruegel.org/dataset/european-natural-gas-demand-tracker>

Marcu, A., Mehling, M., & Cosby, A. (2020). *Border carbon adjustments in the EU: Issues and options* (Report). European Roundtable on Climate Change and Sustainable Transition. <https://ercst.org/wp-content/uploads/2021/08/20200929-CBAM-Issues-and-Options-Paper-F-2.pdf>

Nordhaus, W. D. (1991). *To slow or not to slow: The economics of the greenhouse effect*. *The Economic Journal*, 101(407), 920–937. <https://doi.org/10.2307/2233864>

Reuters. (2022, July 15). *Warming rivers threaten France's already tight power supply*. Reuters. <https://www.reuters.com/business/energy/warming-rivers-threaten-frances-already-tight-power-supply-2022-07-15/>

Senate Democratic Leadership. (2022, August 7). *Inflation Reduction Act: One-page summary*. https://www.democrats.senate.gov/imo/media/doc/inflation_reduction_act_one_page_summary.pdf

SolarPower Europe. (2023). *EU market outlook for solar power 2023–2027 (Executive summary)*. SolarPower Europe. <https://www.solarpowereurope.org/insights/eu-market-outlook-for-solar-power-2023-2027>

* This policy brief includes valuable insights and literal quotes made by Dan Maleski and Vicente Hurtado Roa on the webinar “*Measures to combat Climate Dumping*” celebrated by EsadeGeo in collaboration with Repsol Foundation on April 23, 2025. Accessible on <https://www.youtube.com/live/Ozai2v7R-q8?si=XVVUfgt7caNF7MKp>