sandbag
smarter climate policy

CBAM Simulator methodology

Explore Trade Impacts and Policy Responses Through Interactive Visualisations

Introduction and overview of the CBAM Simulator

The CBAM Simulator was developed to help stakeholders, especially from non-EU countries, understand the potential implications of the EU Carbon Border Adjustment Mechanism (CBAM) and explore how different national strategies may influence outcomes.

This tool is not designed to forecast specific costs, but rather to provide a flexible, interactive environment where users can simulate scenarios, apply filters, and compare the effects of policy choices on trade flows and carbon-related costs.

All simulations are based on 2025's trade volumes, assuming these volumes will remain constant over time.

The Simulator is designed to illustrate possible evolutions of the CBAM and responses to it by third countries.

Through interactive visualisations, users can:

- Quantify CBAM exposure at country and sector levels.
- Explore response scenarios by third countries
- Combine different scope extensions to measure their impacts.
- Compare response scenarios by third countries.
- Phase-in year between 2026-2034

By providing multiple metrics and scenarios, the Simulator enables governments, analysts, and exporters to test pathways toward low-carbon trade competitiveness.

Definition of scenarios

Business-as-usual scenario

No strategic adjustment by exporting country. The emissions intensity of goods sold to Europe is taken as the country's average.

Ambitious scenario

The ambitious scenario reflects strategic adjustments that exporters could make to reduce the carbon intensity of their exports to the EU. Two types of adjustments are modelled: universal assumptions applied to all countries, and country-specific adjustments based on identified green investment projects. Compared with the Business-as-usual (BAU) scenario, it modifies three groups of parameters: **(i) production routes, (ii) emission intensities, and (iii) export allocation**.

For all countries, two universal adjustments are applied to emission intensities:

- **Long steel**: Resource shuffling is assumed, whereby exporters redirect their lowest-carbon steel — produced via scrap-based EAF — to the EU market. The emission intensity of long steel exports is therefore recalculated using the share of scrap EAF capacity available in each country.
- **Aluminium**: Indirect emissions are recalculated assuming 100% green electricity, reflecting the potential for aluminium producers to source renewable energy for their smelting operations.

Beyond these emission intensity adjustments, the transformation scenario also incorporates, for a set of countries, shifts in export volumes and production routes based on identified green investment projects. These include, for instance, the development of DRI-based steelmaking capacity, the emergence of green aluminium production, or the scaling up of green ammonia for fertilisers. For several countries, Morocco, Namibia, Ghana, Japan, Indonesia, South Korea, the Philippines, and China these adjustments are documented in dedicated country reports [1,2]. For a small number of additional countries, adjustments are based on internal assumptions not yet covered by a dedicated publication[1].

For all other countries and products not covered by the above, emission intensities and export volumes remain as calculated under the business-as-usual scenario.

CBAM scope and emission calculation methodology

The scenarios described above are applied across the different CBAM policy configurations available in the simulator. These include the current CBAM scope as well as several possible scope extensions.

[1] Specifically: green ammonia potential in Ukraine, NG-DRI assumptions for Russian flat steel, and a 50% shift to NG-DRI for Turkish flat steel exports.

Current CBAM scope

Good covered by the CBAM

The goods covered by the CBAM have remained the same since the regulation's entry into force in 2023 and are summarised in Table 1. They are identified by categories used by Europe's customs 'CN' nomenclature. The CBAM covers 576 of the 9,500 product categories traded by the EU, identified with 8-digit CN codes.

Table 2. Goods covered by the CBAM

Product category	Products
Aluminium	Unwrought aluminium, aluminium powders and flakes, and all kinds of aluminium products (including bars, rods, wires, plates, sheets, foils, tubes and pipes, tube and pipe fittings, structures, reservoirs, tanks, casks, drums, cans, boxes, other containers, and cables)
Chemicals	Hydrogen
Cement	Cement clinkers, white Portland cements, other Portland cements, aluminous cements, other hydraulic cements, other kaolinic clays
Electricity	Electrical energy
Fertilisers	Nitric acid, sulphonitric acids, urea, ammonia (anhydrous or in aqueous solutions), nitrates of potassium, mixed fertilisers (nitrogenous mineral and chemical fertilisers, and other fertilisers containing nitrogen, phosphorus and/or potassium)
Iron and Steel	Agglomerated iron ores and concentrates (other than roasted iron pyrites), pig iron, ferrous products obtained by DRI and other spongy ferrous products, crude steel, and all kinds of iron and steel products* (including bars, rods, rails, wires, tubes, pipes, sheets and other flat-rolled products, reservoirs, tanks, casks, drums, cans, boxes, containers, as well as screws, bolts, nuts, hooks, and rivets) – *except certain ferro-alloys (only ferro-manganese, ferro-chromium, and ferro-nickel are covered), and ferrous waste and scrap (including remelting scrap ingots and steel)

Source: Sandbag, summarised from European Commission (Annex I of the CBAM Regulation (EU) 2023/956)

Emission intensity calculations

The calculation made to estimate emission intensities of each product differs depending on the sector. Table 5 lists the calculations for each sector. The values in **blue** are inhouse calculations that vary depending on different parameters stated. Values were updated depending on the scenario.

Table 5. Emission intensity calculations per sector.

Sector	Formula	Explanation
Aluminium	$EI_{aluminium\ product} = EI_{unwrought\ aluminium} \times (1 - \%Scrap) + EI_{transformation}$	Where $EI_{unwrowght\ aluminium}$ include the EI of primary aluminium, so we we exclude the scrap content, and $EI_{transformation}$ is found by taking the difference $EI\ JRC_{product} - EI\ JRC_{unwrowght\ aluminium}$ between emission intensities given by JRC for unwrought aluminium (7601) and transformed products.

Iron and steel	$EI_{product} = EI_{BF-BOF} \times BF - BOF\ \% + EI_{DRI-EAF\ Gas-based} \times DRI - EAF\ Gas\ \% + EI_{DRI-EAF\ Coal-based} \times DRI - EAF\ Coal\ \% + EI_{Scrap\ EAF} \times Scrap\ EAF\ \% + EI_{Alloy} \times Alloy\ \% + EI_{rolling} + EI_{transformation}$	The percentages for BF-BOF, DRI-EAF (gas-based: 0.7 tCO_2/tonne steel, coal-based: 2.08 tCO_2/tonne steel), and EAF come from the Net Zero Industry Tracker. Direct emissions are calculated using the Sandbag methodology, JRC data, and Chinese industry reports, incorporating scrap rates (e.g., 20% in BF-BOF). Alloy rates are either 1% or 10% for non-stainless and stainless products. $EI_{transformation}$ is found by taking the difference between emission intensities given by the JRC for basis steel product and transformed products
Cement	$EI_{cement\ product} = EI_{clinker} \times Clinker\ to\ cement\ ratio + Indirect\ EI$	Where $EI_{clinker}$ and $Clinker\ to\ cement\ ratio$ and $Indirect\ EI$ varies depending on the trading partner, the latter depends on the partner's energy mix.
Fertilisers	$EI_{fertiliser\ product} = {\left(EI\ JRC_{fertiliser\ product} + EI\ JRC_{diammonium\ phosphate}\right)}/{2}$	The values used for fertilisers are those given by JRC, except for the products containing nitrogen, nitrates, phosphates, and potassium, for which we use the average between JRC values and the value of diammonium phosphate (31053000). This is because for these CN codes which group several products, JRC selected the EI of the most emission intensive value products. In contrast, we assume that the products can equally be the most or the least emission intensive ones.

Key modelling assumptions and data sources

Reference countries and proxies

Aluminium

Emission intensities and scrap content are not available for all trading partners. Therefore, a set of reference regions was defined and each country was assigned to the most appropriate reference region based on geographical proximity and production characteristics.

The reference regions used are: China, Europe, Japan, United States, South America, Middle East, Oceania, and Other Asia.
Countries were mapped as follows:

- European countries were assigned to Europe.
- Countries in Western Asia were assigned to the Middle East.
- Countries in South America were assigned to South America.
- Australia and New Zealand were assigned to Oceania.
- Japan and South Korea were assigned to Japan.
- Countries in Southern Asia and South-Eastern Asia were assigned to China.
- Remaining countries in Eastern Asia were also assigned to China.
- Other Asian countries were assigned to Other Asia.

Scrap shares are available for these reference regions and are applied to all countries assigned to the corresponding region.
The JRC dataset provides emission intensity values only for a limited number of countries. The following proxies were therefore used:

- United States values were applied to both the United States and South America reference regions.
- United Arab Emirates values were used for the Middle East.
- Europe values were used for all European countries.
- The JRC weighted average was used for Japan and Other Asia.
- Emission intensities for China were obtained from an external source.

Iron and steel

Steel emission intensities are calculated by combining the emissions associated with each production route according to the country-specific production mix presented in Table 3.

For the **BF–BOF** route, the emission intensity is derived from the JRC (2023) emission intensity for **pig iron**. The blast furnace gas (BFG) contribution included in the JRC value is removed. Scrap input is then accounted for using a default scrap rate of **0.232 t of scrap per tonne of steel** (corresponding to **1.1 tonnes of metallic input**), except for the United States (**0.25 t/t**) and China (**0.11 t/t**), where country-specific values are used. Finally, the emissions associated with the **basic oxygen furnace (BOF)** process are added to obtain the BF–BOF emission intensity. For countries not covered by the JRC (2023), a proxy equal to the median BF–BOF emission intensity of **1.5712 tCO_2 per tonne of steel** (before rolling) is applied.

For the **gas-based DRI–EAF** route, emission intensities are taken from the JRC (2023) using product **CN 7203** ("Ferrous products obtained by direct reduction of iron ore and other spongy ferrous products"). When no country-specific JRC value is available, the **United States value of 0.63 tCO_2 per tonne** is used as a proxy.
For the **coal-based DRI–EAF** route, a fixed emission intensity of **2.080 tCO_2 per tonne of steel** is assumed.

For the **scrap EAF** route, emission intensities are taken from the JRC (2022). When no country-specific value is available, a proxy of **0.040 tCO_2 per tonne of steel** is used.

The final emission intensity of each steel product is obtained by combining the emission intensities of the individual production routes according to the country-specific production shares (Table 3), adding rolling emissions, alloy emissions where applicable, and the product-specific transformation emissions.

Assumed values of key parameters

Table 1. Scrap use in Aluminium production

Country	PR China	Japan	US	Oceania	Ukraine	South America	Middle East	Other Asia	North America
Scrap content in aluminium production	28.0%	86%	58.1%	5.1%	61.0%	57.5%	7.4%	59.6%	58.1%

Source: World Aluminium, Global Aluminium cycle 2023, Caixin Global, WEF, JRC

Table 2. Share of scrap in steel products by product type

Country	PR China	EU	India	Japan	US	Russia	S. Korea	Turkey	Brazil	Iran
Scrap per ton of long products	27.38%	98.83%	45.00%	72.47%	95.27%	57.33%	100%	92.67%	52.33 %	1.11%
Scrap per ton of flat products	10.00%	26.71%	21.09%	21.09%	67.02%	21.09%	21.09%	21.09%	21.09 %	19.88%
Country	**Ukraine**	**Mexico**	**Vietnam**	**Canada**	**Malaysia**	**Indonesia**	**Saudi Arabia**	**Egypt**	**UK**	**Bangladesh**
Scrap per ton of long products	26.19%	62.54%	58.50%	68.76%	87.94%	50.65%	12.62%	53.35%	80.33 %	98.71%
Scrap per ton of flat products	21.09%	43.81%	21.09%	28.33%	51.75%	21.09%	12.62%	37.90%	21.09 %	21.09%

Source: netzeroindustry, Global Energy monitor, worldsteel

Table 3. Percentage of steel production routes

Country	PR China	EU	India	Japan	US	Russia	South Korea	Turkey	Brazil	Iran

% BOF	90.3%	56.6%	61.0%	74.0%	27.4%	63.8%	66.4%	35.1%	82.8%	17.5%
% DRI Coal-based EAF	0.01%	0.0%	11.3%	0.0%	0.0%	1.9%	0.0%	0.0%	0.0%	0.0%
% DRI Gas-based EAF	0.0%	0.5%	0.0%	0.0%	3.4%	13.0%	0.0%	0.0%	0.0%	81.5%
% scrap EAF	9.6%	42.9%	27.7%	26.0%	69.2%	21.4%	33.6%	64.9%	17.2%	0.9%
Country	**Ukraine**	**Mexico**	**Viet Nam**	**Canada**	**Malaysia**	**Indonesia**	**Saudi Arabia**	**Egypt**	**UK**	**Bangladesh**
% BOF	94.7%	19.1%	66.8%	55.1%	27.1%	69.5%	0.0%	8.9%	73.7%	20.0%
% DRI Coal-based EAF	0.0%	15.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
% DRI Gas-based EAF	0.0%	15.1%	0.0%	14.0%	8.8%	0.0%	87.4%	42.5%	0.0%	0.0%
% scrap EAF	5.3%	50.6%	33.2%	30.9%	64.1%	30.5%	12.6%	48.6%	26.3%	80.0%

Source: netzeroindustry, IE, Global Energy monitor, worldsteel

Table 4. Clinker-to-cement ratio

Country	Russia	United States	PR China	World average
Clinker to cement ratio	83%	65%	68%	71%

Source: IEA, CemBR, R. Andrew (2019)

Scope extensions: products within existing sectors

New products within existing CBAM sectors: precursors

Iron and steel: Inclusion of lime, coke and additional ferroalloys

We used the following formula to update the emission intensities for steel products following the BF-BOF production route:

$$\begin{aligned} EI_{BF-BOF\ (with\ precursors)} &= EI_{BF-BOF\ (current\ scope)} + Alloy\ \% \times \left(EI_{Alloy\ (including\ precursors)} - EI_{Alloy\ (current\ scope)}\right) \\ &+ pig\ iron\ \% \times \left(Lime\ CI_{per\ ton\ of\ steel} + Coking\ Coal\ CI_{per\ ton\ of\ steel}\right) \end{aligned}$$

For lime and coke, we used weighted average values from EU installations[2]. For the calculation of $EI_{Alloy\ (including\ precursors)}$, we considered the ferro alloys already considered in the current scope (ferro-manganese, ferro-chromium and ferro-nickel) and added ferro-silicon and silicomanganese, using life cycle assessments for ferroalloy production[3].

Aluminium: Inclusion of pre-bake anode

[2] European Commission, (2021), Update of benchmark values for the years 2021 – 2025 of phase 4 of the EU ETS Benchmark curves and key parameters

[3] Haque, Norgate (2012) Estimation of greenhouse gas emissions from ferroalloy production using life cycle assessment with particular reference to Australia

We used the following formula to update emission intensities for aluminium products:

$$EI_{Aluminium\ (with\ precursors)} = EI_{Aluminium\ (current\ scope)} + EI_{pre-bake\ anode} \times (1 - \%Scrap)$$

in which values linked to pre-bake anode production were taken from an EU27 aluminium benchmark study ordered by the EC[4].

New products within existing CBAM sectors: downstream products

The European Commission has proposed an amendment to the CBAM Regulation[5] detailing a vertical extension to **178 downstream products made from steel and aluminium products**. This would broaden CBAM coverage further along the value chain in the iron and steel and aluminium sectors. On 12 June, the European Council proposed to extend that list to a total of 200 products, however, our extension scenario does not take these into account.

Indirect emissions

For cement and fertilisers, indirect emissions are already included in the existing scope of CBAM calculations. The methodology for calculating indirect emissions relies on country-specific carbon intensity factors for electricity. These factors are derived using data from Ember, which calculates grid intensity using electricity production data by fuel type sourced from the International Energy Agency (IEA). This approach ensures that the emissions factors reflect the specific energy mix and carbon intensity of electricity generation in each country. Electricity consumption per tonne of production varies significantly depending on the technology used.

Table 8. Electricity consumption in aluminium sector per tonne of production by technology

Route	GJ/tonne of Aluminium
Primary route (bauxite smelting)	58
Secondary route (using recycled scrap)	0.45

Source: ACT

Table 9. Electricity consumption in iron and steel sector per tonne of production by technology

Technology	GJ/tonne of Steel
BF-BOF*	0.28
DRI-EAF	2.07
Scrap-EAF	1.73

* Bear in mind that there can be up to 20% scrap on this route.

Source: JRC

To calculate indirect emissions, the electricity consumption values are multiplied by the grid intensity factor specific to each country and weighted by the share of technology used (or the percentage of scrap utilised). For primary products, this yields the indirect emissions per tonne. For sub-products, the same methodology is applied as for direct emissions, ensuring consistency across the calculation process.

Products from new sectors: organic chemicals, polymers, refinery products

Determining the emissions intensities of chemicals is notoriously challenging, primarily due to the complexity of value chains, simultaneous production of different chemicals and lack of publicly available data. The chemical industry varies also with regions mainly due to the availability of certain types of feedstocks. For example, chemical production from coal is more common in China and South Africa, while natural gas is becoming more common in the US due to increased availability of shale gas.[6]

We have mapped the EI of key chemicals, upstream refinery products, and downstream polymers to the list of goods traded. Due to the lack of available country-specific data, we have used assumptions to estimate the EI of

[4] Ecofys, Fraunhofer, Öko (2009) Methodology for the free allocation of emission allowances in the EU ETS post 2012. Sector report for the aluminium industry

[5] European Commission (2023), REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

[6] Basic Chemicals Background Paper, The Basic Chemicals Eligibility Criteria of the Climate Bonds Standard & Certification Scheme

traded goods where necessary. In cases where the CN code refers to a group of polymers for example, EI of a representative polymer in this group has been used, with justification.

Refinery products. The 17 finished products of Concawe's linear programming model were distributed to 9 main categories (LPG, Naphtha, Gasoline, Kerosene, Diesel, HO Marine DSL, DMF RMF 0.5%S, HSFO). The EU averages used were the results of the modelling performed in the Concawe study calculating the emissions associated with the refining step of the production process (excluding upstream and downstream emissions). The non-EU EIs for all refinery products were estimated based on the ratio between the EU average (Concawe) and global average[7] EI of naphtha.

Chemicals. The emissions intensities used for the EU are the weighted average GHG emissions intensity of chemicals produced by all EU installations in 2016/2017, as reported in the EU benchmarking.[8] The values include all production-related direct emissions (the process direct emissions and the emissions due to fuel use for energy production), as well as the embedded emissions of the fossil feedstock.

Emissions associated with steam cracking products in non-EU countries are estimated using the ratios of ethylene EI in different regions, as reported in the IPCC's Emissions Factor Database.[9] The global emissions intensity of methanol was also taken from the IPCC database.

Polymers. The emissions associated with crude oil production have been subtracted from the figures reported in the Eionet study as these emissions lie outside the scope of the ETS. An approximation of the embedded emissions associated with refining and steam cracking to produce the polymer feedstocks are included in the figures, however.

For each polymer, the non-EU EI was estimated using global emissions associated with production of each polymer (estimated by Zheng and Suh, 2019)[10] and production figures reported by Plastic Europe.[11]

The new basis products added for the new sectors' scope are listed in Annex .

CBAM cost calculation

CBAM Fees calculation

Gross CBAM fees are estimated from the embedded emissions of imported goods. Embedded emissions are calculated as the product of the emission intensity and imported quantity. The number of CBAM certificates to be surrendered is then adjusted according to the applicable free allocation phase-out and any carbon price effectively paid in the country of origin before being multiplied by the assumed carbon price **(€80/tCO_2)**.

$$\text{Gross CBAM Fees} = \text{EI}_{\text{product}} \times \text{Imported quantity } \times \text{CBAM certificate price}$$

Calculation of phase-out period

The CBAM requires importers to surrender CBAM certificates based on emissions of goods imported in the previous calendar year. The number of certificates to surrender equals the embedded emissions, reduced by the specific

[7] Eionet, 2021, Greenhouse gas emissions and natural capital implications of plastics (including biobased plastics)
[8] European Commission, 2021, Update of benchmark values for the years 2021 – 2025 of phase 4 of the EU ETS Benchmark curves and key parameters
[9] IPCC, 2006
[10] Zheng, J., Suh, S. Strategies to reduce the global carbon footprint of plastics. Nat. Clim. Chang. 9, 374–378 (2019).
[11] Plastics Europe, 2022, Plastics – the Facts 2022

embedded free allocation (SEFA) — reflecting the free allowances that equivalent EU producers would receive under the EU ETS — and further reduced by any carbon price already paid in the country of origin. As free allocation for EU producers is gradually phased out between 2026 and 2034, CBAM fees will correspondingly increase, Figure 2.

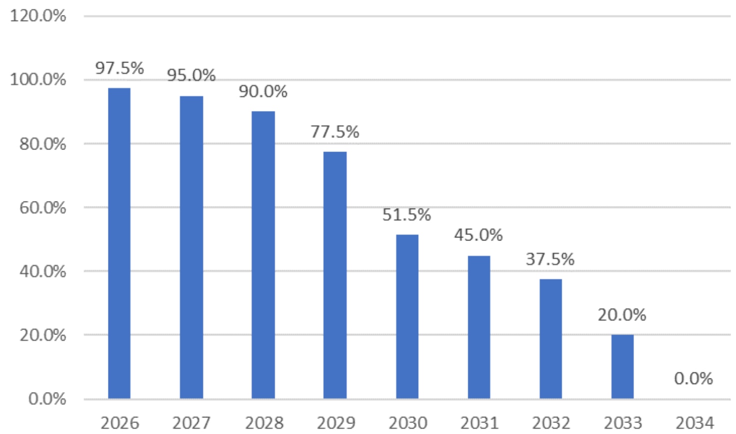

Figure 2. CBAM factor = free allocation in the EU ETS as proportion of product benchmarks

The calculation method for the free allocation discount over 2026-2033 was clarified in December 2025. Rather than exactly mirroring how free allocation is granted to EU plants (likely to close potential loopholes), it relies on a formula based on **CBAM benchmarks**, which vary by product type (simple or complex), year, production route, and whether actual data or default values are used.
In the simulator, calculations are based on actual data, using the production-route percentages described above (see table with values by country and corresponding sources).
For the **"Ambitious" scenario**, we applied a gradual transition from the Business-as-usual (BAU) production mix to the Ambitious mix: 100% BAU in 2026, then shifting by 12.5 percentage points per year (12.5% Ambitious / 87.5% BAU in the first year, and so on) until reaching 100% Ambitious in 2034. This progressive ramp-up is intended to reflect the fact that changes in export production routes typically take time to materialize, even under an ambitious trajectory.

Discount for carbon price paid in country

According to the CBAM Regulation, declarants will be able to claim a reduction from to the number of CBAM certificates to be surrendered in order to take into account the carbon price “effectively paid” in the country of origin[12] of the goods. A legislative proposal was made on 13 May 2026, starting a 4-week public consultation (until 10 June) before adoption of the text.

Net costs: accounting for EU price increases

An important but often overlooked aspect of the CBAM is that amount of fees paid does not necessarily correspond to the actual economic burden borne by exporters. This is because the CBAM is introduced in parallel with the gradual phase-out of free allocation under the EU ETS, which raises the carbon cost borne by EU producers as well. EU market prices adjust upwards as both imported and domestic supply become more expensive.
Figure 2 illustrates this mechanism. The initial price P0 is set by the intersection of the demand and supply curves while EU producers still receive free emission allowances. Once the CBAM is introduced, EU producers face increased production costs as free allowances are removed under the EU ETS. This shifts the supply curve upward.

[12] Article 9 of the CBAM Regulation

The new equilibrium emerges at a higher price level, **P1**, and a lower traded quantity, **Q1**, which reflects reduced demand when prices are higher.

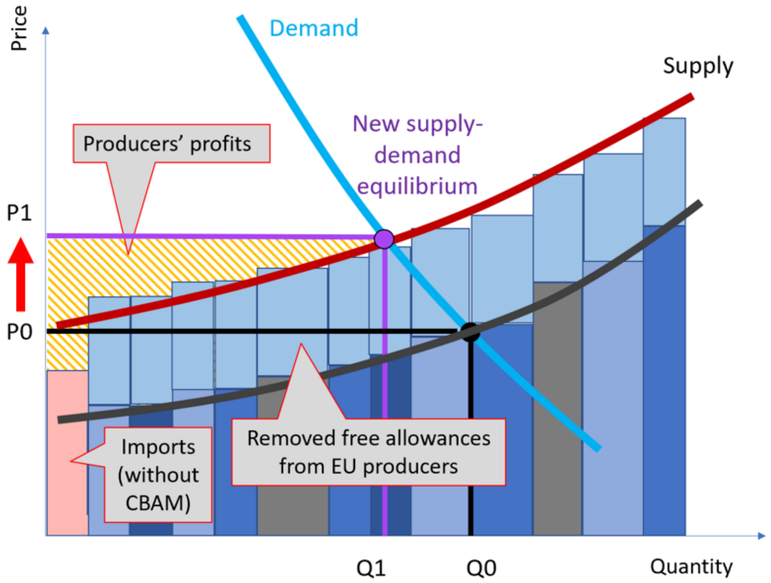

Figure 1. Cost curve for of EU products and imports

Higher EU selling prices allow exporters to recover part of their CBAM costs through higher revenues. This creates a countervailing effect: if the additional revenues from higher prices exceed the CBAM fees paid, **exporters may experience a net benefit**.

Calculation of Price Increase

Free allowances phased out

As **free allowances are phased out** under the EU ETS, EU-based factories will face increasing carbon costs. These costs will likely be passed on to customers, depending on demand elasticity and the effectiveness of CBAM at reflecting EU carbon prices. Based on previous research and the anti-circumvention provisions in the CBAM regulation, we assume a **cost pass-through rate of 80%**. In other words, CBAM goods will be sold in the EU at a **premium equal to 80% of average ETS costs**.

Free allowance values are taken from the 2026 CBAM benchmark values published by the European Commission, in accordance with Commission Implementing Regulation (EU) 2025/2621 laying down rules for the application of Regulation (EU) 2023/956 as regards the calculation of the free allocation adjustment to the number of CBAM certificates to be surrendered.

For the calculations, we assumed a **price of €80 per European emission allowance**, close to the market price in February 2025. No adjustments for potential future market changes were included, given the uncertainty about the EU ETS cap and the use of carbon credits after 2030.

Calculation of cost increase for indirect emissions

EU-located plant operators also bear **indirect carbon costs** through electricity consumption. Member States are authorized to compensate for these costs using a **compensation mechanism**. **Indirect Cost Compensation (ICC)** is defined by the formula:

$$\mathrm{ICC} = 75\% \times C_t \times P_{t-1} \times E \times AO_t$$

Variables:

- C_t: Fossil-based CO_2 emission factor as defined in the State Aid Guidelines (tCO_2/MWh). For Germany, Austria, and Luxembourg, this is 0.72 tCO_2/MWh.
- P_{t-1}: EUA forward price in year t-1, assumed €80**.**
- E: Product-specific electricity consumption efficiency benchmark.
- AO_t: Actual output in year t.

ICC covers **75% of total indirect carbon costs**. ~~**The remaining 25% not compensated** is included in the unit carbon costs for EU producers.~~

If indirect emissions were covered by the CBAM, indirect cost compensation (ICC) would likely be phased out in the EU and the generalised increase in cost for electricity users would mostly be passed through to customers, leading to higher sale prices. So net costs are calculated as:

$$Net\ CBAM\ costs = CBAM\ fees - revenues\ from\ price\ effect$$

To calculate the price increase caused by the end of ICC, we used the following formula:

$$Price\ effect = pass_{through} rate\ \times ICC$$

where ICC is given by the formula in the part above and **pass-through rate** is assumed to be **80%**, i.e. the same as was used to estimate the price increase caused by free allocation phaseout.

Annexe

Table 10. List of basis products for new sectors scope

Sector	Basis product	CN-8 Code	Product description	Justification for adding (March 2026)
Refinery	Naphtha	27101211	Light oils of petroleum or bituminous minerals for undergoing a specific process as defined in Additional Note 5 to chapter 27 (excl. containing biodiesel)	-
		27101225	Special spirits (excl. white spirit) of petroleum or bituminous minerals	Highly traded, similar to naphtha (commonly known as specialized naphtha or petroleum ether)
		27101290	Light oils and preparations, of petroleum or bituminous minerals, n.e.s. (excl. containing biodiesel, for undergoing chemical transformation, and special spirits, motor spirit and spirit type jet fuel)	Light fraction, could be considered close to gasoline
		27101999	Lubricating oils and other heavy oils and preparations n.e.s., containing by weight >= 70% of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations (excl. for undergoing chemical transformation)(2012-2500);Lubricating oils and other heavy oils and preparations n.e.s., containing by weight >= 70% of petroleum oils or of oils obtained from bituminous	Catch-all category for other petroleum oils not more specifically classified, best to consider equivalent to naphtha to avoid circumvention

			minerals, these oils being the basic constituents of the preparations (excl. for undergoing chemical transformation or the specific processes specified in Additional Note 4 to chapter 27)(2002-2011)	
	Gasoline	27101241	Motor spirit, with a lead content <= 0,013 g/l, with a research octane number "RON" of < 95 (excl. containing biodiesel)	-
		27101245	Motor spirit, with a lead content <= 0,013 g/l, with a research octane number "RON" of >= 95 but < 98 (excl. containing biodiesel)	Similar to gasoline
		27101249	Motor spirit, with a lead content <= 0,013 g/l, with a research octane number "RON" of >= 98 (excl. containing biodiesel)	Not one of the most highly traded, but included due to similarity, possibility for circumvention etc
	Kerosene	27101921	Jet fuel, kerosene type	
		27101931	Gas oils of petroleum or bituminous minerals for undergoing a specific process as defined in Additional Note 5 to chapter 27	Boiling range above gasoline/naphtha and below diesel/gasoil- similar to kerosene
	Diesel	27101943	Gas oils of petroleum or bituminous minerals, with a sulphur content of <= 0,001% by weight (excl. containing biodiesel, and for undergoing chemical transformation)	-
		27101947	Gas oils of petroleum or bituminous minerals, with a sulphur content of > 0,002% but <= 0,1% by weight (excl. containing biodiesel, and for undergoing chemical transformation)	Highly traded Middle distillates / gas oil-type streams, most like diesel
	HO marine DSL	27101962	Fuel oils obtained from bituminous materials, with a sulphur content of <= 0,1% by weight (excl. for undergoing chemical transformation, and containing biodiesel)	-
		27101951	Fuel oils of petroleum or bituminous minerals for undergoing a specific process as defined in Additional Note 5 to chapter 27 (excl. containing biodiesel)	"19" group = heavier fractions (not naphtha/gasoline) and "5x" range within 271019 typically points to fuel oils rather than distillates, in the range typically used for heavy fuel oils / residual fuels
	DMF RMF	27101966	Fuel oils obtained from bituminous materials, with a sulphur content of > 0,1% but <= 0,5% by weight (excl. for undergoing chemical transformation, and containing biodiesel)	-
	LPG	27111211	Propane of a purity of >= 99%, for use as a power or heating fuel, liquefied	-
Organic chemicals	Ethylene	29012100	Ethylene(2004-2500);Ethylene(1988-1994)	
	Propylene	29012200	Propene "propylene"(2004-2500);Propene 'propylene'(1988-1994)	
	Butadiene	29012400	Buta-1,3-diene and isoprene(2009-2500);Buta-1,3-diene and isoprene(1988-1993)	

	Butene	29010000	Butene "butylene" and isomers thereof(2009-2500);Butene 'butylene' and isomers thereof(1988-1993)	
	Benzene	29022000	Benzene	
	Toluene	29023000	Toluene	
	Xylenes	29024X00	o-Xylene, m-Xylene, p-Xylene, and Mixed xylene isomers	
	Styrene	29025000	Styrene	
	Vinyl chloride monomer	29032100	Vinyl chloride "chloroethylene"	
	Methanol	29051100	Methanol "methyl alcohol"	
	Monoethylene glycol	29053100	Ethylene glycol "ethanediol"	
	Ethylene oxide	29101000	Oxirane "ethylene oxide"	
Polymers	Polyethylene, low density	39011090	Polyethylene with a specific gravity of < 0,94, in primary forms (excl. linear polyethylene)	
		39011010	Linear polyethylene with a specific gravity of < 0,94, in primary forms	Highly traded Assumed to be similar to 39011090
	Polyethylene, high density	39012090	Polyethylene with a specific gravity of >= 0,94, in primary forms (excl. polyethylene in blocks of irregular shape, lumps, powders, granules, flakes and similar bulk forms, of a specific gravity of >= 0,958 at 23Ã‚Â°C, containing <= 50 mg/kg of aluminium, <= 2 mg/kg of calcium, of chromium, of iron, of nickel and of titanium each and <= 8 mg/kg of vanadium, for the manufacture of chlorosulphonated polyethylene)	
	Polypropylene	39021000	Polypropylene, in primary forms	
	Polystyrene	39031900	Polystyrene, in primary forms (excl. expansible)	
		39039090	Polymers of styrene, in primary forms (excl. polystyrene, styrene-acrylonitrile copolymers "SAN", acrylonitrile-butadiene-styrene "ABS", copolymer solely of styrene with allyl alcohol, of an acetyl value of >= 175 and brominated polystyrene, containing by weight >= 58% but <= 71% of bromine, in blocks of irregular shape, lumps, powders, granules, flakes and similar bulk forms)	Fairly highly traded
	Polyvinylchloride	39041000	Poly"vinyl chloride", in primary forms, not mixed with any other substances	
		39042200	Plasticised poly"vinyl chloride", in primary forms, mixed with other substances	Avoid circumvention

		39042100	Non-plasticised poly"vinyl chloride", in primary forms, mixed with other substances	Avoid circumvention
	Polyethylene terephthalate	39076100	Poly"ethylene terephthalate", in primary forms, having a viscosity number of >= 78 ml/g	
	Polyurethane	39095090	Polyurethanes in primary forms (excl. polyurethane of 2,2'-"tert-butylimino"diethanol and 4,4'-methylenedicyclohexyl diisocyanate, in the form of a solution in N,N-dimethylacetamide)	

Source: Sandbag, Combined Nomenclature (CN) - Goods categorisation