

CBAM: A Compliance Guide for Manufacturers & Exporters

An end-to-end guide to CBAM implementation,
compliance requirements and cost exposure in 2026

About the Author

Jack is a technical specialist in CarbonChain’s carbon team, with a background in environmental science and experience as an environmental advisor specialising in carbon. He focuses on carbon accounting, emissions analysis, and CBAM, helping organisations navigate regulatory complexity and deliver credible, decision-ready carbon data.



Jack Laing
Carbon Specialist,
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Executive Summary

I've worked in supply chain operations for over two decades. Regulations come and go but CBAM is different.

I've never seen anything of this scale unfold so quickly, or with such direct commercial consequence. Under CBAM, carbon data has moved decisively from the margins of ESG reporting into the core of commercial decision-making. It now sits squarely within cost of goods sold, directly influencing landed price and margin in ways procurement teams can no longer treat as peripheral.

This shift is amplified by how default values work. They're punitive by design. Where importers cannot obtain verified, installation-level emissions data, they must fall back on EU-published default intensities, and those defaults are deliberately conservative. In steel alone, the spread between lower and higher default intensities can translate into very significant cost differentials at prevailing carbon prices. In practice, that differential can outweigh freight advantages or marginal price discounts. Two products that look identical on a technical specification sheet are no longer commercially interchangeable once CBAM is applied.

The supply chain implications are subtle but profound. EU buyers increasingly require verified, installation-specific data from upstream producers to avoid default exposure, yet many producers are still building the monitoring systems, data controls and verification pathways CBAM demands. Verification itself cannot be completed until after the production year closes, and accredited capacity is finite. That creates structural timing pressure running through global supply chains that won't resolve itself easily.

The result is not administrative friction. It is a gradual re-segmentation of markets. Producers who can provide timely, verified emissions data gain a structural commercial advantage. Those who cannot may find themselves priced on conservative assumptions regardless of their actual performance, a compounding disadvantage as carbon prices rise toward 2034.

CBAM is not a transient disclosure regime. It is embedded in EU re-industrialisation policy and trade architecture, with expansion into downstream goods already signalled from 2028. Carbon efficiency and data credibility are becoming competitive variables in their own right. For importers, procurement strategy must now integrate carbon data quality, verification risk and carbon price volatility alongside traditional commercial metrics. And the companies building that capability now are not early adopters. They're simply ahead of the curve that everyone else is about to hit.

Installation-level carbon accounting is now a condition of market access. If you're manufacturing or exporting CBAM goods, this report is for you.



Adam Hearne

Co-founder & CEO,
CarbonChain

CBAM has become the price of access to the EU. Producers able to provide timely, verified emissions data gain a structural commercial advantage.

”

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Why We Decided To Write A Guide For Producers

We decided to write this producer-facing report because the market conversation around CBAM has focused disproportionately on importers, while underestimating how fundamentally it will reshape the competitive position of producers selling into Europe.

From 2026 onwards, carbon intensity is no longer a peripheral sustainability metric but a direct input into landed cost, procurement strategy and supplier selection, and yet many producers continue to treat CBAM as an administrative request rather than a structural commercial variable. Across the market, we see persistent gaps between what EU buyers now require, what producers believe is compliant, and what is in fact verification-ready under ETS-aligned rules. With UK CBAM at our heels, it's important to get ahead on what expectations are, what is unacceptable and how to improve your data management and emissions strategy, aligning it with the new world order.

We also find that confusion between EPDs, LCAs and CBAM methodologies remains widespread, and the financial implications of default values are not fully appreciated. Furthermore, verification concerns are chronic and many producers lack awareness of the complexities and intricacies of obtaining verification over their data.

This report is therefore intended as a practical guide for producers who want to compete, not merely comply, using credible, installation-level carbon data as a source of commercial advantage in the European market.



Nick Ogilvie

Product Manager & CBAM Lead,
CarbonChain

If you're a producer of CBAM goods anywhere in the world, this is the only report you need to read; whether you're ready to comply, still checking exposure of your supply chains or forecasting future cost.

”

A background image showing a close-up of a dark, textured industrial smokestack on the left, with thick, billowing white and grey smoke rising from it against a hazy, orange-brown sky. The smoke has a soft, painterly texture.

CBAM Basics

01

What Is CBAM?

CBAM is the EU's carbon border policy, designed to ensure that carbon-intensive imports face a fair, equivalent carbon price to goods produced inside the EU under the EU Emissions Trading System (EU ETS). CBAM aims to prevent carbon leakage, protect the competitiveness of EU industries and encourage adoption of lower carbon production globally.

CBAM started with a transitional reporting period, but in 2026 it becomes fully operational: importers must calculate emissions and surrender CBAM certificates.

It has three core objectives:

1. Prevent carbon leakage: stopping production from shifting to countries with weaker climate rules.
2. Protect EU industry: levelling the carbon-cost playing field.
3. Accelerate global decarbonisation: rewarding lower-emission producers worldwide.

The UK is introducing its own CBAM from 1 January 2027. It aligns with the EU in principle but will have:

- ✓ its own in-scope goods list
- ✓ its own carbon benchmark system
- ✓ its own reporting and price-setting
- ✓ its own link to the UK ETS

[UK CBAM](#) will follow a similar structure. It is scheduled to come into effect from 2027, with details still emerging. Both regimes share the same goal: a fair and transparent carbon price on imported goods.

[UK CBAM Guide](#)[EU CBAM Guide](#)

Don't forget to check out our Bonus Resources section at the end of the document for further reading!

EU Carbon Border Adjustment Mechanism

Scope of Coverage

IN FORCE

Phase 1 — Current CBAM Sectors

Sector	Sub-Categories			
 Iron and Steel	Sintered Ore (1)	Pig Iron (10)	FeMn (4)	FeCr (7)
	FeNi (1)	DRI (3)	Crude Steel (50)	Iron & Steel Products (553)
 Aluminum	Unwrought Al (8)	Al Products (74)		
 Fertilisers	Nitric Acid (1)	Urea (3)	Ammonia (3)	Mixed Fertilisers (26)
 Cement	Calcined Clay (1)	Cement Clinker (1)	Cement (3)	Aluminous Cement (1)
 Electricity	Electricity (1)			
 Hydrogen	Hydrogen (1)			

PROPOSED

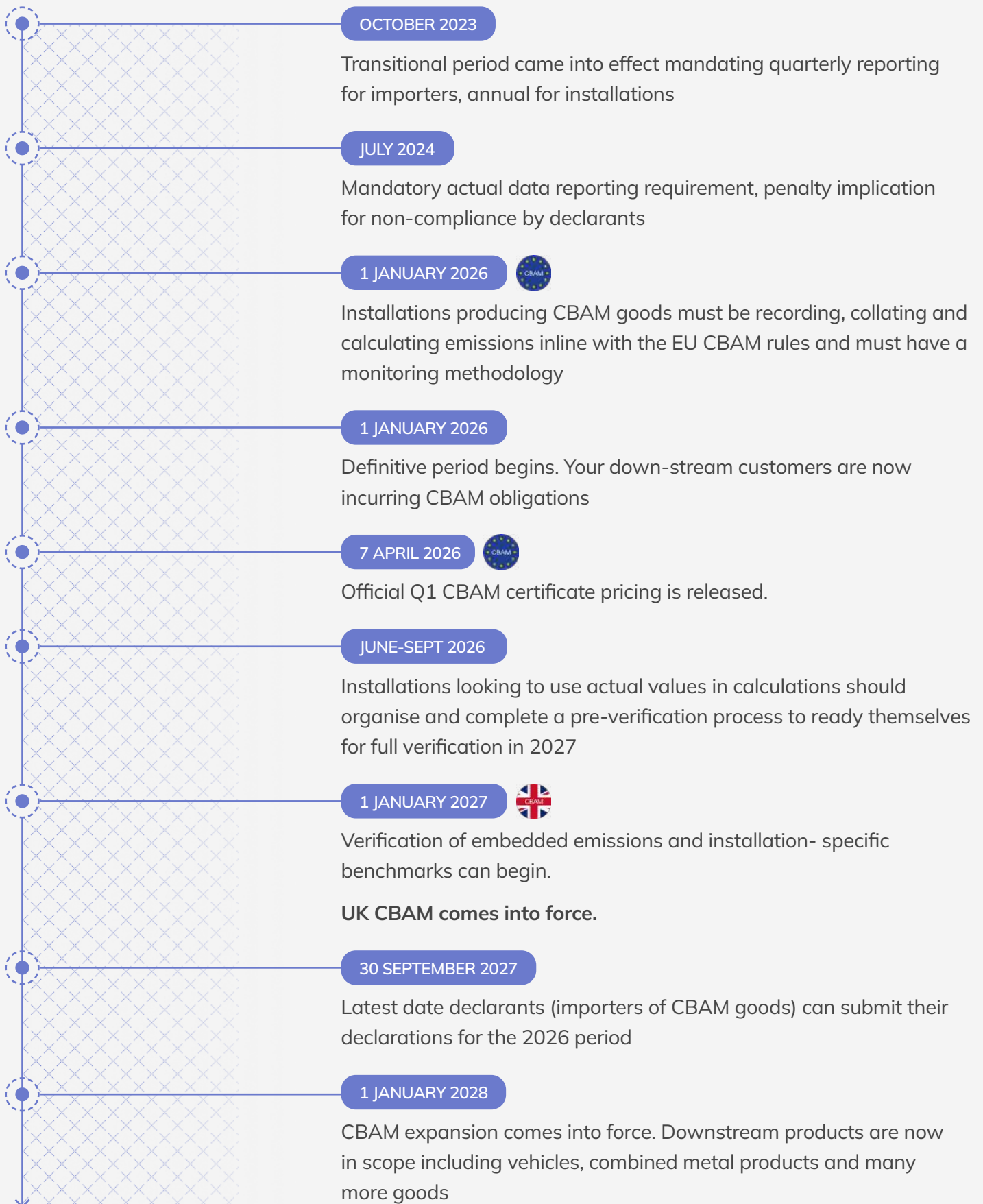
Proposed Expansion of Scope — from 1 Jan 2028

~180 new product categories · ~7,500 additional importers · CO₂ & PFC emissions

The European Commission published a proposal on 17 December 2025 to expand CBAM scope downstream, covering manufactured goods with embedded carbon from Phase 1 materials. If adopted, the expansion would apply from 1 January 2028. Both CO₂ and PFC emissions will be reportable where relevant, bringing around 7,500 additional importers into scope across ~180 new CN categories.

Category	Example products	CN Chapter Codes
Steel Products	Pipes, tubes, fittings, rails for structural steel across a wide range of categories.	7301, 7302, 7303, 7304, 7305, 7306, 7307, 7308, 7309, 7310, 7312, 7314, 7318
Combined Metal	Grills, nettings, fences, caps, lids, engine pistons, furnace burners, fridge/freezers, winches, elevators.	7314, 7317, 7415, 8302, 8309, 8408, 8413, 8416, 8418, 8419, 8420, 8421
Broad Machinery	Industrial robots, tamping / lifting machines, machinery parts, washers/ dryers, agricultural machinery.	8424, 8425, 8426, 8427, 8428, 8430, 8431, 8432, 8450, 8451, 8454, 8464, 8474, 8479
Vehicles & Parts	Motors, transformers, gears, radiators, suspension, wheels, vehicle bodies, trailers, chassis, motor vehicles.	8501, 8504, 8515, 8704, 8706, 8707, 8708, 8716, 9018, 9401, 9403

CBAM Timeline



How CBAM Mirrors The EU ETS

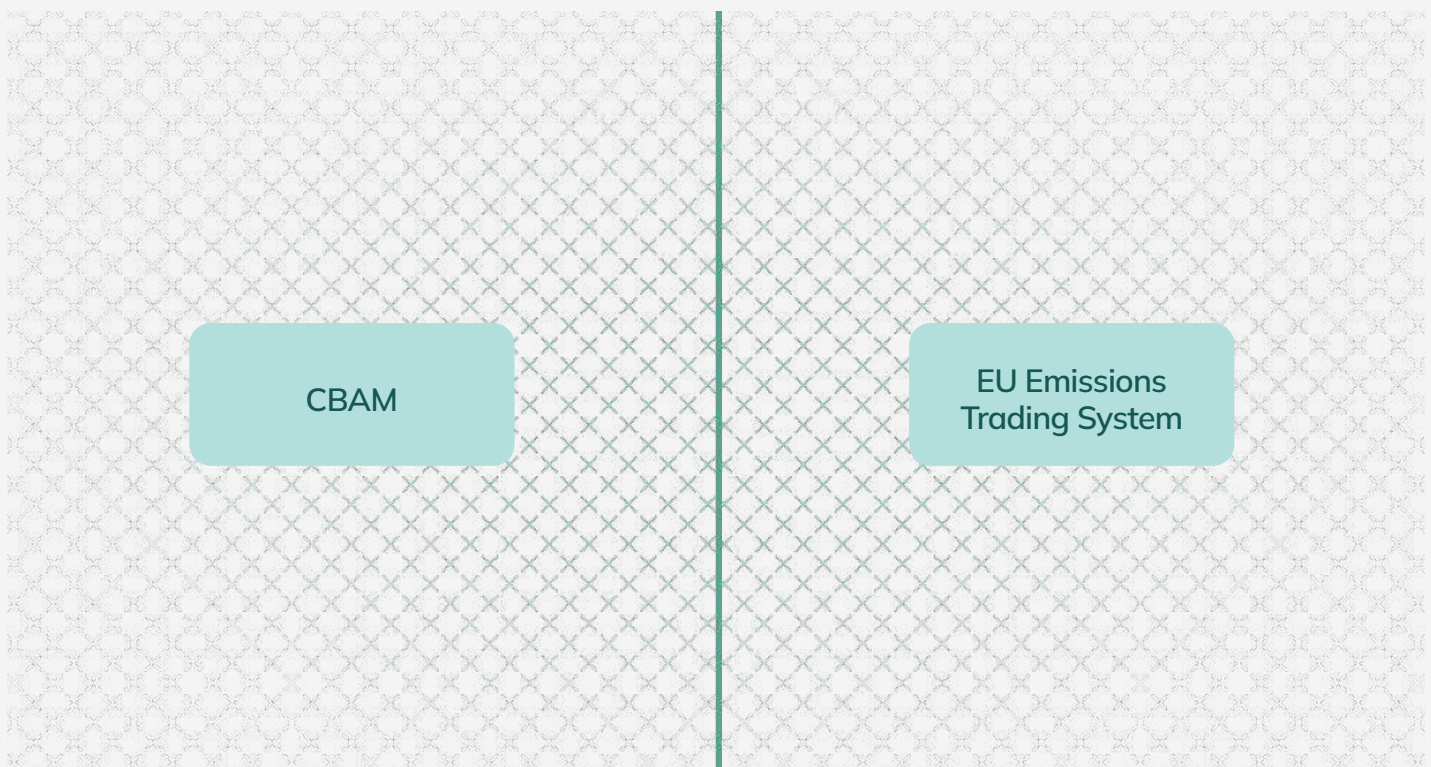
CBAM is designed to mirror the EU Emissions Trading System by applying an equivalent carbon price to imported goods. The objective is to ensure that imported products face a carbon cost comparable to goods produced within the EU.

In simplified terms, CBAM liability is calculated as total embedded emissions associated with the imported goods minus a free allocation adjustment and minus any recognised carbon price already paid in the country of origin. Each of these components is governed by detailed technical rules set out in EU legislation and implementing acts.

Embedded emissions are calculated by adding the emissions of precursors (input materials) that an installation purchases to produce its products with the emissions that installation creates in production.

CBAM liability is calculated using embedded emissions figures minus the CBAM benchmark. These benchmarks are derived from EU ETS benchmarks and are specific to product categories, production routes, and in some cases product composition. Embedded emissions may be calculated using either actual values or default values. Actual values rely on verified installation-level data, while default values rely on assumptions based on CN codes, country of origin, and default production routes.

The free allocation adjustment (benchmark) reduces CBAM liabilities in the early years to reflect the continued allocation of free allowances to EU producers under the ETS. This adjustment declines over time as free allowances are phased out, meaning the effective carbon price faced by importers increases steadily from 2026 onwards.



Actuals Or Defaults?

Actual Values

Actual values can only be used where an installation has provided you with verified installation data (in early 2027), covering the 2026 intensity of the products you have imported in 2026.

Default Values

Default values must be used by the importer when they are unable to obtain verified actual data from your supplier; or you do not have provenance information on the imported CBAM goods.

Default values are not estimates – they are penalties for missing data



The EU has provided country-level default intensity values, and CN-code level benchmarks, per production route. Each countries' default intensity informs the production route required to be selected. If no country-level data is available, you must select "Other Countries and Territories" intensities (punitive).

Who Is Impacted

CBAM coverage depends on your location, the goods you import or export, the [TARIC codes](#) involved and your annual tonnage. The rules differ for importers, installations and traders. At its core, CBAM applies to goods imported into the EU that would have paid a carbon price if they had been produced inside the EU under the EU Emissions Trading System. If you are involved in supplying, selling, or importing these goods into the EU, CBAM is already relevant to you.

Importers and Declarants



EU-based buyers importing in-scope goods. Required to collect actual emissions from suppliers, calculate CBAM cost, and report via the CBAM Registry

Installations and Producers



Non-EU producers supplying in-scope goods to the EU. Required to provide actual emissions data to customers so they can calculate exposure. From 2026 actual values are essential.

Traders and Intermediaries



Entities moving goods into or through the EU who may be responsible for CBAM declarations depending on contract structure and delivery terms.

Other Stakeholders



Consultants, auditors, procurement teams, downstream producers and logistics providers increasingly affected by customer requests for emissions data.

Why CBAM Is Challenging For Producers

01 Supplier data complexity

Many producers don't understand how to prepare CBAM-compliant data. Templates vary, terminology is confusing, and calculations are difficult.

02 Complex methodologies

Embedded emissions must be constructed using verified inputs, energy sources, precursors, and additive manufacturing steps.

03 Free Allocation

Calculating the appropriate free allocation can be confusing and time consuming to get right. The alternative is to use default values and these punish producers.

04 Data quality issues

EPDs ≠ CBAM. LCAs ≠ CBAM.

Many producers are unsure what counts as compliant CBAM data, and confuse EPDs and LCAs with CBAM.

05 Verification pressure

Installations must undergo a strict verification process to use actual data requirements; and importers must maintain a defensible declaration audit trail.

Voice of the customer

From 12-Page Spreadsheets to Streamlined CBAM Reporting

ALUMINIUM
SUPPLIER IN
THE UK

The Challenge: Death by Spreadsheet

Like many producers navigating CBAM (Carbon Border Adjustment Mechanism) reporting requirements, this aluminium supplier had been working with the EU's standard reporting spreadsheet — a 12-page document that turned every installation report into an hours-long exercise in manual data entry.

The core pain points were clear:

- **No scalability.** Managing multiple installations across different customers meant starting from scratch with each new report.
- **High error risk.** Manually filling the same fields repeatedly left room for missed cells and transposed figures.
- **Time cost.** The process was laborious and repetitive, pulling focus away from core operations.

The Solution: Installation Reports That Actually Work

CarbonChain's Installation module replaced the sprawling spreadsheet with a streamlined workflow: data is captured once and generates verification-ready reports in minutes

Key outcomes for this supplier:

- Eliminated reliance on the 12-page EU reporting spreadsheet
- Reduced time spent per installation report significantly
- Produced clean, consistent, and comparable carbon data trusted by buyers and verifiers

The Result

The feedback from this aluminium supplier reflected not just the satisfaction with a new tool, but genuine relief at having a process that finally made sense for the way they work. CarbonChain's installations module works for the full CBAM workflow, and manufacturers and exporters of CBAM goods are at the heart of it.



That was so much easier and better... CarbonChain has just simplified it. The EU system with the spreadsheet is 12 pages long... it's just so long-winded. But the Installations Module is so much easier!

~ Aluminium supplier

Voice of the customer

Scaling CBAM Reporting — From Manual Complexity to a Single Source of Truth

ALUMINIUM
SUPPLIER
IN THE
MIDDLE EAST

The Challenge: CBAM Complexity at Scale

As a significant producer shipping into the EU, this company faced a reporting challenge common across the industry: how do you manage CBAM compliance efficiently when you're operating multiple installations, tracking intricate production processes, and serving customers who all require verification-ready data?

The limitations of conventional approaches like spreadsheets, PDFs, ad hoc systems — compound quickly at scale:

- **Duplication of effort.** Every customer request meant rebuilding reports from scratch
- **Consistency risk.** No single source of truth made it difficult to ensure data aligned across different reports and recipients.
- **Quarterly burden.** Manual data entry consumed significant time each reporting period, with accuracy always at risk.

The Solution: One Platform, One Source of Truth Work

CarbonChain's Installation module gave this manufacturer something fundamentally different: a centralised emissions data workflow that connects directly to customer-facing reporting.

Key outcomes for the company:

- Eliminated the need to rebuild spreadsheets or reports for individual customers
- Established a single, consistent data source across all installations
- Produced clean, comparable, verification-ready carbon data that flows reliably through their supply chain

The Result: Confidence Enough to Recommend

The most meaningful measure of a solution isn't what a customer says during a demo — it's what they do afterwards.

Within weeks of adopting the platform, this company was recommending CarbonChain to peers in their own industry. When another aluminium installation began looking for a CBAM reporting solution, they referred them directly to CarbonChain.



CarbonChain eliminated the need to rebuild spreadsheets or reports for our individual customers and it is so easy to do this on their new platform. The information is right, verification ready and data is flowing reliably through our supply chain!

~ Aluminium supplier

Industry & Country Specific Benchmarks



02

Default Values

Steel – Hot Rolled Coil

KEY RISKS

HRC default values imply a CBAM cost range of ~€120 - €700/t at €90/tCO₂, creating an immediate and material spread between low- and high-emissions origins.

This cost differential is large enough to reshape trade flows, disadvantaging BF-BOF exporters such as Indonesia, India and China unless verified mill data is provided.

As a result, the market is likely to see repricing, contract renegotiations and accelerated sourcing shifts toward lower-CBAM or data-transparent producers rather than purely lowest-FOB suppliers.

HRC - 72083700	Default Intensity	Cost at 80 EUR/tCO ₂
Indonesia	9.0530	694.55
Kazakhstan	5.8190	403.49
India	4.7080	303.50
South Africa	4.5540	289.64
Other Countries and Territories	4.4540	280.64
Russia	3.7730	219.35
Uzbekistan	3.5310	197.57
China	3.5056	195.28
Algeria	3.3000	176.78
Australia	3.2670	173.81
Mexico	3.0250	152.03
Argentina	2.8490	136.19
Colombia	2.8160	133.22
Ukraine	2.7309	125.57
Türkiye	2.6703	120.11
United Kingdom	2.6620	119.36
New Zealand	2.6620	119.36
Serbia	2.6510	118.37

Notable omissions of HRC country defaults: Malaysia, UAE

Default Values

Ferro-Nickel

KEY RISKS

Ferro-nickel default values hit Indonesia and China (~€400/t) who are the dominant global and EU-relevant suppliers of FeNi for stainless production and see them facing materially higher default exposure than alternative origins.

Given the EU's heavy reliance on Indonesian ferro-nickel via stainless and precursor trade flows, these defaults risk embedding a significant CBAM premium into the EU stainless cost base where verified producer data is unavailable.

This is likely to increase demand for lower-default or data-verified FeNi (e.g. Canada, South Korea, UAE at ~€135/t), tightening supply options and reinforcing the strategic value of traceable, low-emissions nickel units.

FeNi - 72026	Default Intensity	Cost at 80 EUR/tCO2
China	6.765	399.13
Indonesia	6.765	399.13
Other Countries and Territories	4.415	187.63
Canada	3.828	134.80
United Arab Emirates	3.828	134.80
South Korea	3.828	134.80
Australia	3.828	134.80
Viet Nam	3.828	134.80
Colombia	3.828	134.80
Singapore	3.828	134.80
Egypt	3.828	134.80
Türkiye	3.828	134.80
Georgia	3.828	134.80
United States	3.828	134.80
India	3.828	134.80

Default Values

Urea

KEY RISKS

Urea default values sees major EU-facing suppliers such as Egypt, Algeria and Russia sitting at the lower end of the default spectrum, while higher-default origins such as China are materially less competitive.

The EU's urea import mix - historically, dominated by Egypt, Russia and Algeria, and increasingly shaped by tariffs - is already shifting trade flows toward Central Asian and alternative non-Russian sources.

As a result, CBAM defaults reinforce a structural preference for North African and gas-advantaged producers, while increasing the compliance and pricing risk for new or transitional suppliers where verified emissions data is not readily available.

Urea - 31021019	Default Intensity	Cost at 80 EUR/tCO ₂
Honduras	4.6864	342.63
Ghana	3.7168	255.36
China	2.8785	179.91
Cambodia	2.7573	169.01
Other Countries and Territories	2.7470	168.08
Viet Nam	141.74	141.74
South Africa	2.3836	135.37
United States	2.3129	129.01
India	2.2422	122.65
Trinidad and Tobago	1.6261	67.20
Morocco	1.5150	57.20
Russia	1.4847	54.47
Algeria	1.4241	49.02
Egypt	1.4039	47.20
United Kingdom	1.2726	35.38

Default Values

Aluminium

KEY RISKS

Aluminium default values see China, Mozambique (for now) and South Africa - all relevant suppliers to the EU - facing meaningfully higher default exposure than Middle Eastern, US and Canadian producers.

As the EU relies heavily on Gulf-origin aluminium (UAE, Bahrain, Saudi Arabia at ~€60/t or below), the defaults reinforce a structural competitiveness gap that favours hydro- and gas-powered smelters with lower implied emissions.

The result is likely to be greater price and sourcing volatility, as aluminium prices become increasingly sensitive not just to LME and energy dynamics but also to CBAM default exposure where verified smelter-level data is not secured.

Aluminium - 7601	Default Intensity	Cost at 80 EUR/tCO ₂
Mozambique	3.5178	191.73
China	3.3000	172.13
South Africa	2.5943	108.62
Russia	2.3760	88.97
Canada	2.1560	69.17
Kazakhstan	2.0570	60.26
Bahrain	2.0570	60.26
United Arab Emirates	2.0570	60.26
Egypt	2.0570	60.26
India	2.0570	60.26
United Kingdom	2.0570	60.26
Bosnia and Herzegovina	1.8700	43.43
Saudi Arabia	1.8700	43.43
Qatar	1.8700	43.43
Brazil	1.8700	43.43
Tajikistan	1.8700	43.43
United States	1.8700	43.43
Azerbaijan	1.8700	43.43
Cameroon	1.8700	43.43
Malaysia	1.8700	43.43
Australia	1.8700	43.43
Türkiye	1.8700	43.43
Other Countries and Territories	2.4230	93.20

The Real Cost Of Default Values

The goal of default values is to encourage producers to report actual data and to ensure importers cannot avoid paying for the emissions of production by using default values to under report.

As a producers of CBAM goods entering the European Union, your products will be taxed at a higher rate if you do not report actual values and obtain verification over these numbers.

Why are default values so high

✓ Anti-circumvention design

Default values are intentionally punitive to ensure importers cannot avoid paying for the actual emissions of production

✓ Escalating penalty markups

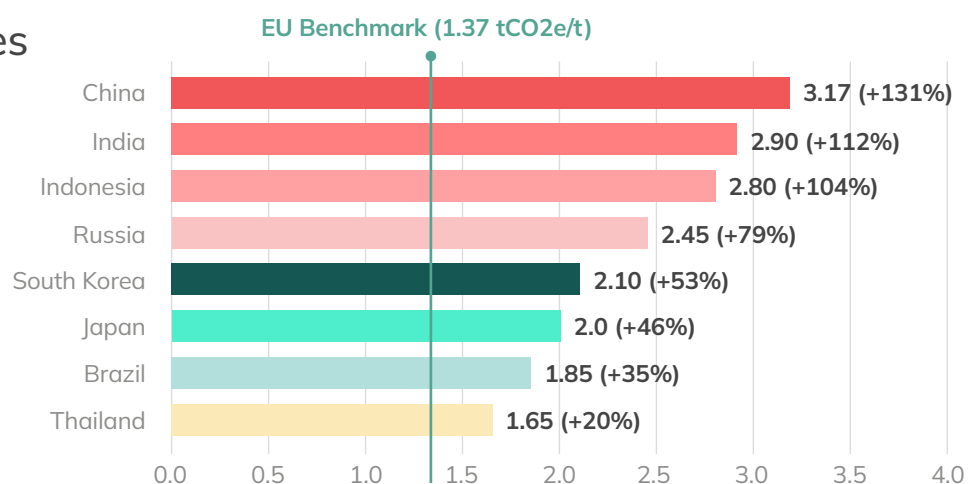
A 10% mark up in default values in 2026, rising to 30% in 2028 onwards. Intentionally encouraging producers to report actual values

✓ Worst case scenario

When actual data is not sourced, the regulatory assume the worst performing production route

Steel Default Values vs EU Benchmark (BF/BOF route, tCO₂e/t)

Default values are allocated by country – certain countries are extremely high default values.



CBAM Doesn't Bill You – The Market Does

01 Your facility

Embedded emissions are set by your process. No verified data = default values applied by the EU - calibrated against the worst performing plants globally.

02 Buyers CBAM cost

Your EU buyer must purchase CBAM certificates equal to your embedded emissions × EUA price × CBAM factor. Defaults produce the highest possible bill.

03 Price negotiation

Buyers model CBAM into total landed cost.

Higher CBAM exposure = lower price offered for your product, or the buyer switches supplier entirely.

04 Avoidable competitive loss

A producer with lower CBAM exposure - because they provide verified data can undercut your landed cost.



Factory A

✗ No verified data



Higher CBAM cost



Higher price



Factory B

✓ Verified emissions



Lower CBAM cost



Competitive price

Installation Scenario

Actual vs. Default values

PRODUCER CASE STUDY

Customer

Non-EU flat steel producer supplying EU importers across EU and competing for contracts against mills from multiple non-EU regions.

The problem

EU buyers were applying CBAM default values to all non-EU sourcing. The producer's genuine emissions performance was invisible and their products were priced in the same bracket as the highest-carbon mills in its region, despite operating well below the default value threshold.

The Action

One EU importer agreed to use installation-verified data if the producer could supply it. The producer partnered with CarbonChain to define the installation boundary, implement a monitoring plan and calculate actual embedded emissions.

The Result

Switched from default (3.5 tCO₂e/t) to actuals (1.9 tCO₂e/t) — reported carbon intensity fell 45%.

EU buyer's CBAM cost exposure for that supply line dropped

Producer secured a preferential supply agreement with price terms reflecting the verified emissions advantage.

A second EU buyer subsequently requested installation data from the same facility, the commercial case was self-evident.

Have a similar scenario? [Speak to our experts!](#)

Key takeaway



Confidence in actual values converted production efficiency into a commercial edge.

Installation Scenario

Data Sharing

PRODUCER CASE STUDY

Customer

Urea fertiliser producer exporting to six EU importers across four member states, managing all CBAM emissions calculations and buyer data requests through a series of Excel workbooks.

The problem

Six buyers meant six manually maintained spreadsheet outputs. Each reformatted separately, each resent individually whenever production data changed. When one importer filed a CBAM declaration from a superseded version, the discrepancy took three weeks to resolve. The problem was not the data. It was having no single source of truth to share it from.

The Action

The producer migrated to CarbonChain Connect. Production data, fuel consumption, and process emissions are now entered once in the Installations Module, with CBAM methodology applied automatically. Each EU buyer was added to the Data Sharing Module and received access to the same live, verified dataset.

The Result

All six EU buyers now access the same live, verified dataset via CarbonChain Connect. No manual outputs, no email chains, no formatting work per buyer.

Declaration discrepancies fell to zero. Every buyer works from the same source, with a traceable link to the dataset, eliminating the version drift that caused the prior filing error.

Two new buyers were onboarded in under 30 minutes each, added to the Data Sharing Module with no additional data preparation required from the producer.

Have a similar scenario? [Speak to our experts!](#)

Key takeaway

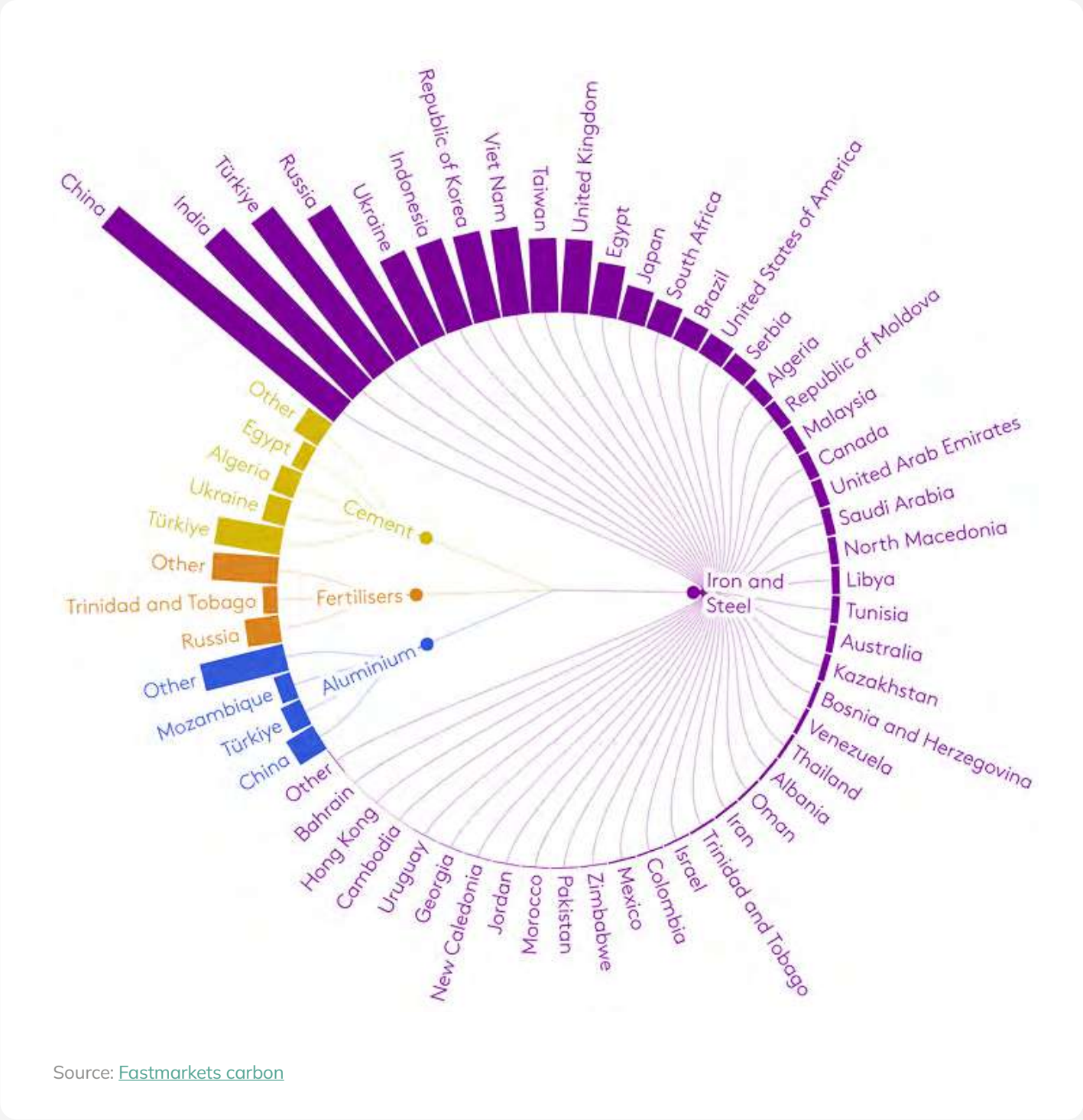


The Excel was never the problem. Every new buyer was a new maintenance burden. CarbonChainConnect breaks that cycle — update once, share everywhere, automatically.

CBAM Bills Will Stack Up



Iron and Steel faces a CBAM bill of €29 billion in 2035, with Chinese products making up €5.3 billion



Source: [Fastmarkets carbon](https://www.fastmarkets.com/carbon)

Calculating Your CBAM Cost Exposure



OS

How Much Is CBAM Going To Cost?

tCO2/t
(Emissions
Factor)

-

CBAM
Benchmark
(tCO2/t)

X

Phase-in
(% phase-
in rate)

X

€/tCO2
(CBAM
price)

-

tCO2/t
(Carbon
price paid
overseas)

=

€/t
(CBAM
cost/ tonne
of material)

Emissions Factor = the supplier’s calculated direct embodied emissions intensity of their CBAM goods.

CBAM Benchmark & Phase-in Rate = the free allocation adjustment (benchmark), which decreases at the rate of the phase-out of the free allowances under the EU ETS.

Carbon price paid overseas = the carbon price already paid overseas covering a proportion of the emissions intensity of the CBAM goods. This is deducted in order to determine the net CBAM obligation.

CBAM Certificate price = in 2026, the quarterly-average closing price of the EU ETS price.

Try the calculator

Choosing Your Benchmark

Defaults

For all goods, we have CN code-level “all-in” default value benchmarks (Column B). These are also at the production process-level, and, in some cases, are available for 2026-8 and 2028-30 periods.

EU default values

Simple Goods

For simple goods (no input precursors) we now have benchmarks at the production-level (e.g. primary aluminium, ferroalloys, some fertiliser products). With actual data: CBAM can now be priced.

Steel products are all complex goods.

Product-level data

Installation Specific

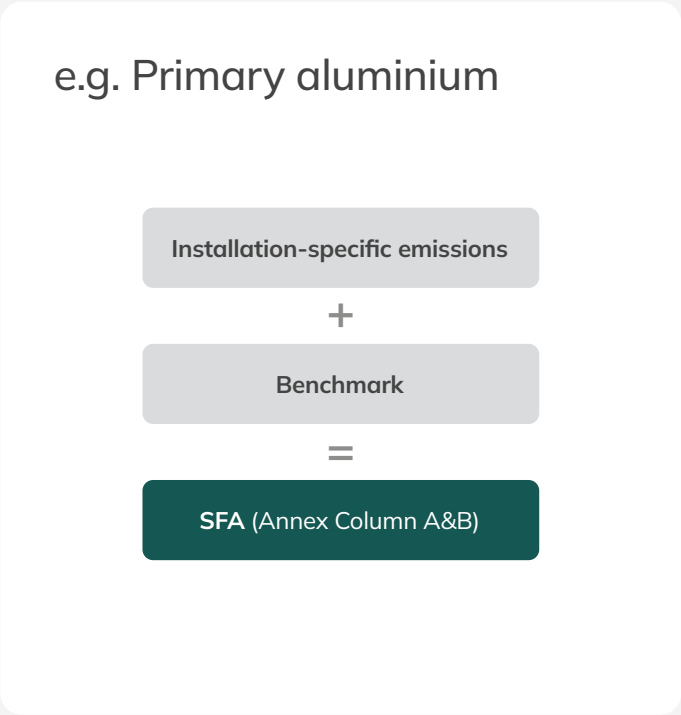
Installations using actual data are required to calculate an “installation specific” benchmark. Based on the production at site, the consumed precursors and the production route of the product.

Site-level data

Calculating Benchmarks At The Installation-Level

For simple goods
(no precursors):

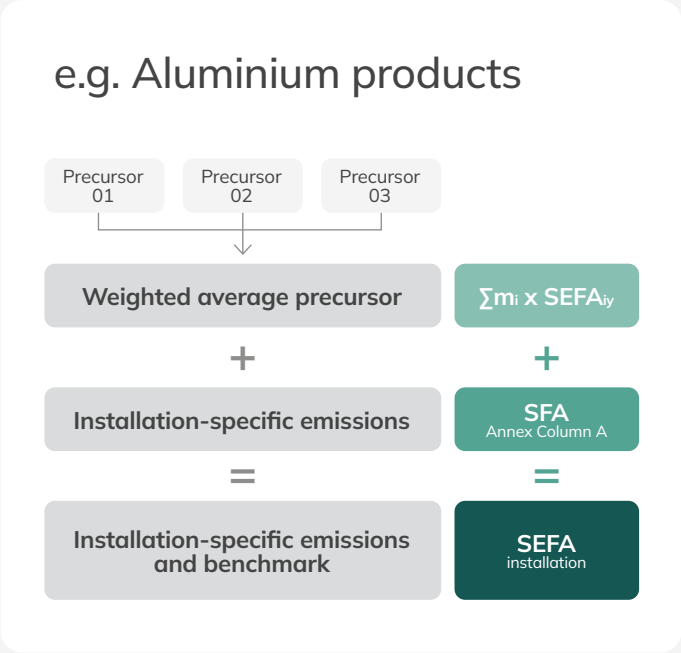
SEFA
(Specific Embedded Free Allocation)
=
SFA
(Specific Free Allocation
(Process-level specific free allocation
(Column A of Annex)))



For complex goods
(goods with precursors):

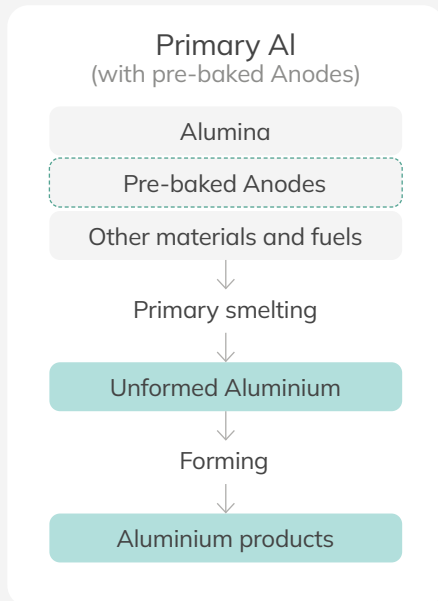
SEFA
(Specific Embedded Free Allocation)
=
 $\sum (m_i * SEFA_{iy}) + SFA$

Installation-specific benchmark
=
Sum of mass index-adjusted (mi) precursor
benchmarks (SEFA)
+
installation's process specific benchmark (SFA)



Calculating *Emissions* At The Installation-Level

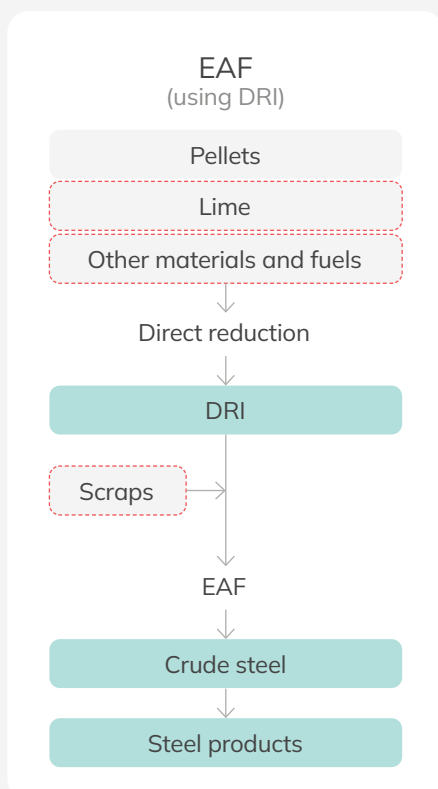
Primary Aluminium (Unwrought) Example



Benchmark	Emissions Intensity
Unwrought aluminium Mi: 1.00 t/t Benchmark: 1.464 tCO ₂ /t Mass-adjusted: 1.464	Unwrought aluminium Mi: 1.00 t/t Direct Emissions Intensity: 1.90 tCO ₂ /t Mass-adjusted: 1.90
Product-level benchmark: 1.423 * 1 = 1.423 tCO ₂ /t	Product-level intensity: 1.90*1 = 1.90 tCO ₂ /t
CBAM Cost per ton in Euros = [1.90 – (1.423*0.975)] * 90 = 46.13	

Calculating *Benchmarks* At The Installation-Level

EAF-DRI Steel Coil Production Example



Benchmark	Emissions Intensity
Iron Ore Pellets Mi: 1.55 t/t Benchmark: 0.086 tCO ₂ /t Mass-adjusted: 0.133 tCO ₂ /	Iron Ore Pellets Mi: 1.55 t/t Direct Emissions Intensity: 0.17 tCO ₂ /t Mass-adjusted: 0.26 tCO ₂ /
DRI Mi: 1.075 t/t Benchmark: 0.295 tCO ₂ /t Mass-adjusted: 0.317	DRI Mi: 1.075 t/t Direct Emissions Intensity: 0.55 tCO ₂ /t Mass-adjusted: 0.59
Flat rolling Mi: 1.03 t/t Benchmark: 0.044 Mass-adjusted: 0.045	Flat rolling Mi: 1.03 t/t Direct Emissions Intensity : 0.09 Mass-adjusted: 0.09
Product-level benchmark: 1.55*0.086 + 1.075*0.295 + 1.03*0.044 = 0.495 tCO ₂ /t	Product-level benchmark: 1.55*0.17 + 1.075*0.55 + 1.03*0.09 = 0.95 tCO ₂ /t
CBAM Cost per ton in Euros = [0.95 – (0.495*0.975)]*90 = 42.06	

Disclaimer:

This calculation is based on the input mass required to produce 1 tonne of the final good.

What CBAM Ready Data Looks Like

01 Installation level boundaries

Data is required per facility — not per company, country or sector average

- ✓ An “installation” is a specific site with defined coordinates and a documented physical boundary.
- ✓ All relevant processes within that boundary are included, partial coverage is not permitted.
- ✓ Direct emissions in scope: combustion + process reactions occurring within the physical boundary.
- ✓ Precursor goods (e.g. pig iron, ammonia, alumina) carry their own embedded emissions from their source installation.

02 Activity data, energy and precursors

Every data point must carry a unit, period, measurement source, and the proof to evidence this through a verification process

- ✓ Production volumes: tonnes per goods type and CN code for the full annual reporting period.
- ✓ Fuel consumption: type, quantity, net calorific value, and carbon content per fuel stream.
- ✓ Process emissions: from chemical reactions.
- ✓ Precursor carbon: tCO₂e/t for each carbon-carrying input must be tracked separately, not aggregated.

03 Monitoring systems, not one-off calculations

A verifier must trace every figure back to a meter, calibration record, and QA/QC log.

- ✓ One-off calculations cannot demonstrate measurement frequency or data gap management.
- ✓ Monitoring systems produce a continuous audit trail: meter logs, calibration certs, anomaly records.
- ✓ Continuous capture detects process deviations before they distort annual reported emissions.
- ✓ Validation checks, data flows, responsible people and source systems.

04 Free Allocation & Carbon Price Adjustment

Installations may offset CBAM liability against a domestic carbon price, but must follow a defined calculation process to qualify

- ✓ Installations must calculate and communicate your installation specific free allocation.
- ✓ Based on precursor volumes, production routes, scrap rates and your production process.
- ✓ Applicable territories may deduct a carbon price that has already been paid from the final CBAM obligation.

What Does This Mean For Market Participants?

Country & production-process specific benchmarks

The benchmarks are provided on a CN code and production-process basis for steel and aluminium products.

The default emissions intensity values will also be provided on a CN code and production process basis, where applicable. Default value emissions intensities will be significantly punitive to reduce the risk of circumvention.

Many actual benchmarks will now be installation-specific

Benchmarks for simple goods manufacturers (with no precursors) are now available at the CN code level.

Benchmarks for complex goods manufacturers (goods with precursors) are calculated at the installation-level based on the weighted average precursor benchmark mix and the on-site production process-related benchmark.

Verification burden increases further

Verification takes place over the embedded emissions intensity of the production, as expected, as well as now the benchmark calculation for that installation.

This was hinted at via the materiality assessment which is expected to be set at 5% of the embedded emissions or the free allocation adjustment (benchmark).



If using actual data, you can model expected installation-level benchmarks for producers today to estimate costs.

Verification, Accreditation & Data Integrity

04

Who Will Be Authorised To Verify?

From 2026, the use of actual emissions values under CBAM is conditional on verification by an accredited verifier. The EU has introduced a dedicated delegated regulation specifying the conditions for granting accreditation to CBAM verifiers, the scope of their activities, and the mechanisms for oversight and withdrawal of accreditation.

Who can verify CBAM data?

- ✓ Only EU-accredited legal entities
- ✓ Accreditation governed by a new CBAM-specific delegated regulation
- ✓ Alignment with EU ETS verifier competence requirements

In practice, verification introduces several operational constraints. Verifier capacity is limited, particularly for installations located outside the EU. Verification of emissions data for a given reporting year cannot be completed until the production year has ended, which creates timing pressure for importers seeking to declare actual values. Where emissions data cannot be verified in accordance with CBAM rules, importers are required to fall back on default values, regardless of whether data exists internally.

These constraints mean that access to accredited verifiers and the readiness of supplier data systems become critical risk factors. Early engagement with suppliers and verifiers is essential to avoid unplanned reliance on default values.

What this means operationally

- Verifier capacity is constrained
- Site visits cannot occur until post-2026 production
- Importers relying on actual values must secure verifier access early

Risk Area



Failure to verify = forced fallback to default values, even if data exists

How Does CBAM Verification Work?

Objective of verification

- ✓ Provide reasonable assurance that data is complete, accurate and compliant
- ✓ Ensure operators are following CBAM monitoring methodology and have functioning data flow and controls
- ✓ Confirm actual emissions can be used for declarations

Procedure to obtain

- 01 Pre-engagement
- 02 Information intake
- 03 Analysis (strategic + risk)
- 04 Verification plan
- 05 Execution (on-site visit)
- 06 Review
- 07 Report issued

Outcome of verification

Verified actual emissions

Data of actual emissions can be used in importers declaration.

Unresolved misstatements or non-conformance

Data cannot be used and default values apply.

No verification or failed verification

Data cannot be used and default values apply.

What Are The Verification Timeline Implications?

2026 first year data, estimates to key customers

2026 annual emissions intensity data is the first CBAM data set. Goods manufactured in 2025 but imported in 2026 will be subject to the 2026 emissions-related cost.

Installations should ensure a monitoring methodology and strong systems are in place to demonstrate emissions accounting robustness.

Q3 2026 “interim audit” and communication to market

Verification is critical when it comes to the successful operation of the EU CBAM, as is the same under the EU ETS.

Ensuring a verifier is lined up for your on-site verification (mandatory in 2026) is a critical next step for producers looking to ensure their customers can use actual data for their reporting.

Early 2027 verification of data and precursors

Verification over both the emissions intensity of the products and the free allocation adjustment for the installation is required to be performed.

This could have significant impact on far-downstream complex goods manufacturers, likely resulting in default value usage due to delays in obtaining verified data from upstream suppliers.



CarbonChain brings >6 years of experience in performing carbon accounting across actors in commodity supply chains and is here to support your installations with their full EU CBAM compliance

Be CBAM Ready With Confidence

CarbonChain and SGS can deliver a CBAM workflow that combines CarbonChain's automated product-level emissions calculations with SGS's independent pre-verification services.

This solution streamlines CBAM compliance for importers and suppliers by directly connecting accurate emissions data with third-party pre-verification.

Who benefits:

Importers, intermediaries, and manufacturers that need precise carbon accounting and pre-verification for their CBAM submissions.

What CarbonChain Provides



CBAM & Product Carbon Footprint calculations for commodity supply chains

Installation-level data preparation, MRV workflows and verification-ready reporting

Scalable digital infrastructure for declarants and manufacturers



What SGS Provides



+15 years track record as EU ETS verifier

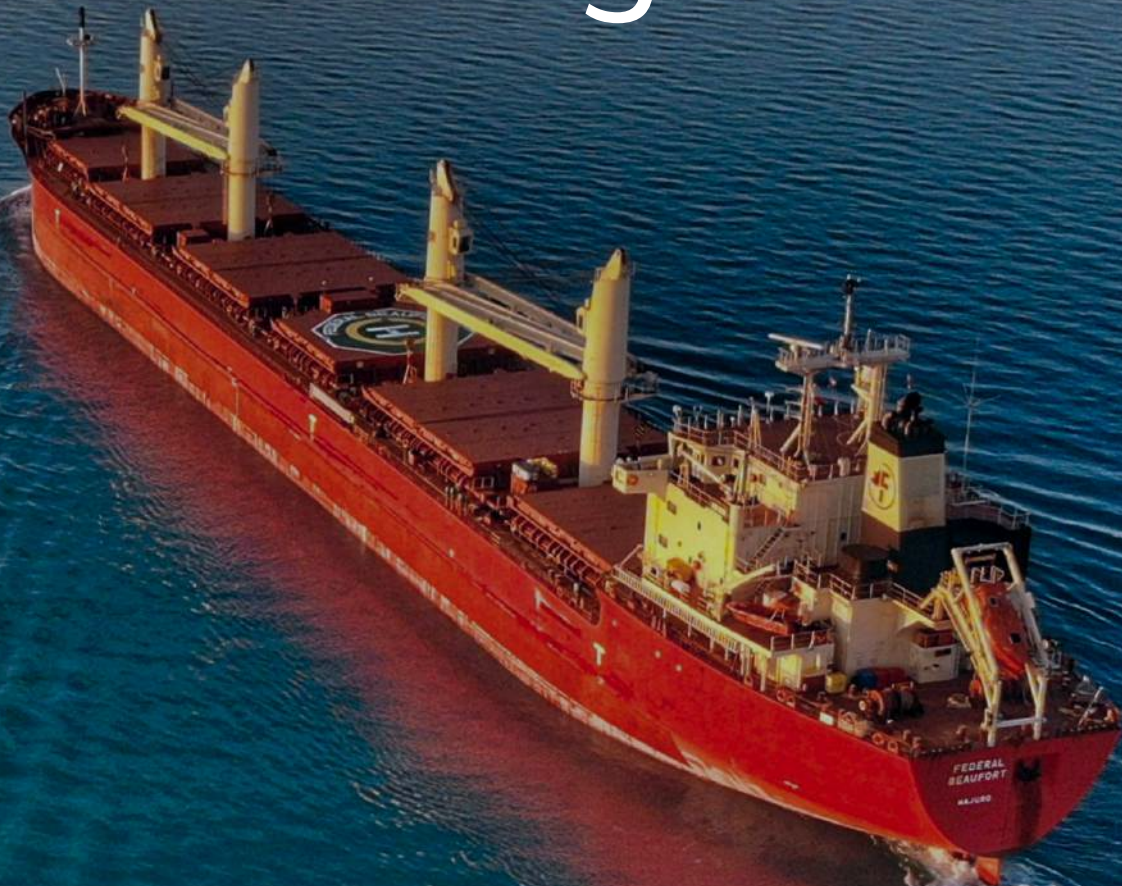
Global presence and expertise in CBAM pre-verification

Independent third-party verifier for corporate inventories and product footprints

Joint Value Proposition for Clients:

- One seamless workflow: activity-level → data carbon footprinting → pre-verification
- Multi-regulation compliance and pre-verification support (e.g. CBAMs, GHG Protocol reporting)
- Reduced carbon-related supplier engagement burden and data validation
- EU CBAM Definitive Period pre-verification disclosures to customers
- Get ready for the next CBAM reporting cycle with confidence, reducing compliance risk

CBAM As A Commercial Edge



05

How To Gain Competitive Edge With CBAM

01 Avoid default values

Falling back on default values from certain countries of origin will be significantly costly, and in many cases commercially unviable. Provide actual data wherever possible.

02 Pre-verification

Downstream customers and importers want confidence that their supply chain will pass verification. Provide them with this by undertaking a pre-verification.

03 Installation-level benchmarks

Benchmarks must be prepared at the CBAM goods-level per installation where you are intending to use actual values. Ensure your suppliers are preparing these now.

04 Engage your supply chain

CBAM costs take into account, your emissions and your suppliers emissions. Ensuring your suppliers understand CBAM and are reporting correctly gives customers confidence.

05 Communication

Customers and importers need to price in CBAM now. Communicating effectively with your customers builds trust. Start with provisional numbers and communicate your plan for 2026 and 2027.

06 Monitoring methodology

Your installation will be required to complete a monitoring methodology to get verified. Start this ASAP and obtain help if you need. Once developed, let your customers know you are ready for verification.

CarbonChain Connect

Linking producers and importers through a shared infrastructure for trusted, installation-level CBAM data — reducing friction on both sides of the request.

[Book a demo](#)

Supplier Catalogue Module

A trusted source of installation-level CBAM data

Shared directory of producers and verified datasets
Built-in methodology, benchmark checks, and aligned outputs
Reduces availability risk and verification anxiety

Data Sharing Module

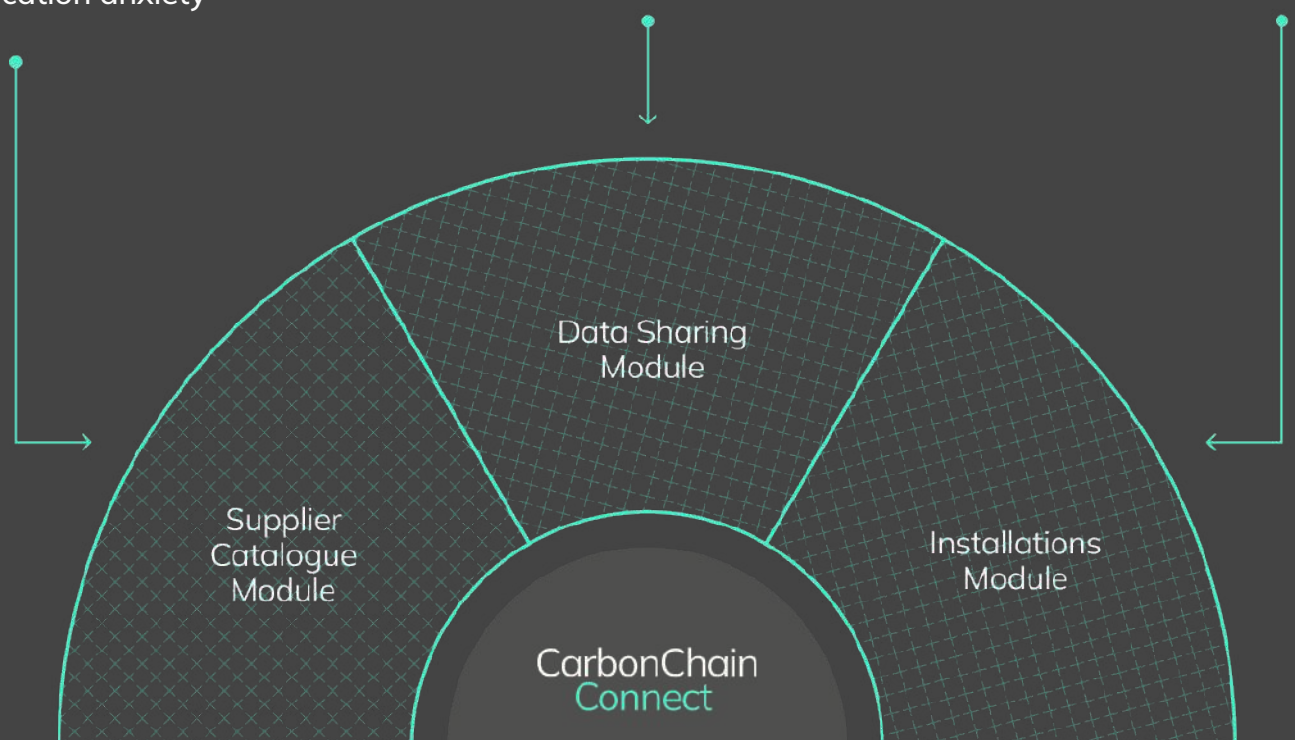
The control centre for CBAM data exchange

Request, track, and share datasets securely
One-click follow-ups and permissioned access
Full audit trail across upstream and downstream parties

Installations Module

Prepare once. Reuse everywhere.

Producer-facing workflow for installation data
Guided, verification-aligned outputs
Respond faster when EU buyers request CBAM data



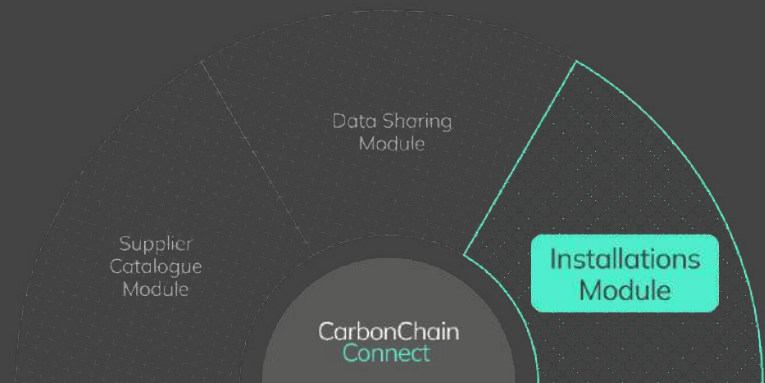
Why CarbonChain Is The Best Solution

Are you a manufacturer or importer, looking for easy CBAM compliance? [Try our Installations Module.](#)

- ✓ Prepare emissions and benchmark calculations for 1 installation
- ✓ Controlled data-sharing with downstream customers
- ✓ Unlimited installation data sets upload
- ✓ Guided, verification-aligned workflow
- ✓ CBAM Cost Calculator (Default Values)

Monitoring Methodology and pre-verification workflows available!

[Try for free](#)



Trust & Validation

SGS-validated methodologies aligned with GHG Protocol
ISO 27001-certified business



CBAM Declarations done

2,200+

Penalties Avoided

€950M

Goods Cleared

8.5M t

Tonnes CO₂ Tracked

3.89B

PCFs Generated

13.5M

Suppliers on Platform

3,500+

CarbonChain's efficient solution to CBAM reporting not only met our declaration needs but also helped educate our team, removed manual workload and prepared us for future reporting periods.



Oxana Dyupina
Compliance Officer,
Steelforce Group

SF | steelforce ”

Key Changes In CBAM



06

Key Aspects of CBAM That Have Changed

Default values are higher

Falling back on default values from certain countries of origin will be significantly costly, and in many cases commercially unviable. Check before you take on this risk.

New emissions methodology

The Commission updated the emissions methodology and scope of calculations for some CBAM goods. Ensure your suppliers are aware of these changes.

Installation-level benchmarks

Benchmarks must be prepared at the CBAM goods-level per installation where you are intending to use actual values. Ensure your suppliers are preparing these now.

Scope of goods to be expanded

From 1 January 2028, downstream goods will be included in the scope of EU CBAM. The complete list of goods is still to be confirmed, but it will be extensive.

Significant verification barriers

Verification will require rigorous monitoring processes to be in place at installations. Importers should not rely on actual values without clear evidence of verification readiness.

EU carbon price

EUAs hit a high of €87/tCO₂, with bullish signs ahead for 2026 as supply tightens. Hedging will be a core risk management activity for CBAM-impacted participants.

Anti-Circumvention Initiatives

Pre-Consumer Scrap

Pre-consumer scrap is set to be included as a precursor CBAM good for both steel and aluminium goods. Scrap imports remain out of scope.

Safeguards

The EC increases powers with regards to review of misclassification or under-declaration of CBAM goods to ensure importers are captured.

Monitoring

The EC intends to acquire new market intelligence and databases to assess risks of circumvention relating to resource shuffling and other practices.

Agility

The EC will ensure operational agility and flexibility to quickly identify and eliminate circumvention practices that are identified by market participants.

Temporary Decarbonisation Fund

The CBAM Temporary Decarbonisation Fund is intended to use part of the revenue generated from the sale of CBAM certificates to support decarbonisation efforts for installations producing within the Union and exporting outside the EU. The intention of the fund is to avoid the leakage risk that arises from the increase in costs that installations will incur and aim to help them remain competitive on the international stage.

Who it Impacts: EU-based manufacturers in facing high CBAM costs.

Funding Source: The EU will allocate 25% of revenues collected from the CBAM import tax (in 2026-2027) specifically to this fund.

Strategic Goal: To help European industries remain competitive in global export markets against foreign rivals who do not pay carbon taxes.

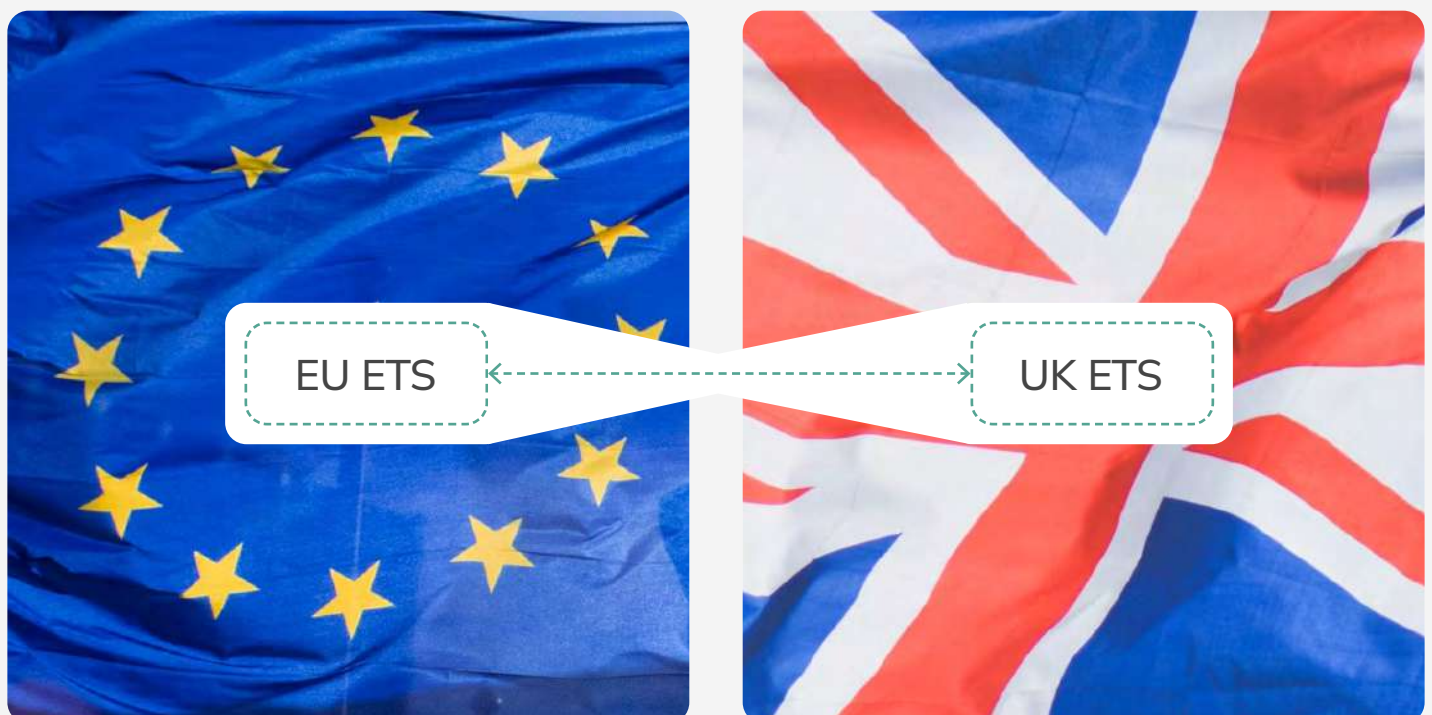
The Key Condition: Companies do not receive automatic rebates; they must use this fund to decarbonise their operations.

UK CBAM Preparation & Reporting

	 EU CBAM	 UK CBAM
CBAM goods	Iron & steel, aluminium, cement, fertilizer, hydrogen, electricity	Iron & steel, aluminium, cement, fertiliser, hydrogen
Timeline	Transitional period until end of 2025	Comes into force on 1st January 2027, no transitional period
	Definitive period from 1 January 2026	
Scope of emissions	Dependent on product: Direct, (Indirect), Precursors	All products: Direct and Precursors only
Financial obligations	Surrender of CBAM certificates (based on weekly EUA price) to cover imported emissions	Payment of UK CBAM tax liability based on import volume and a UK CBAM rate established at the goods-level
Minimum threshold	>50 tonnes, aggregate per EORI per year	£GBP 50,000 (monetary-threshold), rolling 12-month basis
Default values	Permitted but designed to be punitive	Permitted until at least 2031; expect to also be punitive
Reporting frequency	Quarterly until definitive period, annual from Definitive Period onwards.	Annual in first year, followed by quarterly returns from 2028

EU & UK Emissions Trading System Linkage

- Following the end of the Brexit transition period, the UK left the EU ETS and established its own, separate, UK ETS. The UK ETS is similar, but not identical to the design of the EU ETS.
- 19 May 2025 UK- EU Summit: Announcement to link EU and UK ETS. 'Common understanding'. Market commentators expect a linkage to occur at the earliest in 2028/9.
- Draft EU CBAM legislation includes power to create exemption for goods originating from a jurisdiction with a linked carbon pricing scheme (section 14). No countries initially included here.
- If the EU and UK link their ETS systems then there would be no reporting obligation for goods originating from the UK or EU under both EU and UK CBAM, as an effective carbon price has already been paid.



CBAM Producer Readiness Checklist



07

10 Step Readiness Checklist

01 Understand how CBAM applies to your business

02 Scope & Product Identification (CN Codes)

03 Installation boundary and process definition

04 Monitoring methodology documentation

05 Precursor and input material analysis

06 Data collection

07 Emissions calculation and allocation

08 Reporting and communication

09 Verification Readiness

10 Ongoing Monitoring

CBAM compliance is a complex process involving many levels of collaboration. We are hearing daily from producers who are confused about how to scope and collect data. CarbonChain Connect can help you store your data, and empower you to share it with importers you do business with – in a single click. CBAM is here to stay, and it's in your interest to upskill rapidly and choose a service provider that helps you keep your competitive edge for doing business with EU and UK.



Roheet Shah
Co-founder & COO,
CarbonChain



What Producers Need To Do Now

✓ Develop a monitoring methodology now

CBAM requires a formal, documented monitoring methodology covering installation boundaries, activity data, energy inputs, and precursor materials. This must be in place before verification can proceed in early 2027.

Without a robust, auditable methodology, verifiers cannot sign off on actual emissions data. Ensure your plan covers all production processes within the installation boundary and maps correctly to your CBAM goods and CN codes.

✓ Calculate actuals to avoid default penalties

Default values carry a 10% mark-up in 2026, rising to 30% by 2028. For many origins this creates commercially unviable exposure — up to €694/t for Indonesian steel.

Producers must calculate installation-level actual emissions and prepare installation-specific benchmarks now to protect margins and remain competitive.

✓ Secure pre verification in Q3 2026

Pre-verification is a critical step in building a robust CBAM process and giving your supplier's confidence in your emissions values.

Provided by an independent third party, pre-verification will highlight gaps and inconsistencies in your process which can be corrected before 2027.

Bonus Resources

The European Commission's Resources

- [EU Commission's CBAM Explainer](#)
- [Cement Sector](#)
- [Hydrogen Sector](#)
- [Aluminium Sector](#)
- [Fertilizer Sector](#)
- [Iron & Steel Sector](#)

CarbonChain Resources

- [CBAM Cost Calculator](#)
- [CBAM Supplier Catalogue](#)
- [Steelforce streamlines CBAM reporting](#)
- [TFG Article on CBAM](#)
- [Summary of UK CBAM](#)
- [CarbonChain LearnHub](#)
- [Summary of EU CBAM](#)
- [CarbonChain Connect](#)

