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REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

on the application of the Regulation on the Carbon Border Adjustment Mechanism

List of abbreviations

CBAM	Carbon Border Adjustment Mechanism
CCP	Common Central Platform
CN code	Combined Nomenclature code
CO_2-eq	Carbon dioxide equivalent
COP	Conference of the Parties (of the UNFCCC)
EEA	European Economic Area
EF	Emission factor
EU ETS	EU Emissions Trading System
GHG	Greenhouse gas
ICC	Indirect cost compensation
IFCMA	Inclusive Forum on Carbon Mitigation Approaches (OECD flagship initiative)
LDCs	Least Developed Countries
MRV	Monitoring, Reporting and Verification
NCA	National Competent Authority
PPA	Power Purchase Agreement
SEE	Specific Embedded Emissions
SME	Small and Medium-sized Enterprise
UNFCCC	United Nations Framework Convention on Climate Change
WTO	World Trade Organization

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Executive summary

This report reviews the application of the EU Carbon Border Adjustment Mechanism (CBAM) during the transitional period from 1 October 2023 to the end of 2025. It evaluates the CBAM's contribution to addressing carbon leakage and fostering global carbon pricing, and examines its governance, administration, enforcement and its international dimension. The report also sets out the implementation roadmap and accompanying measures required to secure an efficient and effective regime for the definitive application of the CBAM from 2026 onwards.

During its transitional period in the years 2023-2025, the CBAM has promoted the monitoring and reporting of embedded emissions in imported goods from all over the world.

The prospect of the definitive period of the CBAM starting on 1 January 2026 has started to incentivise a decrease in embedded emissions imported into the EU. It has also been a catalyst for carbon pricing through its design, which includes the deduction of a carbon price effectively paid from the CBAM financial adjustment. This has promoted a growing trend worldwide in the introduction of enhanced emission trading systems and carbon taxes. The CBAM has also provided a unique opportunity worldwide for greater political debate on climate action.

During this transitional period, the Commission has actively engaged in working towards coordinated action on carbon border measures in relevant multilateral fora working on carbon clubs and coalitions of like-minded actors. It has also engaged with our trading partners, and international organisations (including the WTO) and in international fora to present and explain the CBAM's objectives, design and implementation features.

There are now some 80 carbon pricing instruments implemented in 95 jurisdictions, with their coverage reaching about 28% of global greenhouse gas emissions in 2025[1]. To account for the carbon price effectively paid in the CBAM sectors under these carbon pricing instruments, the Commission will seek feedback from stakeholders on the Implementing Act setting the rules for the deduction of a carbon price in Q1 2026 before its adoption.

Worldwide, more and more voluntary carbon pricing schemes are being developed. This sends a strong positive signal to both private and public sectors on the benefits of carbon pricing to reach climate objectives. The EU is also increasing the stringency of its climate policies. In July 2025, the Commission proposed an amendment to the European Climate Law to set an EU climate target for 2040 to reduce the EU's net greenhouse gas (GHG) emissions by 90% relative to 1990 by 2040, as set out in the Commission Political Guidelines for 2024-2029. In November 2025, Member States agreed on a general approach in the Environment Council to a legally binding headline 2040 target of 90%, with a domestic target of 85% and up to 5% international carbon credits. In December 2025, the Council presidency and the European Parliament's representatives reached a provisional agreement on those targets Despite the complexity of rolling out a novel instrument, the EU has managed to establish a functional governance framework for the CBAM in an unprecedentedly short period. Member States, the Commission and stakeholders have used the transitional period to gather data and experience,

[1] World Bank Group: State and Trends of Carbon Pricing Dashboard, retrieved 3/11/2025. https://carbonpricingdashboard.worldbank.org/compliance/instrument-detail.

swiftly draw conclusions and put in place a mechanism that is not only operational but also continuously improving. TCBAM Simplification regulation - Regulation (EU) 2025/2083 of the European Parliament and of the Council of 8 October 2025 amending Regulation (EU) 2023/956 - has strengthened the current governance and given the Commission a stronger role in overseeing the CBAM's implementation via the centralised CBAM registry.

The EU engages regularly with international partners and stakeholders who have an interest in the functioning of the EU's CBAM or have expressed concerns about its design or practical aspects of its implementation. It also actively promotes and finances decarbonisation projects in third countries. Spurred by the lessons learned during the CBAM's transitional period, the Commission will continue its support to countries in their decarbonisation efforts, including on CBAM implementation, as outlined in the EU global climate and energy vision as well as on the Global Europe proposal. The modelling results presented in this report show that the impact of CBAM on least developed countries (LDCs), developing countries and neighbourhood countries is relatively minor. Notably, the change (relative to a no-CBAM scenario) in the GDP of LDCs in aggregate is modelled as less than 0.01% by 2035. At the same time, the introduction of the CBAM is expected to contribute to global greenhouse gas emission reductions.

The CBAM will be introduced gradually over a period of 8 years from 2026 to 2034 in parallel with the phasing out of the free allowances under the EU ETS. This will also give time to producers of CBAM goods inside and outside the EU to continue with their decarbonisation and to third countries to deploy carbon pricing systems.

Based on the lessons learned during the transitional period and the feedback gathered from stakeholders, the Commission has also decided to employ a two-step approach for strengthening and extending the CBAM over the coming years.

Step 1 in 2026–2027, with proposals at the end of 2025 on downstream extension, strengthening CBAM through anti-circumvention rules, amendment to rules for calculating embedded emissions of electricity and a temporary support mechanism for the decarbonisation of sectors at high remaining risk of carbon leakage, and in 2026 an implementing act on setting the rules for the deduction of a carbon price effectively paid in third countries This package aims to make the CBAM more effective by mitigating the risk of downstream carbon leakage, strengthening the enforcement of the mechanism, deterring avoidance practices, and incentivising decarbonisation of electricity grids in third countries.

Step 2 provides for a report to follow (**in 2027**) with an evaluation of ways to extend the scope further (i) to indirect emissions from further CBAM goods (iron and steel, aluminium and hydrogen) and (ii) to other sectors.

1. Introduction

Context and purpose of this report

The analysis included in this report reviews the delivery during the transitional period, evaluates the CBAM's contribution to addressing carbon leakage and fostering global carbon pricing, and examines its governance, administration, enforcement and its international dimension. The report also sets out the implementation roadmap and accompanying measures required to secure an efficient and effective definitive regime for the application of the CBAM from 2026 onwards.

The report thereby also responds to the requirements of Article 30(2) of the CBAM Regulation[2] to assess relevant aspects related to the Regulation, such as:

- extending the scope of the Regulation to (i) embedded indirect emissions from further CBAM goods (see Chapter 5.1), (ii) embedded emissions in the transport of CBAM goods and transportation services (see Chapter 5.2), (iii) additional goods (see Chapter 5.3.2), and (iv) other input materials (precursors) for CBAM goods (see Chapter 5.3.1);
- the relevant criteria to be applied in the context of the extended scope;
- technical requirements for calculating embedded emissions for other potential CBAM goods;
- international discussions regarding climate action (see Chapters 2.1 and 3.1) and the impact of the CBAM on developing countries, in particular on the least developed countries (see Chapter 3.2);
- the governance of the CBAM (see Chapter 2);
- the methodology for the calculation of indirect emissions (see Chapter 4.6).

During the transitional period, importers have been required to report quarterly the greenhouse gas emissions embedded in CBAM goods placed on the EU market, without any financial obligations. The objective has been to generate reliable data, refine methodologies, build administrative capacity and prepare the definitive system for the CBAM.

Based on the CBAM data collected in the transitional registry, we have identified a substantial increase in compliance with the CBAM reporting rules. 95% of all importers importing over 50 tonnes of CBAM goods annually have been reporting actual embedded emissions in Q3 2025 instead of default values.

This is a huge increase from Q3 2023 when the CBAM's transitional rules entered into force and only 11% of importers reported actual emissions. Even for smaller quantity imports that have by now been exempted (following the omnibus legislation adopted by the European Parliament and the European Council), over 50% of importers have been reporting the actual embedded emissions.

[2] Regulation (EU) 2023/956 of the European Parliament and of the Council of 10 May 2023 establishing a carbon border adjustment mechanism; *OJ L 130, 16.5.2023, p. 52,* ELI: http://data.europa.eu/eli/reg/2023/956/oj

Now it is time to move to stage two to verify these emissions properly.

The CBAM has contributed to a trend in the uptake of carbon pricing and emissions monitoring systems worldwide. Since the CBAM entered into application on 1 October 2023, the number of carbon pricing instruments in operation worldwide has risen to 80 instruments implemented in 95 jurisdictions, with their coverage reaching about 28% of global greenhouse gas emissions in 2025[3]. This also shows that countries take fight against climate change more seriously.

Moreover, an increasing number of countries recognise that carbon leakage is a risk for all energy-intensive industries and several jurisdictions are exploring or implementing carbon border measures. These range from developed economies (like Australia, Canada, Taiwan and the UK,) to middle income countries and developing countries, like Brazil and Türkiye.

There are also several multilateral initiatives focusing on this issue. The Open Coalition on Compliance Carbon Markets that Brazil proposed at COP30 Club is the latest, following the G7 Climate Club and the OECD's Inclusive Forum on Carbon Mitigation Approaches (IFCMA).

The CBAM's potential to incentivise emission reductions for products placed in the EU market will only fully unfold when the mechanism applies definitively as of 2026. Nonetheless, there are already many signs that in the period since the introduction of CBAM, firms with cleaner production have sustained or improved their market positions even before its entry into application, while more carbon-intensive producers are facing pressure to adapt[4]. Such results illustrate that the CBAM contributes to incentives for industrial decarbonisation and competitiveness gains for cleaner operators.

Based on the lessons learned during the transitional period, in 2025 the EU adopted a targeted simplification package to streamline the CBAM governance and reduce the administrative burden while preserving environmental integrity. Its key elements include:

- a 50-tonne de minimis threshold that exempts roughly 90% of importers yet maintains coverage of 99% of embedded emissions;
- smoother first-year compliance (including adjusted certificate-holding requirements);
- clarified authorisation and representation; and
- reinforced customs-CBAM data integration.

[3] World Bank Group: State and Trends of Carbon Pricing Dashboard, retrieved 3/11/2025. https://carbonpricingdashboard.worldbank.org/compliance/instrument-detail.

[4] A recent study on India's steel industry, one of the first 'ex post' analyses of the impact of CBAM and integrating firm-level export data from India with reliable estimates of emissions and production, distinguishing between high- and low- emission firms, finds results 'suggest[ing] that firms with emission intensities closer to or below EU averages have sustained stable trade quantities while increasing prices by approximately 2-3%, consistent with improved relative competitiveness under CBAM. High-emission-intensity firms, however, experienced a net price decrease of around 9%. Together, these results point to an early differentiation in market outcomes under CBAM, with more emissions-efficient exporters in a stronger position to sustain pricing, while higher-emission firms face early signs of commercial pressure.' Source: 'Early signs the EU Carbon Border Adjustment Mechanism is reshaping EU-India steel trade' Gian Luca Vriz, Theodor Cojoianu, Carolyn Fischer, Luca Taschini.

Taken together, these measures are expected to strongly reduce the administrative burden associated with the CBAM and simplify its application.

From 2026, the financial obligations under CBAM will be phased in gradually – in parallel with and proportionate to – the phaseout of free allocation under the EU ETS. This will ensure a predictable and balanced transition for operators and administrations. In line with the CBAM Regulation, the Commission intends to proceed in **two steps** going forward:

Step 1 in 2026–2027, **with proposals at the end of 2025** on the following aspects: downstream extension, anti-circumvention rules and rules for calculating the embedded emissions of electricity, and a temporary solution to support sectors at carbon leakage, as well as, in 2026, an implementing act on setting the rules for the deduction of a carbon price effectively paid in third countries

Step 2: in 2027 the Commission will consider the possibility to provide for further extensions to other downstream products and other ETS sectors such as chemicals, indirect emissions.

2. State of play: the CBAM at the end of the transitional period

This section highlights how the CBAM's guidance, discussion and outreach created a mutual-learning dynamic, in parallel to the global uptake of carbon pricing and improved embedded emissions measurement. It also documents deeper cooperation with third countries, broader awareness of carbon leakage risks, and the emergence of plans in several jurisdictions to design their own carbon border measures.

2.1. The CBAM, carbon pricing and fora

The CBAM has promoted and facilitated the monitoring and reporting of embedded emissions in goods worldwide as well as started to incentivise a decrease in embedded emissions imported into the EU through numerous channels.

Firstly, to facilitate compliance with the reporting rules, the CBAM moves from an installation-based emissions accounting system (as used in the EU Emissions Trading System - EU ETS) to a product-level methodology.

Under the EU ETS, emissions are monitored and verified at the level of an installation – typically a plant or production site – focusing on the total direct emissions generated within its boundaries. This approach is suitable for domestic operators subject to EU law, but it could not be directly applied to imports, where the EU has no jurisdiction over entire industrial facilities.

The CBAM therefore required a different methodology that could assign embedded emissions to specific goods (such as a tonne of steel, aluminium, or cement) placed on the EU market. The Commission developed a product-based emissions accounting framework that mirrors international practices like product carbon footprinting and lifecycle assessment methodologies but adapts them to ensure equivalence with the production routes and emissions coverage of the EU ETS. Rather than calculating full lifecycle impacts (from raw material extraction to disposal), the CBAM method focuses on the product's emissions from energy use and industrial processes up to the point the product leaves the production facility.

To make this practical, the CBAM methodology (i) defines clear system boundaries for each product covered based on its production route (e.g. blast furnace steel, clinker-to-cement), (ii) establishes default emission factors, (iii) permits the use of actual measured data where robust monitoring exists (while also providing the possibility to use default values), and (iv) requires third-party verification with a progressive alignment to the EU ETS monitoring, reporting and verification (MRV) standards over time. In short, this method of CBAM reporting allows for the calculation of a comparable, product-based carbon metric. This enables equal treatment between EU and foreign producers of CBAM goods, ensures traceability of embedded emissions, and lays the foundation for eventual global convergence on carbon accounting rules.

Additionally, to support relevant stakeholders in complying with the CBAM, the Commission has put in place outreach and communication campaigns as of 2023 (see below).

These efforts have borne results in compliance with the CBAM, leading to an increase in the reporting of actual emissions.

At the start of the transitional period (Q4 2023–Q2 2024), almost all importers were reporting default values. Only about 8-11% of importers reported actual emission values. The remaining 89-92% were reporting 'other' – meaning default values (or 'actual values not available')[5].

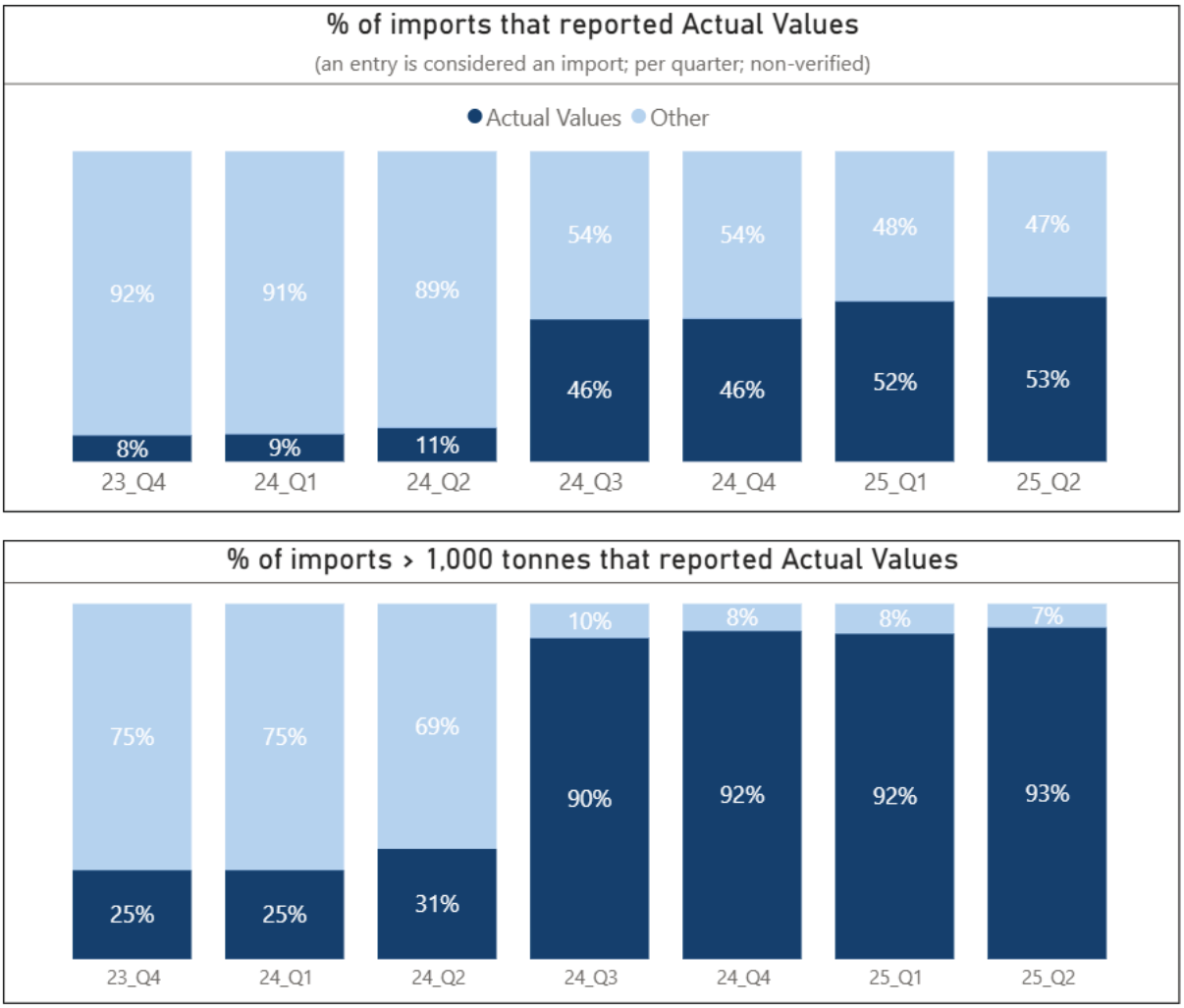
We then observed a shift in Q3 2024. The share of imports reported with actual values jumped to 46%. It stayed at 46% in Q4 2024 and climbed further to 52% in Q1 2025 and 53% in Q2 2025. In other words, in less than a year the system went from mostly default values to about half of all entries being declared with actual, product-level numbers.

The effect is even clearer when looking at large consignments (>1 000 tonnes). These are the traders and groups who can more easily get data from their suppliers. For them, actual-value reporting started low at 25-31% in Q4 2023 to Q2 2024. Then, from Q3 2024 onward, it increased to 90-93%. So the bigger the import, the higher the compliance with actual values in full alignment with the CBAM objectives.

In other words, the tonnes that matter most for emissions are the ones being reported with actual values. See Figure 1 for more details on the shift in reporting from the CBAM transitional registry:

[5] The use of default values was permitted only during the first three quarters of the transitional period. Then, actual values were to be used. In cases where declarants demonstrated their (unsuccessful) efforts to obtain the actual values of their goods, they could select 'actual values not available', a functionality introduced in the CBAM transitional registry, to facilitate this particular process.

Figure 1: % of imports reporting actual values and other (default values) in the CBAM transitional period, by quarter.



Preliminary analysis suggests that statistically there might be a percentage reduction of outliers by more than half from Q4 2023 to Q2 2025. Potential reasons for the improvement of data quality over time include the following.

1. The non-EU producer provides installation data measured according to the CBAM implementing rules (aligned with EU ETS-style MRV: activity data + emission factors/process emissions).
2. The producer can allocate emissions to the CBAM product (e.g. to a specific steel product, cement, aluminium) using the CBAM product-level methodology and system boundaries.
3. Documentation is available (production data, fuel/energy use, process emissions, calculation sheets) so the importer can upload it in the CBAM registry.

The CBAM has therefore encouraged and facilitated emissions monitoring worldwide, which is the first necessary step in developing measures to reduce emissions.

The CBAM isc a catalyst for the development of carbon pricing through its design and the application of a deduction of a carbon price effectively paid from the CBAM financial adjustment. The CBAM internalises the environmental externalities of the production of

energy-intensive goods when they enter the EU single market. The financial obligation enters into force from 2026. Accordingly, importers must then buy CBAM certificates equal to the embedded emissions of the goods covered. This ensures equivalence with the scope and carbon price of the EU ETS, with a deduction for any carbon price effectively paid in the country of origin.

This policy design rewards producers who can measure and reduce product-level emissions. It gives governments a clear incentive to adopt domestic carbon pricing and keep the revenue, rather than have it collected by the EU Member States through the common central platform.

Since the CBAM's launch, more jurisdictions have moved toward pricing and monitoring, reporting and verification. Coverage has risen worldwide and producers have shifted from reporting default values to reporting their actual emissions. This sends third countries the price signal needed for the uptake of carbon price measures.

By ensuring equivalence between emission costs on imports and EU production, the CBAM tackles carbon leakage and incentivises importing cleaner products. Lower-emission goods will require fewer CBAM certificates, lowering the environmental costs and making efficient production routes (like electric arc furnaces using low-carbon power to produce steel, low-clinker cement, modern aluminium) more competitive. As free ETS allocation is phased out, this advantage will intensify, becoming fully fledged in 2032.

The recently adopted Clean Trade and Investment Partnership with South Africa is further proof of the trend driven by the EU, anchoring trade and investment to verifiable carbon performance and steering capital toward cleaner, more competitive supply chains.

The CBAM has provided a unique opportunity worldwide to promote more political alignment on climate action. During this transitional period, the Commission has actively engaged in relevant multilateral fora and different coalitions of like-minded actors towards a coordinated action on carbon border measures, addressing carbon leakage and interoperability of carbon accounting.

The United Nations Framework Convention on Climate Change (UNFCCC) Conferences of the Parties (COP), the EU's developing country trading partners have voiced concerns and uncertainties about the CBAM, including on its possible impact on third countries and on the fact that CBAM does not exempt or otherwise differentiate in favour of products from developing countries. , The Commission has discussed these and other CBAM-related matters with third-country delegations, business associations and civil society organisations during side events, bilaterally and in other negotiations. Those discussions contributed to a better understanding of the CBAM as an environmental measure addressing carbon leakage. They also underlined the Commission's openness to cooperating with third countries and integrating constructive feedback into the CBAM's design.

At the COP30 conference in 2025, the EU reiterated that it welcomes continued dialogue with global partners to enhance cooperation on policy measures to combat climate change with a trade impact, including measures preventing carbon leakage. The Commission will contribute to the 'Global Mutirão' mobilisation process agreed by COP parties for a new dialogue in the subsidiary bodies of the UNFCCC with the participation of the parties and other stakeholders

(including the International Trade Centre, the United Nations Conference on Trade and Development, and the World Trade Organization). The aim of this dialogue is to consider opportunities, challenges and barriers for enhancing international cooperation related to trade. Among other things, it should address measures taken to combat climate change, including measures, like the CBAM, that adjust for differences in carbon pricing at the border, as well as other climate measures with a trade impact, such as trade distorting subsidies, and export and import restrictions on low carbon technologies and raw materials critical to low carbon economies.

At COP30 the EU also backed several plurilateral initiatives including a leaders' 'Declaration on the Open Coalition on Compliance Carbon Markets'. The declaration recognises the relevance of carbon pricing and market mechanisms as key tools to advance climate action globally.

The EU has engaged actively in the OECD's Inclusive Forum on Carbon Mitigation Approaches (IFCMA), working alongside 60 member countries to support more coherent approaches to global mitigation efforts. In particular, the European Commission made a voluntary contribution to increase the interoperability of carbon intensity data and monitoring, reporting and verification systems, which led to two IFCMA papers published on 30 June 2025[6]. Interoperability allows data to be used across a wide variety of cases. This lowers firms' reporting costs and makes it easier to report actual emissions under the CBAM.

Since 2023 the Commission has also supported the work of the Climate Club[7] in fostering international cooperation on industrial decarbonisation. In September 2025, the Climate Club issued joint voluntary principles on action to address carbon leakage[8].

In 2025 the Commission also actively contributed to the joint Climate Club statement for COP30 and the Global Pledge to grow near-zero and low-emissions steel and cement markets. Both the statement and pledge were launched on 6 November in the context of COP30[9].

The EU has closely engaged with other WTO members on the implementation of the CBAM, through several sessions to inform on the state of play of the mechanism's implementation and to get feedback from WTO members. The CBAM was the object of regular discussions in the Committee on Trade and Environment . The EU also informed WTO Members about the launch of calls for evidence and draft acts that it published for feedback. It also took advantage of opportunities in other multilateral fora to provide updates on the implementation of the CBAM to EU partners.

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[6] OECD (2025), 'Towards interoperable carbon intensity metrics: Assessing and comparing selected data sources', Inclusive Forum on Carbon Mitigation Approaches Papers, No 8, OECD Publishing, Paris, https://doi.org/10.1787/a9cdb1ba-en. OECD (2025), 'Towards interoperable carbon intensity metrics: Assessing monitoring, reporting and verification systems', Inclusive Forum on Carbon Mitigation Approaches Papers, No 9, OECD Publishing, Paris, https://doi.org/10.1787/b185bcfa-en.

[7] The Climate Club is a multilateral forum for dialogue which was launched officially in 2023 at COP28 as a global initiative. It currently has 45 members (16 of which are EU Member States), both from advanced economies and emerging and developing countries.

[8] Climate Club (2025). Explanatory Note: Climate Club voluntary principles for action to address carbon leakage and other spillovers

[9] Climate Club (2025). COP30 Climate Club Members Statement and Global Pledge to grow near-zero and low-emissions steel and cement markets.

Third countries are now also preparing to introduce or considering introducing CBAMs of their own. For instance, the UK will introduce a UK CBAM on 1 January 2027. The UK CBAM will be introduced directly (without a transition period) and will cover goods from five of the sectors covered by the EU CBAM. In other words, it will cover aluminium, cement, fertiliser, hydrogen, and iron & steel, but not electricity.

The UK CBAM will be applied to direct and indirect emissions for all sectors and to a selected number of precursors. Its sectoral scope will be reviewed beyond 2027 to reflect possible changes to the carbon leakage risks.

Other trading partners, including Australia, Brazil, , Canada and Taiwan have announced that they too are considering similar instruments.

The EU is aware about the concerns of trading partners as regards the CBAM's possible impacts and has been addressing them as much as possible to make the mechanism even more effective and easier to implement for involved stakeholders. Feedback received from partner countries and their industries has been valuable also in the simplification efforts of the CBAM.

2.2. CBAM Transitional Period

Data overview

The data overview below is detailed in Annex IV.

Between Q4 2023 and Q2 2025, CBAM data showed imports of around 156 million tonnes of CBAM goods, of which around 69% were iron and steel, 15% fertilisers, 11% cement and 5% aluminium. The biggest exporters of CBAM goods to the EU in that period were Ukraine and Türkiye, responsible for roughly 14% and 12% of overall mass volume, respectively.

Estimated embedded emissions accumulated in 2024 from the CBAM transitional registry, shows a total of 167 million tonnes of CO_2-eq, 102.5 million tonnes CO_2-eq for iron and steel, 38.4 million tonnes CO_2-eq for aluminium, 18 million tonnes of CO_2-eq for fertilisers and 8 million tonnes of CO_2-eq of cement.

Based on the reporting by declarants, the use of actual values has increased significantly over time: from just 8% in Q4 2023 to about 53% by Q2 2025, showing that more and more importers managed to meaningfully engage with their supply chain to obtain and report the required data.

Regarding electricity as a CBAM good, the Registry data – as reported by declarants – show a total amount of 96 million MWh declared between Q4 2023 and Q2 2025. The main exporters are the United Kingdom (65% of total electricity imports declared in the CBAM Registry), Serbia (15%) and North Macedonia (5.2%).

Overall embedded emissions for CN code 27 160 000 represented 86 million tonnes of CO_2-eq. It is important to note that the main mechanism for calculating embedded emissions for electricity as a CBAM good is the use of a default values based on fossil fuel-based electricity production. This approach reflects the price-setting mechanism of electricity within the EU but

limits the recognition of decarbonised sources of electricity, leading to a potential overestimation of the real embedded emissions.

Default values from the transitional period rely on one global average default value per CN code. The Commission is therefore committed to ensuring that the CBAM Registry data for the definitive period will then feed into the determination of the default values for the CBAM (where a review is planned in 2027, once the first reporting period is completed and relevant data can feed into these revised values).

Administration and governance of CBAM

The governance of CBAM relies on a hybrid, multi-level framework involving the Commission and Member State bodies (appointed National Competent Authorities, NCAs).

The Commission oversees the implementation of CBAM at EU level. In addition to the central oversight, the Commission establishes and manages the systems which are necessary for CBAM to apply. It may also review the CBAM declarations submitted by declarants.

The Commission has established and managed the CBAM transitional registry during the transitional period (1 October 2023 – 31 December 2025). The Registry serves as the central platform for importers to submit quarterly emissions reports and for non-EU operators to share emissions data.

The Commission has also been preparing the CBAM Registry which will replace the transitional registry for the definitive period. The Authorisation Management Module (AMM) has been rolled out in 2025 to streamline importers' applications as authorised CBAM declarants, which NCAs manage both directly and through the CBAM Registry. The CBAM Registry has been interconnected with the EU Customs Single Window Certificate Exchange system (EU CSW-CERTEX) for automated controls of CBAM authorisations at import by EU customs authorities.

To reduce administrative burden, the Commission has rolled out the portal for non-EU based installation operators to upload emissions data to the CBAM Registry. Once uploaded, this data can be (re)used by different importers and for different importations.

The Commission will also establish and manage the common central platform (CCP), following a joint procurement procedure between the Member States and the Commission, and the interface between the CCP and the CBAM Registry. Sales and repurchases of CBAM certificates will take place on the CCP from February 2027. The two platforms will handle the reporting and financial obligations of CBAM declarants.

Secondary legislation

The Commission has been empowered to adopt several acts to set out the rules that will be applied as from the start of the definitive phase and ensure uniform application of CBAM across the EU, notably to define :

1. rules for calculating and publishing the price of CBAM certificates
2. methods for calculating emissions embedded in goods and default values per country of origin and CN code
3. rules for verifying emissions

4. the conditions under which national accreditation bodies will grant accreditation to verifiers for CBAM purposes
5. the scope of information and the periodicity, timing and means for communicating with customs authorities
6. how the free allocation adjustment that would reduce the number of CBAM certificates to be surrendered is calculated, to reflect the extent to which EU ETS allowances are allocated free of charge
7. rules for the definitive CBAM Registry
8. the conditions and procedures related to the status of 'authorised CBAM declarant'

The CBAM Committee meets regularly to discuss policy and legal issues with Member State representatives, and has voted in favour of the acts mentioned above in time for the start of the definitive period. Those acts will be published before the end of 2025 and will be applicable as of 1 January 2026.

To promote and account for carbon prices in third countries, the Commission will adopt an Implementing Act setting the rules for the deduction of a carbon price effectively paid in third countries in Q1 2026.

Member States' national competent authorities (NCAs)

As per Article 11 of the CBAM Regulation, each Member State has appointed a dedicated body for implementing the CBAM at national level. NCAs are in charge of contacts with the importers established in their Member State, including processing applications for and granting the status of authorised CBAM declarant to importers. NCAs also enforce compliance with CBAM obligations by concluding the review of CBAM declarations based on the preliminary assessment provided by the Commission, and deciding whether penalties should be applied or not within the framework set out by the CBAM Regulation. The Commission keeps an up--to--date provisional list of NCAs on its CBAM web portal. When the list is considered stable, the Commission will publish it in the EU Official Journal.

22 Member States have appointed an environmental authority (their NCA for the EU ETS) as the NCA for CBAM as well, while seven Member States have appointed their customs authority. Two Member States have appointed both as the NCA, while in one Member State the customs authority also is the NCA for the ETS. In one Member State the NCA is neither the ETS NCA nor the customs authority.

Member States' customs authorities work alongside NCAs to integrate CBAM into existing customs procedures. As and when the effective implementation of the CBAM at national level relies on different authorities, coordination challenges may arise in some Member States.

Implementing a new mechanism

The effective implementation of CBAM requires close cooperation between the Commission and the Member States. Despite these efforts, some challenges have persisted in the preparation of the CBAM's definitive phase. Operational readiness varies among NCAs, with some Member States processing applications efficiently while others face delays and enforcement challenges. In addition to these, it will also be key to ensure that CBAM rules are interpreted consistently across Member State authorities.

Operators and importers have only slowly started using the existing tools to prepare for the definitive period: only 78 operators of third country installations have registered in the dedicated Operators Portal of the CBAM Registry, despite the single-upload system introduced at the end of December 2024. 5 902 importers have applied to become authorised CBAM declarants, a prerequisite to continue importing CBAM goods into the EU as from 1 January 2026.

The current governance challenges also stem from the fact that the CBAM is a completely novel mechanism, including for national authorities, importers, and third country producers. It requires designing and implementing new administrative processes, IT systems, and compliance frameworks, and therefore naturally involves operational uncertainties and a learning curve at the start for the Commission, NCAs, customs authorities and businesses.

In light of the significant challenges, the rapid progress made since 2023 represents a significant achievement for the EU, its Member States and international partners.

To enhance the cooperation between Member States' NCAs, the Commission and the NCAs regularly organise informal workshops to exchange views and best practice. Closer cooperation reinforces national expertise and administrative capacity. It also ensures that CBAM NCAs can implement CBAM consistently across the EU.

Administrative costs

Assessing the administrative costs of CBAM for Member States authorities is particularly challenging because the CBAM is a completely novel instrument. Hence, Member States and the Commission have had to build up capacity from scratch and could not anticipate all possible implementation needs in detail in advance. NCAs have not yet put in place all necessary administrative processes to fully implement the mechanism. For instance, some NCAs are still developing their administrative capacity to handle tasks such as processing authorisation requests and enforcing compliance.

In early 2025, the Commission launched an EU-wide survey to gather qualitative and quantitative feedback from all Member States on their administrative costs related to CBAM implementation. The results showed significant diversity in situations across Member States, for instance regarding their degree of preparation for the definitive phase and the existence of budget forecasts for the coming period.

The value of importations and number of importers also differ significantly between Member States:

- The two Member States with the highest value of CBAM goods imported in 2024 saw imports of more than EUR 10 billion each, whereas the two with the lowest value only saw less than EUR 0.10 billion of CBAM goods imports each.
- The number of CBAM importers also varies widely: of the 200 000 importers in 2024, about 37 000 and 21 000, respectively, were registered in the Member State with the most and second-most importers. Only 1 200 and 400 importers respectively were registered in the two Member States with the least importers.

These large differences across Member States will also apply in the CBAM definitive period that starts in 2026, with the exemption for importers of up to 50 tonnes per year: among the 18 000 importers expected to be in the scope of CBAM as of 2026, the Member State with the most importers registered is expected to have 2 700 importers (2 200 for the Member State with the second-highest amount of importers), whereas the two Member States with the least amount of importers are expected to have each less than 70 importers.

Finally, Member States have opted for different administrative configurations to implement the CBAM, notably appointing different bodies as their National Competent Authority, such as environmental/EU ETS authorities or customs authorities. This can involve different challenges and costs, for instance when coordinating the implementation of the CBAM with customs activities.

In addition, many detailed rules and procedures which are necessary for CBAM to apply as of 2026 were still being finalised in Q4 2025 through secondary legislation (e.g. implementing and delegated acts), even if the Commission and Member States have already rolled out key components of CBAM, such as the Registry, authorisation processes and reporting requirements.

Administrative costs for Member State administrations and the Commission continue to evolve as the CBAM is implemented, and will continue to do so as the mechanism enters the definitive period in 2026, including the major modifications introduced by the simplification package, as certificate sales start in 2027, and as changes to the CBAM enter into force, for instance the first downstream extension to be proposed by the Commission.

Joint Procurement Agreement and CCP

The Commission has been working towards setting up the Common Central Platform (CCP), which will operate the sales and repurchases of CBAM certificates from 1 February 2027. On 1 December 2025, the Commission adopted a decision to approve the signing of the draft Joint Procurement Agreement (JPA) which had been agreed with Member States on 17 November 2025. Once this JPA is signed by all Member States and the Commission and enters into force, the Commission will launch the joint procurement procedure on behalf of all parties to procure the services related to the CCP in the course of 2026.

Lessons learned during the transitional period

One key lesson learned during the first year of the transitional phase was the administrative challenges faced by businesses, especially small and medium-sized companies, and public authorities in getting familiar with a new, complex instrument. This lesson underscored the critical and urgent need for simplifying CBAM.

Based on extensive consultations with stakeholder and public authorities and operational data from the first reporting period, the Commission’s analysis highlighted disproportionate compliance costs for SMEs, delays in processing authorisation applications by NCAs and the risk of inconsistent enforcement of complex rules across the EU. The complexity of some reporting requirements coupled with the diverse level of preparedness among both NCAs and businesses showed that targeted changes were needed to safeguard the CBAM’s effectiveness.

2025 simplification package

With this in mind, the Commission adopted a legislative proposal on 26 February 2025 to simplify and strengthen CBAM ahead of the definitive phase, and in line with the Competitiveness Compass for the EU. Following the swift agreement by the Parliament and Council on the Commission's proposal, the Regulation was adopted on 8 October 2025.

This swift adoption has allowed the Commission and Member States to take into account the simplification measures adopted by the EU for the start of the definitive period on 1 January 2026, notably when it comes to relevant secondary legislation for the definitive period. This joint achievement demonstrates the EU's ability to adapt quickly and the commitment to make CBAM both effective and business-friendly.

This Regulation aims at ensuring administrative efficiency, so that CBAM remains practical and business-friendly without compromising its climate objectives. The introduction of a de minimis threshold plays a critical role in reducing administrative burdens for small-scale importers. By focusing CBAM requirements on larger importers, the threshold exempts around 90% of importers, primarily SMEs, from CBAM obligations, while 99% of embedded emissions remain covered, thus fully preserving the environmental effectiveness of CBAM.

For importers covered by the CBAM, the Regulation provides for simplified reporting requirements to facilitate declarants' compliance, such as in the case of complex goods. Also, to give stakeholders time to prepare for their reporting and financial obligations, the sale of CBAM certificates on the common central platform will only start on 1 February 2027 and the annual reporting deadlines have been moved to a later date.

Another major improvement is that the Commission may determine, as from 2027, default carbon prices for the countries where a carbon pricing instrument is applied. Declarants will have the possibility of relying on these values to claim a reduction of their CBAM financial obligation, as an alternative to providing certified evidence of the effective payment of the carbon price.

Further simplifications were made regarding the calculation of authorised CBAM declarants' financial liability to ease their burden. These simplifications include streamlined rules on the lifecycle of CBAM certificates from 2027, such as a simplified repurchase limit and a reduction in the amount of mandatory quarterly CBAM certificate purchases during the year of importation (reduced from certificates covering 80% of emissions embedded in goods imported since the beginning of the year, to 50%).

The simplifications adopted are also an important prerequisite for potentially extending the scope of the CBAM in the future.

Finally, the Regulation strengthens CBAM by introducing enhanced centralised monitoring by the Commission, in particular regarding the de minimis threshold, thus reinforcing the mechanism's effectiveness and consistency. The consolidated oversight at EU level in the CBAM Registry will ensure uniform data collection, validation and enforcement across all Member States, reducing discrepancies in national implementation.

Simplifications and flexibilities beyond the 2025 simplification package

Next to the simplifications introduced by the revision of the CBAM regulation, the Commission has been working on significant simplifications and flexibilities under the implementing and delegated acts. These will facilitate the implementation of CBAM, including for third countries operators and SMEs.

Under the planned implementing act setting rules for the deduction of a carbon price paid in a third country and its accompanying guidance, the European Commission will work on the principle of equivalence and will clarify how claims for carbon credits purchased under compliance schemes can be taken into account, including carbon credits under Article 6 of the Paris Agreement.

The rules will also specify how carbon taxes levied on fuels used in the production of CBAM goods can be deducted. Building on exchanges with partner countries and analysis conducted during the transitional period, the Commission will thereby ensure that carbon prices effectively paid under different compliance schemes can effectively be deducted from the CBAM obligation, by taking into account their specific features, while ensuring the environmental integrity of the CBAM.

As concerns accreditation and verification, several flexibilities have been developed. National accreditation bodies will be able to take into account proven competence from applicants for CBAM accreditation in applying the relevant international standards. As a result, the CBAM accreditation assessment will focus on the knowledge and competence to apply CBAM methodology rules.

In addition, the annual surveillance activity carried out by the national accreditation body on the CBAM verifier may be carried out virtually and not necessarily on-site, as is the case under the EU ETS. Finally, during verification, the conditions under which a CBAM verifier may carry out a virtual site visit or waive the obligation to carry out a physical visit are more flexible than under the EU ETS, while nevertheless ensuring the integrity of the verification.

Regarding the methodology for calculating embedded emissions, a range of simplifications have been introduced. First, the revised methodology allows operators, in certain cases, to differentiate the calculation of emissions for goods within a given CN code, where significant variability in emission intensities exist. Operators will, for instance, be able to differentiate the calculation of emissions for certain types of cement depending on their clinker content, or for certain types of fertiliser depending on their nitrogen content.

Second, the revised methodology introduces a rule that, where different production routes are used to produce a type of good within the same installation, the embedded emissions of those goods are to be calculated as the average of emissions produced in the various production routes. This measure will reduce the risk of circumvention practices. In addition, the revised methodology includes various novelties of clarificatory nature, which will increase the consistency of the overall framework and ease its application by operators.

Conclusion

Despite the complexity of rolling out a novel instrument, the EU has managed to establish a functional governance framework for CBAM in an unprecedentedly short period. Member

States, the Commission and stakeholders have used the transitional period to gather data and experience, swiftly draw conclusions and put in place a mechanism that is not only operational but also continuously improving.

The successful launch of the necessary administrative processes and IT systems, the development of comprehensive guidance and training materials, and the adoption of simplification measures all within two and a half years reflect the EU's ability to innovate, adapt, and continue to take the lead in global climate policy, while providing protection from undesired effects such as carbon leakage.

The strength of the current governance framework has been reinforced by the CBAM simplification regulation, which has strengthened the oversight role of the Commission in CBAM implementation via the centralised CBAM Registry. The Commission's ability to process data and exchange relevant information with NCAs ensures that the information reported by declarants and operators is as useful as possible. It also enables the Commission to better detect risks and equips the NCAs better to take appropriate action where needed.

Key operational improvements regarding data quality in the CBAM transitional registry

One of the most frequent errors encountered concerned the input of numerical data, for instance due to declarants from different Member States using dots and commas for decimal and thousands separator differently. Similarly, the earlier possibility for declarants to choose between kg or tonnes led to errors identified by comparing transitional registry data with customs and trade data. By removing redundant fields, standardising formats and introducing warning labels, errors caused by inconsistent use of decimals and measurement units were reduced.

In the first reported quarters, there was wider number of CN codes reported than required under the CBAM Regulation. The introduction of rigid validation rules led to a significant reduction of entries with incorrect CN codes (see Annex IV).

Another area of difficulties related to the country codes used for installations outside the EU, where different abbreviations were used for the same country (e.g. TR and TC for Türkiye, UK and GB for the United Kingdom). The integration of the Operators Portal into the CBAM transitional registry enabled operators of third country installations to input their data once and then share this data with importers of CBAM goods directly via the transitional registry. This centralisation of operator and installation information in third countries provides better consistency of country codes. See more details below and in Annex IV.

CBAM transitional registry data for the indicated time period (reporting until 31 August 2025)

Quarterly monitoring from Q4 2023 to Q2 2025 shows a consistent improvement in two of the issues identified above: After an initial phase with high incidence, there was a sharp decline in Q2 2024, followed by stabilisation at residual levels from Q2 2024 onwards, where errors virtually disappeared.

The downward trend in incorrect country codes has been more modest, as the error rate was relatively low from the beginning (Q4 2023), with only about 0.5% of declarations affected in the early periods, and gradually decreasing further over time.

As a result of corrective action and continuous collaboration, the transitional registry has become a more reliable, user-friendly, and efficient tool. These experiences showed the clear added value of the CBAM transitional period to prepare for the definitive system. The transitional registry was continuously improved, with frequent and concrete new releases that benefited from the input of importers, industries, and NCAs to ensure that solutions were practical and applicable to day-to-day operations.

The Operators Portal

The Operators Portal (O3CI) introduced on 31 December 2024 allows operators of 3rd country installations to upload relevant information on their installations and emissions data for CBAM goods they produce directly into the CBAM registry (both the transitional and in the future the definitive registry).

This streamlines the process for installation operators outside the EU to upload and share their installation and emissions data with reporting declarants.

Between December 2024 and August 2025, 573 requests for access to the operators portal were processed. Especially in the beginning, large numbers of applications had to be rejected. To support applicants, the Commission provided a wide range of resources, including an updated business guidance (March 2025), a factsheet (July 2025), manuals and video tutorials. These resources proved crucial in reducing errors and building trust. Following the publication of clearer guidance, eligibility errors and duplicate applications decreased significantly.

Outcome for the definitive period

the experience with operators portal shows that the transitional period offered important and necessary opportunities to improve the system ahead of the definitive period.

Beyond the improvements detailed, the process highlighted the importance of data-driven monitoring. By analysing monthly rejection trends and the reasons behind them, it was possible to quickly identify where interventions were most needed – whether clarifying eligibility rules, simplifying procedures or reinforcing document requirements. This proactive use of evidence ensured that guidance was not generic, but rather targeted and effective.

Another lesson was the value of progressive adaptation. Early rejections exposed weak points in the system but also generated a culture of responsiveness. Each update – whether new guidance, a factsheet or improved validation checks – was a direct reaction to real issues, and applicants responded positively by adjusting their behaviour.

Finally, the process confirmed that a collaborative and iterative approach works. The combination of clear guidance, consistent feedback and active user engagement strengthened the Registry, reduced errors and built confidence. Instead of focusing on rejections, the system shifted towards continuous improvement and successful participation. This approach ensures the sustainability of the process as volumes increase in 2026 and beyond.

CBAM communication campaign

To support relevant stakeholders in complying with the CBAM, the Commission put in place several outreach and communication campaigns, starting in 2023. This included inter alia guidance for EU importers on the concepts to be used for CBAM reporting; guidance for third country producers on the concepts to be used for monitoring emissions generated by producing installations; general and sector-specific webinars and e-learning modules to support importers, national authorities, and non-EU operators in understanding and applying CBAM requirements; and, based on questions and feedback received by stakeholders, a set of regularly updated FAQs to further clarify any outstanding issues.

Chapter 3.1 provides a more detailed overview of outreach activities. The Commission has also a dedicated web portal where all relevant information can be found.

Since the adoption of the CBAM Regulation in May 2023, DG TAXUD has been carrying out a targeted CBAM communication campaign to (a) inform stakeholders about CBAM (b) explain how CBAM works, provide stakeholders with detailed, actionable knowledge to comply with CBAM in the transitional period and prepare for CBAM implementation in the CBAM definitive phase from 2026 and (c) activate stakeholders and multipliers to further disseminate information to relevant stakeholders.

The main target audience for the CBAM communication campaign included EU importers of CBAM goods and producers of CBAM goods in non-EU countries. Particular focus was placed on Member States with higher percentages of importers of CBAM goods, the main third countries of origin of CBAM goods, as well as informing SMEs.

The communication campaign also identified and engaged a network of multipliers to further disseminate information about CBAM. These included relevant industry associations, chambers of commerce and EU delegations. A summary of the main elements and activities of the CBAM communication campaign, as well as participation data from public CBAM webinars held in 2023 and 2024, is provided in Annex I.

DG TAXUD has been preparing a second CBAM communication campaign, to be implemented from Q4 2025 to Q4 2026, building on the results of the first. This campaign will continue to inform importers, producers outside the EU and accredited verifiers about obligations and practical implementation aspects, as CBAM starts its definitive period.

3. Working with our partners

3.1 Engaging with non-EU countries

The EU engages on a regular basis with international partners and stakeholders who have an interest in the functioning of the EU CBAM or have expressed concerns about its design or specific aspects of its operation.

In an effort to obtain relevant input and establish a constructive dialogue with EU industry, Member States and non-EU countries, the CBAM expert group was set up to include several non-member countries as observers[10]. Together with stakeholder representatives, observers provide key input in the expert group's role of assisting the Commission in developing and implementing the CBAM.

The Commission also maintains a close dialogue with non-EU-country authorities through high-level dialogues, bilateral meetings, dedicated missions to partner countries and exchanges in various committees. CBAM-related dialogues were held under the EU-China High-Level Environment and Climate Dialogue, the EU-India Trade and Technology Council, the EU-Japan Green Alliance, the EU-Korea Green Partnership, the EU-Türkiye High-Level Dialogue on Trade, the EU-Türkiye High-Level Dialogue on Climate and the EU-Türkiye Customs Union Joint Committee[11]. The Commission also regularly met non-EU-country representations in Brussels to exchange views on implementation of the CBAM. Several missions to partner countries were organised in close cooperation with the European External Action Service (EEAS) to specifically discuss implementation of the CBAM in partner countries (China, Egypt, India, Japan, South Africa, South Korea, Serbia and Türkiye). The implementation status of the CBAM is also regularly discussed in various trade committees, such as the trade and sustainable development committees set up under the trade agreements with trading partners. The Commission also regularly participates in events, conferences and workshops on the CBAM, providing technical expertise on the functioning of the CBAM to operators in non-EU countries. In total, the Commission has presented the CBAM at more than 100 meetings with non-EU-country representatives, industries and stakeholders in 2025 alone.

Through the EU delegations, the Commission informs non-EU countries and their businesses of the opening of public consultations or calls for evidence allowing stakeholders, including in non-EU countries, to provide feedback on relevant CBAM initiatives, such as CBAM implementation measures or amendments to the CBAM Regulation[12].

The bilateral engagement on the CBAM is closely linked to the work of the Commission's Task Force for International Carbon Pricing and Markets Diplomacy. Launched in February

[10] Non-EU countries and organisations that are observers in the CBAM expert group: Australia, Canada, Egypt, Iceland, Japan, Jordan, Morocco, Mozambique, New Zealand, Norway, Singapore, South Korea, Switzerland, Türkiye, Ukraine, the United Kingdom, the United States, the Energy Community, the EBRD and the OECD.
[11] The first HLD on Climate took place in 2021. The first CBAM technical working group meeting took place on 28 November 2025.

[12] https://ec.europa.eu/info/law/better-regulation/have-your-say_en.

2024, the task force works with over 40 partner countries to scale up carbon markets and pricing.[13].

As underlined in the joint communication on the EU global climate and energy vision[14], the EU is committed to assisting its partners in developing their own ambitious climate and energy policies, fostering carbon pricing and promoting standards for a fair transition. The CBAM provides a transparent, rules-based carbon price signal for imports to the EU market, avoiding carbon leakage and incentivising decarbonisation outside the EU.

The Commission will continue providing financial support to countries in their decarbonisation efforts to maximise the contribution of Global Europe to developing countries' decarbonisation and adaptation needs, in line with the instrument's 30% climate and environment spending target.

Overview of outreach and technical assistance activities

The Commission's cooperation with partner countries aims to strengthen decarbonisation policies, in particular by promoting carbon pricing, emissions trading, carbon taxes and monitoring, reporting and verification (MRV) systems. Where relevant, technical exchanges related to the CBAM are provided in close coordination with the outreach of the Commission's Task Force for International Carbon Pricing and Markets Diplomacy.

TAIEX (the Technical Assistance and Information Exchange) is an EU instrument for institutional capacity-building, providing targeted and rapid support to public administrations in EU candidate countries and beyond. For instance, TAIEX actively supports neighbourhood countries in their decarbonisation efforts by providing technical assistance in the areas of the Carbon Border Adjustment Mechanism (CBAM), monitoring, reporting and verification (MRV) and the emissions trading system (EU ETS). Annex II provides a detailed overview of the relevant workshops and events organised.

Since 2021, the EU Global Support Facility for Nationally Determined Contributions (NDCs) has provided on-demand assistance to increase the ambition of NDCs under the Paris Agreement, design MRV systems and develop carbon pricing mechanisms and fiscal policies that incentivise low-carbon production. Examples include: the MRV roadmaps in Mozambique and Zambia; the legal review of Viet Nam's Emissions Trading System (ETS) Decree, supporting domestic ETS development in EU ETS sectors; and the pre-feasibility study on a carbon tax in Suriname.

Decarbonisation projects in non-EU countries

Table 1 below shows the economic and investment plan allocations which have been made available to countries of the Eastern Neighbourhood in the energy sector since 2019, helping them make the investments needed to accelerate the green transition and decarbonise.

[13] European Commission, 'Stronger EU climate diplomacy: expanding carbon pricing worldwide', https://link.europa.eu/VDJX7M.
[14] JOIN(2025) 25 final.

Table 1: Support to energy transition and industrial decarbonisation through Global Gateway

Country	Total EU funding committed in *million EUR*	Expected investment mobilised in *million EUR*
Western Balkans (regional programme)	103.12	541.25
Albania	165.70	383.36
Bosnia and Herzegovina	115.85	351.39
Kosovo	103.13	233.52
Montenegro	30	58
North Macedonia	103.48	277.79
Serbia	196.64	736.48
Ukraine	439.99	1 567.55
Moldova	300.02	836.62
Georgia	25.85	161.10
Armenia	17.74	389.99
Azerbaijan	10	22.8
Total	1 612	5 568.85

The EU's Global Gateway supports energy transition and green industrialisation in partner countries, with energy representing over one quarter of its flagship projects.

Global Gateway investments prioritise renewable energy, grid extension, clean energy access and regulatory reforms. By reducing electricity emissions, Global Gateway increases industrial competitiveness and mitigates CBAM exposure.A few examples of deliverables under Global Gateway in each region include:

Africa

The Africa-Europe Green Energy Initiative (AEGEI) aims to support the deployment of at least 50 GW of renewable electricity in Africa by 2030, providing access to electricity for at least 100 million people by that year.

Asia-Pacific

The Team Europe Initiative on Green Energy Transition in Bangladesh supports Bangladesh's green transition through investments in renewable energy generation and energy efficiency.

Latin America and the Caribbean

Support for the wind energy sector in Trinidad and Tobago: the EU is providing technical assistance to support the development of the wind energy sector in Trinidad and Tobago, reducing its dependence on fossil fuels.

Euroclima, a flagship EU programme under the Global Gateway strategy, builds partnerships between the European Union (EU) and the Latin America and Caribbean (LAC) regions on climate governance, policies and investments. Implemented by EU and Member State agencies with multilateral partners, Euroclima builds capacity for Article 6 of the Paris Agreement, carbon market development and MRV.

A few examples of initiatives under the EU funded programme Euroclima, that are implemented through delegated cooperation include:

2023-2025: United Nations Economic Commission for Latin America and the Caribbean (ECLAC): promoting social carbon prices and integrating climate criteria into public investment;

- 2024-2025: United Nations Environment Programme (UNEP): establishing a Regional Carbon Markets Observatory for Latin America and the Caribbean;
- 2024-2025: Gesellschaft für Internationale Zusammenarbeit (GIZ): supporting Brazil's ETS law through studies on emissions inventories, MRV rules and decarbonisation strategies;
- 2024-2025: United Nations Development Programme (UNDP), Expertise France and GIZ: strengthening Belize's climate change and carbon market initiatives and mechanisms;
- 2024: UNEP: building capacity for implementation of Article 6 across Central America.

Investment in green hydrogen

Decarbonising CBAM-related industries requires renewable hydrogen.

Global Gateway prioritises investments in hydrogen value chains in partner countries to promote green growth and reduce emissions. Such initiatives include:

- green hydrogen in Namibia: in 2022 Namibia was the first country in Africa to set up a strategic partnership with the EU on sustainable raw material value chains and renewable hydrogen;
- the Team Europe initiative to develop green hydrogen in Mauritania: support infrastructure, job creation, training and legal/fiscal frameworks for hydrogen development;
- development of the port of Lumut in Malaysia: maritime industrial city project to develop Port Lumut as a green industrial hub specialising in hydrogen and renewable energy.

As an example of a European partnership with an individual country to develop low-carbon, climate-resilient and sustainable infrastructure, Team Europe invests in the green transition in Mozambique under the Multi-Annual Indicative Programme (MIP) Neighbourhood, Development and International Cooperation Instrument Global Europe (NDICI-Global Europe) with the goal of a decarbonised energy mix, enhanced access to on-grid and off-grid renewable energy and improved energy efficiency of the electricity network.

Enhanced support for the decarbonisation of developing countries' economies

Global Gateway, as the vehicle for supporting the clean and resilient transition in emerging and developing economies, will further enhance the decarbonisation of developing countries' economies. Such support will generate a triple dividend: helping combat climate change globally; supporting development in partner countries; and tangibly demonstrate EU's solidarity. By supporting decarbonisation efforts, it will also contribute to reduce the carbon content of exported goods from these countries and therefore increase industrial competitiveness and mitigate CBAM exposure.

3.2 Impact of the CBAM on non-EU countries

As required by the CBAM Regulation, the Commission has assessed the impact of the CBAM on developing countries and, in particular, least developed countries (LDCs)[15]. This chapter also discusses the impact of the CBAM on the EU's neighbourhood countries[16].

The degree to which the CBAM impacts on non-EU countries depends on two main factors. First, the total volume of CBAM goods exported to the EU relative to the overall economic activity – i.e. the trade exposure – of a non-EU country is a general indicator of that country's potential exposure to the carbon pricing introduced through the CBAM. Second, the emission intensity of a non-EU country's export mix is important, as higher emission intensity means a higher carbon price to be paid by EU importers. Countries and sectors with relatively low emission intensity are expected to experience an increase in demand, while products with relatively high emission intensity are expected to see reduced demand. By incentivising the use of cleaner production technologies and reducing demand for high-emission goods, the CBAM is expected to reduce GHG emissions in non-EU countries with respect to exports to the EU.

In terms of trade exposure, Mozambique stands out among the LDCs. Its total exports to the EU of CBAM goods amounted to EUR 1.2 billion in 2024, most of which was aluminium. This corresponds to around 5.5% of Mozambique's GDP. As shown in Table 2, other LDCs have very limited exposure, with the second and third largest exporters (Cambodia and Zambia) exporting only small amounts of CBAM goods.

The EU's neighbourhood countries generally export more CBAM goods to the EU. The largest exporters to the EU in EUR billions are Ukraine, Egypt and Morocco. Countries close to the EU are among the most impacted third countries. They are typically small economies, so absolute export volumes from these countries are naturally small, but for them these exports

[15] LDCs are countries categorised (as of the end of 2024) as having low levels of income and facing severe structural impediments to sustainable development. The category of LDC was established by the UN General Assembly in 1971. See https://www.un.org/ohrlls/content/list-ldcs for more information and a list of LDCs.
[16] https://economy-finance.ec.europa.eu/international-economic-relations/candidate-and-neighbouring-countries/neighbouring-countries-eu/neighbourhood-countries_en.

may represent important shares. For example, North Macedonia's exports to the EU of CBAM goods amount to around 4.1% of GDP in 2024[17].

Table 2: Trade exposure of largest exporters among LDCs and neighbourhood countries

	Exports of CBAM goods to the EU in EUR billion (2024)	**Exports of CBAM goods to the EU as % of GDP (2024)**
LDCs (three largest exporters)		
Mozambique	1.2	5.5
Cambodia	0.014	0.03
Zambia	0.015	0.02
Neighbourhood countries (three largest exporters)		
Ukraine	3.3	1.8
Egypt	1.6	0.4
Morocco	1.0	0.7

Source: Comext (2024) for trade and World Bank data (2024) for GDP

The impact of the introduction of the CBAM was analysed by the Commission's Joint Research Centre (JRC) using the computable general equilibrium (CGE) JRC-GEM-E3 model and the GTAP 11 circular economy database. The introduction of the CBAM was compared to a baseline scenario without the CBAM but with a continuation of other EU climate policies[18]. The phaseout of free allowances in the EU's ETS was not included in the baseline but was assumed for the CBAM scenario. The introduction of the CBAM was modelled together with a phaseout of free allowances, as the former replaces the latter as the main EU policy instrument aimed at addressing the risk of carbon leakage. The model considered the impact of the CBAM on 50 countries and regions, with a focus on LDCs, a selection of other developing and emerging economies and selected EU neighbourhood partner countries[19]. See Annex III for the full list of countries included and additional details of the modelling approach. The CBAM is being introduced gradually, and the analysis here focuses on 2035, when the mechanism will be fully in place. In all earlier years, the effects are expected to be consistently smaller.

Overall, the model results show that the expected impact of the CBAM on the GDP of LDCs in aggregate is negligible, at less than 0.01% by 2035. The CBAM was designed with a focus on energy- and emission-intensive sectors and therefore primarily affects more industrialised and developed economies. In addition, most LDCs export only a very limited amount of CBAM goods to the EU. The impact on the GDP of other developing and neighbourhood countries in aggregate is similarly small.

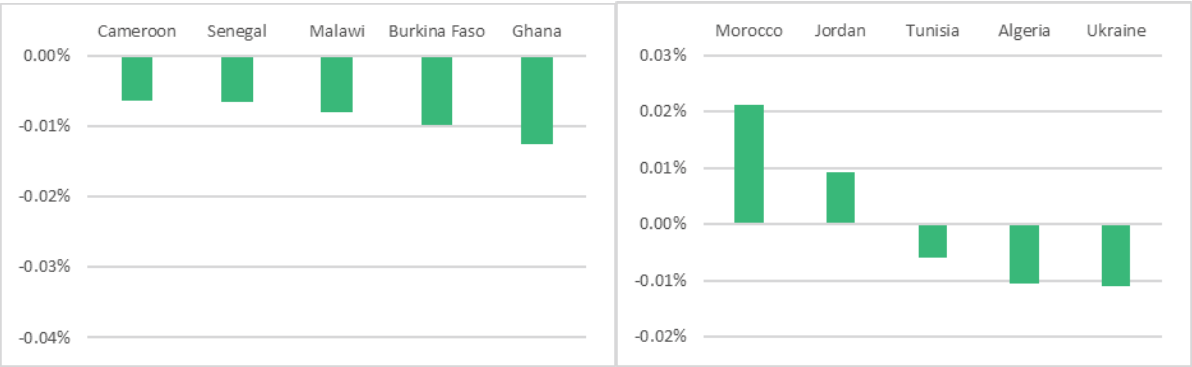
[17] Note that North Macedonia is not available in the GTAP database and could therefore not be further analysed. North Macedonia exports mostly iron and steel to the EU, with relatively low emission intensity. Given that low intensity, there is probably no significant negative impact on this sector.

[18] The baseline assumes implementation of the EU's Fit for 55 package, except the CBAM. The rest of the world is assumed to follow the reference scenario from the *Global Energy and Climate Outlook 2024*.

[19] These were selected on the basis of the data available in the GTAP database and are: Algeria, Egypt, Jordan, Morocco, Tunisia and Ukraine. Armenia, Azerbaijan and Georgia are included as part of an aggregated region designated as the Caucasus.

The macroeconomic impact of the CBAM on individual countries is also negligible, as shown in Figure 2 below. The five most affected LDCs and other developing countries will all see a very limited change in GDP (around − 0.01%) compared to the baseline. Among the EU's neighbourhood countries, the modelling shows only a minor decrease compared to the baseline in GDP (0.01%) for Ukraine, Algeria and Tunisia, whereas Morocco and Jordan will see a minor increase (0.02% and 0.01% respectively).

Figure 2: Impact of the CBAM on GDP (% change compared to the baseline, 2035) of the five most affected developing countries* (left) and neighbourhood countries (right)



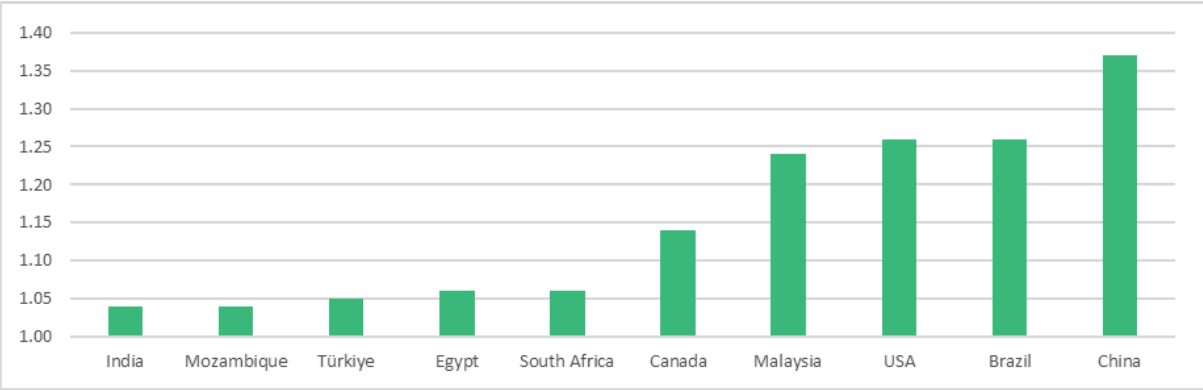
*Source: JRC-GEM-E3 model. *Includes LDCs and other developing countries. Mozambique discussed separately below.*

Mozambique is unique among the countries assessed, as it produces and exports mainly one type of CBAM good – unwrought aluminium[20] – originating from one company. This is a product with relatively low value added compared to more processed aluminium products and, in Mozambique's case, with relatively moderate embedded emissions. External studies have found that Mozambique's aluminium production is relatively clean and consider that the effect of the introduction of carbon pricing on it would probably be limited[21].

Due to these characteristics, a more granular approach was taken to model the potential impact on Mozambique's aluminium sector. First, physical emission intensities (kg CO_2-eq/tonne of output) were calculated for the main aluminium-producing countries, allowing emissions to be compared on a product-by-product basis. Figure 3 shows that Mozambique is among the cleanest non-EU-country producers, with an emission intensity only 1.04 times that of the EU average. Second, these emission intensities were used to simulate the impact of the introduction of the CBAM. Note that the standard modelling used for the rest of this section is based on emissions expressed relative to the total value of a sector (kg CO_2-eq/USD). However, this approach overestimates the impact on countries with a unique focus on relatively low value-added products, such as Mozambique. See Annex III for additional details.

[20] Concerning mainly the product group CN 76011090.
[21] See box 3 of the 'Building a Climate Coalition: Aligning Carbon Pricing, Trade, and Development' report for the case of Mozambique.

Figure 3: **Trade-weighted physical emission intensity (kg CO_2-eq/tonne) of main aluminium producers relative to the EU's average emission intensity ('lower is better')**

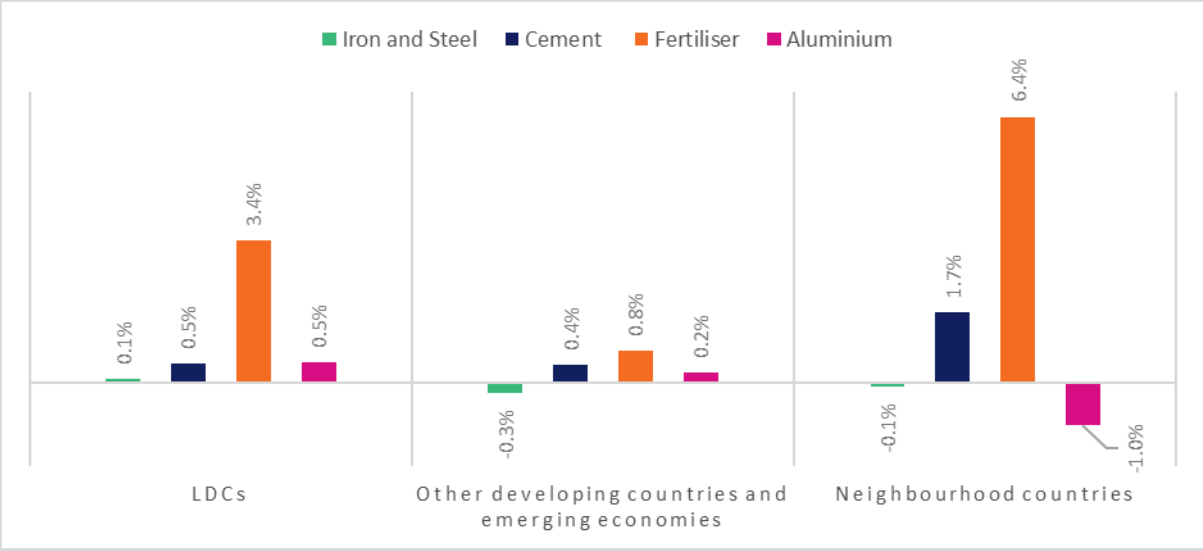


Source: Commission calculations based on Comext data for 2023 and Vidovic et al. (2023)[22]

On the basis of this approach, the results for 2035 show a very limited expected decrease in output in Mozambique's aluminium sector, of − 0.4% relative to the baseline. In addition, the macroeconomic impact is negligible, with a change in Mozambique's GDP by 2035 of − 0.01% relative to the baseline.

In terms of the sectoral impact on the main country aggregations, Figure 4 shows the (percentage) change in output per sector for LDCs, other developing countries and emerging economies (see Annex III for the countries included in this category) and the EU's neighbourhood countries in aggregate.

Figure 4: *Sectoral impact (% change in output compared to the baseline, 2035) in country aggregations: LDCs, other developing countries and neighbourhood countries*



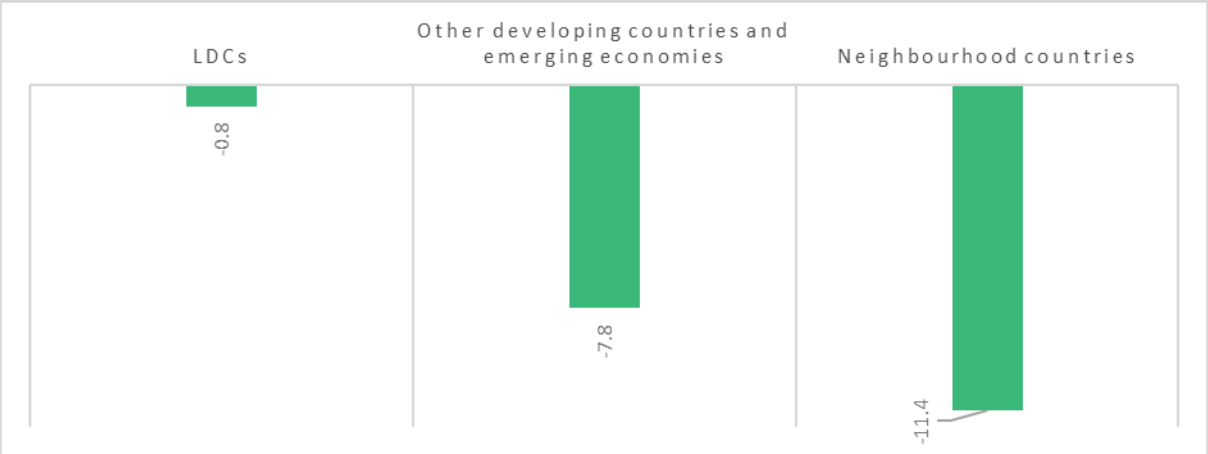
Source: JRC-GEM-E3 model. Modelling for Mozambique (included in the LDC aggregation) is based on physical emission intensities.

[22] Vidovic, D., Marmier, A., Zore, L. and Moya, J., *Greenhouse gas emission intensities of the steel, fertilisers, aluminium and cement industries in the EU and its main trading partners*, Publications Office of the European Union, Luxembourg, 2023, doi:10.2760/359533, JRC134682.

Sectoral changes in individual LDCs, besides Mozambique, are generally very small in both percentages and absolute values and therefore not broken down further. Sectoral impacts for individual countries in the ‘’other developing countries and emerging economies’’ aggregation are not broken down further as this concerns a wide group of countries for which an individual analysis is outside of the scope of the analysis. Given the larger exposure of neighbourhood countries, the sectoral impacts there are more substantial, especially in the fertiliser sector. For this sector, there is a significant impact for Morocco, Algeria and Egypt. Among the goods in scope of CBAM, Morocco mainly produces fertilisers that predominantly contain phosphorus and only a limited amount of nitrogen. The production process for phosphate fertiliser products uses hardly any natural gas and these products thus have a relatively low emission intensity[23]. Algeria and Egypt, in contrast, mainly produce fertilisers that predominantly contain nitrogen, and thus with a higher emission intensity. These differences in emission intensities result in increased output in the Moroccan fertiliser sector compared to the baseline while output in Algeria and Egypt decreases relative to the baseline. Sectoral impacts for individual countries in the ‘’other developing countries and emerging economies’’ aggregation are not broken down further as this concerns a wide group of countries for which an individual analysis is outside of the scope of the analysis.

As stated above, the introduction of CBAM is expected to reduce global emissions of CO_2 equivalents (CO_2-eq). Figure 5 shows the change, in millions of tonnes (Mt) of CO_2-eq, for three country aggregations. In absolute terms, compared the baseline, emissions decrease the most in neighbourhood countries: by 11.4 Mt of CO_2-eq. For LDCs the reduction in absolute emissions is much more limited, at − 0.8 Mt of CO_2-eq. In relative terms this comes down to a change in emissions of − 0.9% in neighbourhood countries and − 0.2% in LDCs. The ‘other developing countries and emerging economies’ aggregation shows a significant reduction in emissions: − 7.8 Mt of CO_2-eq. However, given the large size of this aggregation the change in percentages is more limited at − 0.05%.

Figure 6: *Change in Mt of CO_2-eq (compared to the baseline, 2035)*



Source: JRC-GEM-E3 model

Overall, based on the modelling results, it can be concluded that the impact on LDCs, developing countries and neighbourhood countries is relatively minor in aggregate. As the analysis is focussed on economic impacts in aggregate (at country or broad sectoral level),

[23] Note that fertiliser products containing only phosphorus are not included in the scope of CBAM; products with a mix of phosphorus and nitrogen are included, however.

more granularity in the assessment would be needed to have conclusive results regarding the impact on sectors at a more disaggregate level.

Only a limited number of other studies have modelled the impact of CBAM on developing countries specifically. Their underlying assumptions and scope differ significantly from this analysis, and they arrive at different conclusions. A 2023 study focusing on the impact on Africa found that the GDP of African countries would decrease in aggregate by between 0.33% and 1.12%, depending on the scenario[24]. However, this is largely based on scenarios that assume CBAM applies to all goods imported by the EU and/or that there is no phaseout of free allowances for the production of CBAM goods under the EU ETS. For that reason this study greatly overestimates the impact of introducing CBAM, which is being done in conjunction with the phaseout of free allowances. An earlier study (from 2021) also modelled the impact of a CBAM-like mechanism on developing countries, but this excludes LDCs[25]. The study found that CBAM would lead to a shift in trade patterns, with some high-emission developing countries exporting less and some low-emission developed countries exporting more. It also found that real income in developing countries would decrease in aggregate by between USD 5.8 and 10.2 billion. However, these findings were based on a sectoral scope that differs considerably from that currently legislated for in the EU's CBAM[26].

[24] Implication for African countries of carbon border adjustment mechanism in the EU (the African Climate Foundation and the London School of Economics Firoz Lalji Institute for Africa, 2023).
[25] A European Union Carbon Border Adjustment Mechanism: Implications for developing countries (UNCTAD, 2021).
[26] It includes petroleum, coal, chemicals, glass and paper, for example – none of which are included in the EU's CBAM.

Box: Impact of the CBAM on Ukraine's economy in the exceptional circumstances of Russia's war of aggression against Ukraine

The exceptional circumstances of Russia's war of aggression against Ukraine

Article 30(7) of the CBAM Regulation provides that 'where an unforeseeable, exceptional and unprovoked event has occurred that is outside the control of one or more third countries subject to the CBAM, and that event has destructive consequences on the economic and industrial infrastructure of such country or countries concerned, the Commission shall assess the situation and submit to the European Parliament and to the Council a report, accompanied, where appropriate, by a legislative proposal, to amend this Regulation by setting out the necessary provisional measures to address those exceptional circumstances.'

While the exceptional circumstances of Russia's war of aggression against Ukraine are fully recognised, the assessment below indicates that, at this stage, these circumstances do not justify the granting of a force majeure exemption under Article 30(7) of the CBAM Regulation.

At the same time, the CBAM framework allows for a range of facilitative and supportive measures that can help mitigate administrative and financial burdens, promote compliance, and reinforce Ukraine's economic resilience and decarbonisation pathway, without derogating from the Regulation. These measures should be actively explored in order to mitigate potential administrative and financial impacts of CBAM and to support Ukraine's economic recovery and decarbonisation.

Since the beginning of the unprovoked Russian war of aggression on Ukraine on 24 February 2022, Ukraine has suffered significant damage to its industrial infrastructure and its wider economy. By the end of 2024, the damage to infrastructure exceeded EUR 150 billion, including EUR 30 billion of damage to commerce and industry[27]. Throughout 2024 the energy sector – in particular electricity generation and transmission – was increasingly targeted.

The invasion has caused economic disruption, job losses and low investor confidence, which all affect public and private financing. Approximately one third of the territory of the country is under occupation, with its producing capacities destroyed or seized by the invader. 90% of the damage to infrastructure has been concentrated in ten frontline regions (of the 27 that make up the country), and Ukraine's economy has demonstrated resilience. After a contraction of 28.8% in GDP in 2022, Ukraine's economy grew in 2023 and 2024 although output remains far below pre-war levels due to the occupation, destruction and the flight of refugees. The reopening of the Black Sea corridor in late 2023 has facilitated better utilisation of capacity in metals and mining, and Ukraine's GDP increased by 5.5% in 2023 and 3.6% in 2024, yet overall economic performance continues to lag well behind pre-war conditions.

From the outset the European Union has offered unwavering support to Ukraine. The Ukraine Facility is the flagship programme providing assistance for recovery, reconstruction and EU accession[28]. The Facility consists of three pillars and will allocate up to EUR 50 billion between 2024 and 2027 to help Ukraine withstand external threats, accelerate its recovery and tread a path towards sustainable development and EU membership. The Ukraine Investment Framework, part of the Ukraine Facility, is designed to attract public and private investment in the recovery and reconstruction of Ukraine. Backed by EUR 9.3 billion, comprising EUR 7.8

billion in guarantees and EUR 1.5 billion in a combination of public and private funding (blending), the Framework aims to unlock up to a further EUR 40 billion in investment. It is specifically designed to help rebuild Ukraine's critical infrastructure and boost its economy; it focuses on key sectors such as energy and industry. It supports investment projects such as the construction of a new 147 MW-capacity wind farm in the Volyn region. The EU has also been funding the restauration of hydropower plants through a €120 million EIB loan to Ukrhydroenergo, Ukraine's largest hydropower company. On 10 July 2025 the European Commission and the EIB announced a new EU funding package for critical infrastructure and supports SMEs notably through three loans of EUR 100 million to Ukreximbank, EUR 70 million to Ukrgasbank and EUR 60 million to Bank Lviv. In the energy sector, the EU is also one of the major contributors to Ukraine's energy resilience through the Ukraine Energy Support Fund, managed by the Energy Community Secretariat.

At least 20% of investments made under the Ukraine Facility and the Ukraine Investment Framework are expected to contribute to climate change mitigation and adaptation and to the broader green transition.

Ukrainian exports of CBAM goods and CBAM reporting under the war of aggression

In the second quarter of 2025 almost 15% of all CBAM goods imported by the EU (calculated by volume in tonnes; see table below) were imported from Ukraine. In that period, 18.4% of the EU's imports of iron and steel, and 17.4% of its imports of cement, were from Ukraine, supported by the good access to the EU market due to our free trade agreement (DCFTA) and the suspension of steel safeguards that were agreed for Ukraine at the beginning of the war.. In absolute terms, these imports were still lower than the pre-war levels.

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Table 2: Ukraine's market share of imports to the EU of CBAM goods between Q4 2023 and Q2 2025

Year and quarter	Iron and Steel	Cement	Fertilisers	Aluminium	Total
Q4 2023	15.4%	13.6%	1.7%	0.4%	12.2%
Q1 2024	19.0%	10.8%	0.6%	0.4%	14.7%
Q2 2024	16.9%	11.2%	0.2%	0.4%	13.7%
Q3 2024	16.1%	19.5%	0.0%	0.6%	13.1%
Q4 2024	17.6%	13.6%	0.5%	0.5%	13.9%
Q1 2025	17.4%	7.8%	0.1%	0.4%	12.3%
Q2 2025	18.4%	17.4%	0.0%	0.8%	14.8%

[27] Ukraine: Fourth Rapid Damage and Needs Assessment.

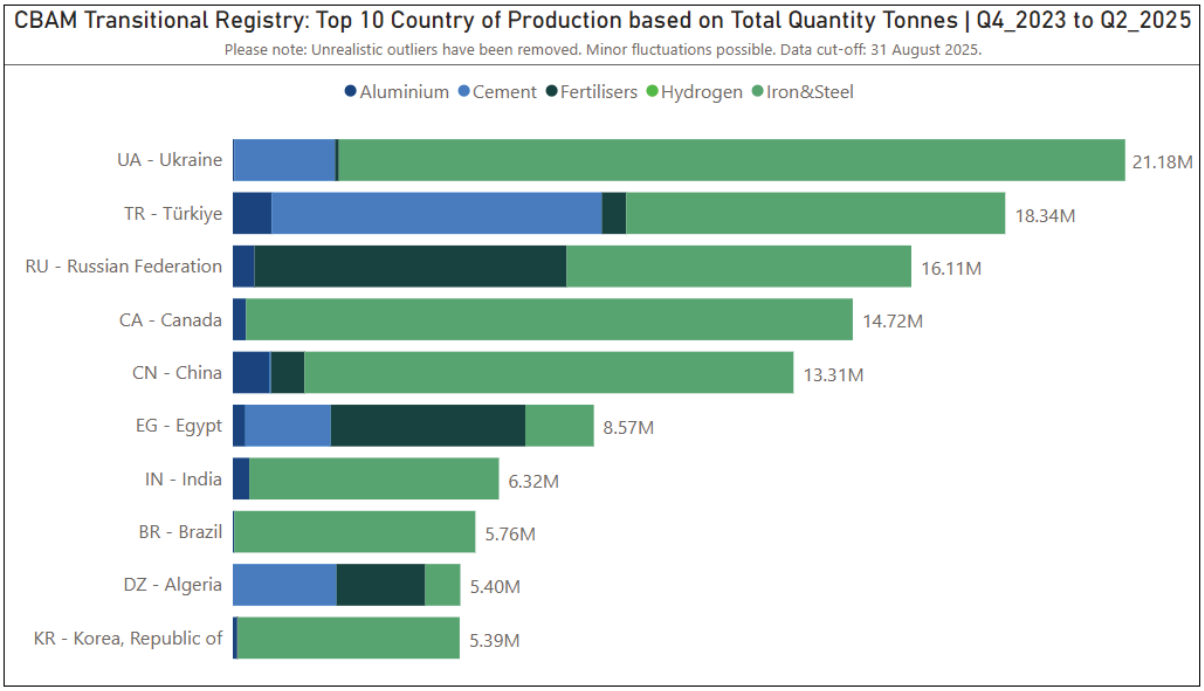
[28] Regulation (EU) 2024/792 of the European Parliament and of the Council of 29 February 2024 establishing the Ukraine Facility.

Total	17.3%	13.6%	0.4%	0.5%	13.6%

Source: CBAM Registry, additional information in ANNEX IV

Since the entry into force of the CBAM Ukraine has exported 21.2 million tonnes of CBAM goods to the EU, including 18.7 million tonnes of iron and steel and 2.4 million tonnes of cement.

Figure 7: CBAM Transitional Registry – Top 10 Country of Production for CBAM goods imported to the EU



Source: CBAM transitional registry, additional information in Annex IV.

Despite the war and the damage it has done to Ukraine's production and export potential, Ukraine, which is primarily exporting agricultural goods, also exports exporting iron and steel as the second most important good (12,3% of its exports to the EU), as well as also cement (0,6% of its exports to the EU) and aluminium (0,3% of its exports to the EU).

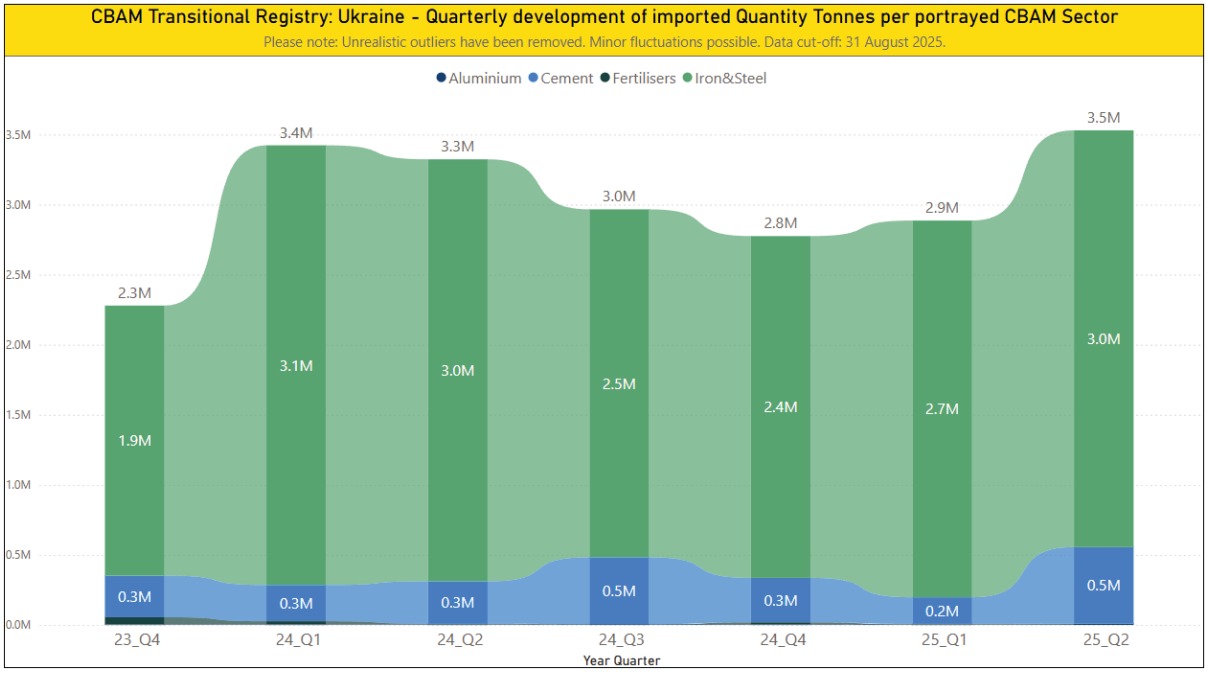
Although the steel industry faces challenges worldwide, especially in the EU, where demand for steel has been depressed, and despite the damage caused by the war, Ukraine's production of pig iron and steel increased by around 20% in 2024 compared to 2023. Despite overcapacity in the EU, since the entry into force of the CBAM Regulation in its transitional period, the volume of EU imports of steel and aluminium from Ukraine has increased. Trade data (Comext)[29] show that the EU imported 7.6 million tonnes of iron and steel from Ukraine in

[29] The Comext data is used here to display trends across years going back before the CBAM transitional period. Natural differences between Comext data (prepared by Eurostat) and CBAM data (prepared in comparison with customs data) may arise, particularly in relation to Ukraine.

2022, 8.1 million tonnes in 2023 and 9.8 million tonnes in 2024. For aluminium the Comext data show EU imports from Ukraine increasing from 17 300 tonnes in 2022 to 23 000 tonnes in 2023 and 26 800 tonnes in 2024.

Volumes of CBAM goods exported by Ukraine to the EU reported in the CBAM Registry remained broadly stable despite the war, even increasing since the beginning of 2025.

Figure 8: Ukraine – CBAM Transitional Registry: changes by Quarter in imported Quantities of goods in Tonnes per CBAM Sector



Source: CBAM transitional registry, additional information in ANNEX IV.

At the entry into application of the CBAM, in the fourth quarter of 2023, only around 15% of imports of CBAM goods from Ukraine were reported based on actual embedded emission, not default value. By the second quarter of 2025, the figure was 78%. The figure is 99% for imports of quantities above 1 000 tonnes, illustrating that, despite the war, Ukrainian operators are able to comply with CBAM obligations and there is widespread use of the measurement, reporting and verification (MRV) process. Since January 2025, use of MRV is again compulsory in Ukraine (it was suspended further to the introduction of the martial law because of Russian war of aggression on Ukraine). A robust MRV system will allow Ukrainian operators to account for their embedded emissions accurately. It will also facilitate exports of CBAM goods by Ukraine from 2027 onwards when the UK will be introducing its own CBAM.

Some studies[30] have been mentioned which would estimate that the CBAM will negatively affect the dynamics of the development of the Ukrainian economy, but it is worth recalling that the CBAM financial adjustment will be introduced very gradually, in parallel to the phase-out of free allocation of emission allowances under the EU ETS. Except for the export of electricity (as there is generally no free allocation for electricity generation in the EU ETS), it is only in

[30] e.g.. The impact of the CBAM on the economy of Ukraine, Federation of employers of Ukraine, Centre for Market Economy Development Ukraine.

2034 – when ETS free allowances will have been phased out – that the CBAM financial adjustment will fully apply. Until 2030, the CBAM financial adjustment will be minimal. As mentioned above in the assessment done by the Commission of the impact of CBAM on developing countries and the EU's neighbourhood countries, exports of CBAM goods represent less than 2% of Ukraine's GDP. Indeed, the modelling done by the Commission of the impact of CBAM shows only a minor decrease in GDP (− 0.01%) for Ukraine.

Under the new de minimis threshold introduced by the CBAM simplification, 86% of imports of CBAM goods from Ukraine are reported in the CBAM transitional registry, declaring actual embedded emission values as opposed to default values. This strong ability of Ukrainian operators to use MRV will allow importers to make use of actual emissions when importing CBAM goods from Ukraine and to benefit from a lower CBAM financial adjustment, since the emission intensity of iron and steel produced in Ukraine is lower than that of its steel producers' competitor from countries such as India and China. The emission intensity is particularly low for aluminium goods which will be a competitive advantage for the export to the EU of Ukrainian aluminium products.

The CBAM simplification also provides that from 2027 the Commission may determine and make available in the CBAM Registry default carbon prices per country for the carbon price paid. Declarants will be given the possibility to choose either to rely on the Commission default carbon price directly available in the CBAM Registry or to claim the deduction of the carbon price effectively paid based on certified evidence. Ukraine has a carbon tax in place on fuel emissions; although it is low, it could be the basis for the introduction of an emission trading scheme. On 21 February 2025 Ukraine adopted a roadmap for the implementation of a national ETS. The possibility to use a default carbon price will greatly simplify claims by Ukrainian operators under CBAM for a carbon price effectively paid.

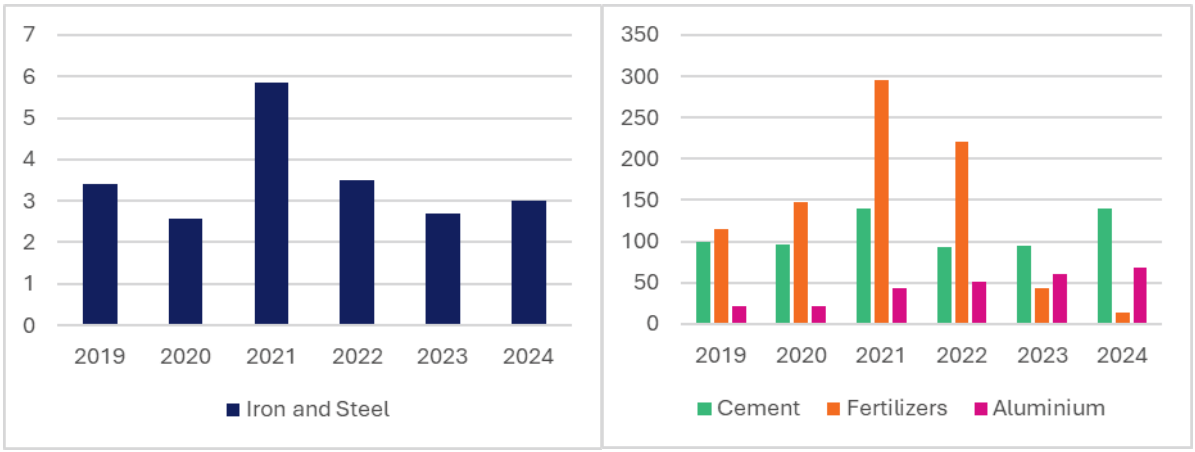
Before the war 1.4% of Ukraine's exports to the EU were of electricity. Now, however, Ukraine is a net importer of electricity. The Ukraine facility, both Pilar 1 and Pillar 2, as well as the Ukraine Energy Support Fund, which is mobilising around EUR 2.3 billion in international contributions, support repairs of the energy infrastructure, including building new renewable generation capacities. The Ukraine Renewable Energy Risk Mitigation Mechanism will support 1 GW of new renewable energy capacity; Ukraine's green energy sector's production capacity is expected to double by 2040. The Commission proposals due in December to ensure that the CBAM is effective in promoting decarbonisation of electricity production in third countries will contribute to Ukraine's electricity exports being competitive as it has progressed further in the green and sustainable energy transition.

Expected impact of CBAM on the Ukrainian economy

As mentioned in Chapter 3.1, Ukrainian exports of CBAM goods to the EU amounted to around EUR 3.3 billion (1.8% of GDP) in 2024. Iron and steel products made up around 90% of this, at EUR 3.0 billion. Cement exports amounted to EUR 139 million. Exports of the other CBAM goods (fertilisers, electricity and hydrogen) were all lower than EUR 100 million. The export of fertilisers, especially, has decreased significantly since Russia's full-scale invasion of Ukraine in 2021. Exports to the EU of iron and steel decreased less between 2019 and 2024.

However, exports of iron and steel to the rest of the world did fall substantially, from around EUR 10 billion in 2019 to around EUR 4 billion in 2023.

Figure 7: Ukrainian exports to the EU of iron and steel CBAM products in billions of euro (left) and of other CBAM goods in million Euro (right)



Source: Comext database

The impact of CBAM on Ukraine was assessed alongside the impact on other third countries (see Chapter 3.1). It should be noted that the database used captures changes in GDP and population since the start of the war but does not include a full modelling of sectoral changes. Nor does it make assumptions on the long-term impact of the war on the Ukrainian economy. Nevertheless, the modelling provides an indication of the degree to which EU demand for Ukrainian CBAM products could be expected to increase or decrease, given the specific emissions of Ukrainian CBAM goods relative to those of CBAM goods from other third-country producers.

The modelling shows that overall demand for Ukrainian iron and steel products is expected to remain broadly stable, with exports increasing by around 1% compared to the baseline by 2035. The emission intensity of iron and steel produced in Ukraine is similar to the world average and lower than that of some other third-country steel producers such as India and China. The expected impact (in percentages, relative to the baseline) on growth in exports of cement, fertiliser and aluminium products is + 24%, − 25% and − 3% respectively. In relation to exports of fertilisers in particular it should be noted that the modelling is highly uncertain, given the large-scale adverse impact of the war on that sector. Overall, as the impact on the larger iron and steel sector is relatively limited, and exports of other CBAM goods make up a much smaller part of the Ukrainian economy, the impact of CBAM on GDP is expected to be minor, at − 0.01% by 2035.

Despite the war and the damage to its economy, Ukraine is the largest exporter of CBAM goods to the EU in volume terms (tonnes). Ukrainian operators have demonstrated a strong ability to use MRV and thus to use CBAM as a competitive tool, since the emission intensity of iron and steel produced in Ukraine is lower than that of its competitors. The CBAM financial adjustment will be introduced very gradually and the modelling done by the Commission shows CBAM having a very minor impact on Ukraine's GDP. Based on the assessment above, no provisional measures regarding the application of CBAM on goods originating from Ukraine appear

necessary at this stage. Ukrainian operators will also stand to benefit from the simplifications described in this report. These include the simplification of reporting actual and default values, and the fact that the European Commission will be able to publish default carbon prices for Ukraine by 2027, once all 2026 observations of price data are available. This should happen before the deadline for submitting the CBAM declaration for 2026 imports by the end of September 2027. The European Commission will continue to monitor the impact of the application of CBAM on Ukraine and is committed to further supporting Ukraine's economic recovery and decarbonisation efforts.

In summary, on the basis of the evidence and assessment carried out, the Commission concludes that, notwithstanding the exceptional circumstances resulting from Russia's war of aggression against Ukraine, the application of CBAM to goods originating in Ukraine does not, at this stage, have a significant adverse impact on Ukraine's economy or its capacity to recover. Consequently, no provisional measures amending the application of CBAM to Ukrainian goods are warranted. At the same time, the Commission underlines its commitment to accompanying Ukraine through facilitative measures fully embedded in the CBAM framework, including simplification of reporting requirements, the use of actual emission data, the future availability of default carbon prices, and continued support for the development of robust MRV and carbon pricing systems. These elements, combined with the gradual phase-in of the CBAM financial adjustment, provide Ukrainian operators with regulatory predictability and incentives to invest in decarbonisation, strengthening their competitiveness on the EU market and supporting Ukraine's long-term recovery and alignment with the EU acquis.

3.3. Facilitating CBAM Implementation for third country producers

As outlined above, the Commission has been keen to ensure that CBAM, as a climate-oriented environmental measure, is embedded in a wider international context and minimises the burden on international trade as much as possible.

Throughout the transitional period, some partners raised questions or expressed concerns on how CBAM will impact their production processes and their exports to the EU.

3.4. Applying the CBAM in the European Economic Area (EEA)

The CBAM Regulation is of EEA relevance and the EFTA Secretariat has triggered the process to incorporate it into the EEA Agreement. This process is currently underway. The incorporation is being done by means of a decision of the EEA Joint Committee.

The Commission is in dialogue with the EEA/EFTA countries on the adaptations necessary before the CBAM is included in the EEA Agreement. Once the process is finalised, the CBAM Regulation will become fully applicable in the EEA/EFTA countries, unless exceptions are provided for. In Norway the government has proposed a law to implement the CBAM by 2027 and has launched a public consultation.

4. Making the CBAM more effective and efficient

4.1 Introduction

Based on the lessons learned during the transitional period (see Chapter 2) and the feedback gathered from stakeholders, the Commission decided to employ a two-step approach for strengthening and extending CBAM over the coming years.

In a first Step in 2026-2027, the Commission will advance work on: (i) a downstream extension limited to selected products; (ii) additional anti-circumvention measures ; (iii) amending rules for calculating the embedded emissions of electricity (iv) a proposal to address remaining risks of carbon leakage,; (v) an implementing act on setting the rules for the deduction of a carbon price effectively paid in third countries and (vi) the review of the ETS. The CBAM benchmarks will be revised in 2026, to match the new ETS benchmarks. Then, in 2027 or early 2028, once enough data has been collected, the default values will be revised.

This section focuses on the December 2025 package, where the Commission is presenting a proposal aiming to strengthen the effectiveness of CBAM by mitigating the risk of downstream carbon leakage, strengthening the enforcement of the mechanism and deterring circumvention practices, and more facilitative elements of electricity reporting thereby also incentivising decarbonisation of electricity grids in third countries.

The proposal is prompted by a careful review of the implementation of CBAM during the transitional period and extensive consultation with stakeholders. These confirmed the need to act swiftly to address the challenges mentioned in order to safeguard the CBAM's environmental objectives. That is why, amongst others, the Steel and Metals Steel and Metals Action Plan of March 2025[31] announced a Commission proposal to extend the scope of the CBAM to certain steel and aluminium-intensive downstream products and to introduce additional anti-circumvention measures. This is presented in the remainder of this chapter.

In a second step, in 2027, the Commission will assess whether it would be appropriate to make a proposal to extend CBAM further, by adding additional EU ETS sectors at risk of carbon leakage to the scope, complement the product scope by more downstream goods, and look at possibilities to extend the scope to indirect emissions, where possible. Chapter 5 of this present report takes stock of the analysis that has been carried out so far in this respect.

4.2. Downstream goods

CBAM is currently limited to a set of imported basic goods. Downstream goods incorporate those basic goods as inputs in their production. The limited product scope of CBAM reflects a stepwise approach that initially prioritised basic goods most relevant in terms of their embedded emissions and with the biggest and clearest carbon leakage risks. This design choice was also proportionate since the carbon costs faced by goods further down the value chain were less pronounced compared to the total value added downstream, placing leakage risks primarily

[31] COM(2025) 125.

on upstream, carbon-intensive sectors. However the CBAM Regulation recognises that its scope may need to be extended to downstream goods to prepare for future increases in the carbon price of the EU ETS. This is because carbon costs may then become a more significant share of downstream goods' production expenses, potentially encouraging producers to shift operations to third countries with laxer climate policies or inducing consumers to substitute EU produced downstream goods for carbon-intensive imports that face no carbon cost.

Current carbon price projections indicate a continued rise of carbon prices under the EU ETS from 2026 onwards in line with the EU's increased climate ambition. With the progressive phaseout of free allowances under the EU ETS and the parallel phase-in of CBAM, downstream producers in the EU may be confronted with a dual cost push. They will face higher input prices for both domestically sourced and imported basic goods, which they require as inputs for the production of downstream goods. As a result, the risk of carbon leakage is likely to shift from the upstream sectors covered by CBAM to later stages of the value chain that remain exposed. This would severely undermine CBAM's climate effectiveness if left unaddressed.

The extension of CBAM further down the value chain therefore aims to address the risk of downstream carbon leakage. The proposed extension is based on objective criteria analogous to those that guided the determination of the original scope of CBAM namely the level of risk of carbon leakage, the relevance of emissions and the technical feasibility of attribution emissions to those goods. Carbon leakage risk itself for case of downstream goods is determined by the cost push factor that captures how much the carbon cost of CBAM inputs drive a downstream good's overall costs compared to its overall value added, and its trade intensity provides a proxy for a downstream good's tradability. Downstream products are deemed at risk of carbon leakage when they have both a high-cost push and high trade intensity.

This proposed first round of downstream extension focuses exclusively on steel- and aluminium-intensive downstream products. This follows directly from the Steel and Metals Action Plan, which narrows this initial extension to goods downstream to the 'metals sectors' of CBAM. Not only do steel- and aluminium-based downstream products face the highest risk of carbon leakage, but they exhibit the highest technical feasibility in terms of obtaining actual values for embedded emissions. Downstream goods of other CBAM sectors, namely those related to cement, fertilisers and hydrogen, are part of this proposed first round of downstream extension. Instead, the necessity and possibility of downstream extensions in these sectors is assessed as part of the present report (see Chapter 5).

Downstream goods are typically characterised by longer, more complex and more global value chains than basic goods currently under the scope. This makes it harder for importers to obtain actual emission data from downstream producers. The emissions are split across the different production steps of a downstream good, which increases the administrative burden to report embedded emissions. Consequently, the first extension of the CBAM scope to downstream goods considers measured flexibilities for attribution of emissions of these goods, without compromising the objectives of CBAM.

4.3 CBAM avoidance: circumvention & other practices to unduly lower the CBAM liability

As announced in the Steel and Metals Action Plan[32] the Commission has been working on additional anti-avoidance measures. These new measures aim to prevent that the provisions of the CBAM Regulation are exploited by EU importers and third-country producers to unduly avoid or reduce the payment of the CBAM financial liability, undermining the CBAM's objective to incentivise GHG emission reductions.

CBAM avoidance comprises circumvention as well as other practices to lower the CBAM financial liability that are against the objectives of CBAM. The risk of circumvention is understood to arise from practices for which there is insufficient due cause or economic justification, other than to effectively avoid, wholly or partially, the financial liabilities arising from CBAM, undermining the environmental integrity of the mechanism.

Another risk for CBAM effectiveness is related to the treatment of metals scrap. So far, scrap is not included in the CBAM scope and zero emissions are attributed to scrap as an input material. Emissions from production of pre-consumer scrap produced in the EU face a carbon price, since under the EU ETS emissions are measured at installation level. Therefore, the non-inclusion of scrap in the CBAM creates a channel through which third-country operators are not exposed to an equivalent liability and this thereby reduces the effectiveness of the CBAM to protect against carbon leakage. Closing the so-called scrap-loophole is thus among the areas that are under assessment for policy intervention as part of the proposal strengthening the CBAM.

The current CBAM enforcement framework allows to tackle several circumvention risks, including risks of misclassification of goods, under-declaration of CBAM quantities in the CBAM declaration, missing CBAM declarations (i.e. not submitting a CBAM declaration while importing CBAM goods), and misreporting on the de minimis threshold.

Strengthened provisions in the CBAM Regulation are necessary to address in particular two specific risks: the risk of misdeclaration of emission intensities. and the risk of abusive practices.

CBAM is the first measure of its kind, and therefore, there is very little experience and empirical data to draw on to project future behaviour of stakeholders affected by the CBAM. Specifically, for the enforcement of CBAM, this requires striking a carefully calibrated balance between robustness on the one hand and avoiding unnecessary additional red tape on the other.

A key element of additional anti-avoidance measures for the CBAM is thus operational agility. With the aforementioned uncertainties in mind, it will be important that authorities involved in CBAM enforcement, and in particular the Commission with its oversight role in risk analysis and circumvention detection, have sufficient flexibility in tackling newly identified circumvention and avoidance practices. This is also essential for the implementation of certain anti-avoidance measures that are in preparation: while the revision of the CBAM regulation will aim to reduce the scope for a number of circumvention and avoidance practices that can

[32] COM(2025) 125.

be anticipated based on available evidence, it is plausible that additional circumvention/avoidance channels will emerge. To be able to tackle such cases, it is essential to have the necessary policy levers to act swiftly and decisively, for example via clearly circumscribed but effective delegated powers. It must be avoided that identified avoidance practices cannot be tackled because of a too rigid legal and governance structure.

At the same time, it will be key that the various actors involved in CBAM enforcement cooperate efficiently: next to the Commission, this will notably involve NCAs and EU-27 customs authorities. Notably, there are substantial synergies between CBAM and customs risk management, both in terms of risk analysis and operational implementation. These exchanges and intelligence gathering will also feed into future Commission decisions to act against avoidance practices within its delegated powers.

An extensive discussion on the identified CBAM circumvention risks and their policy responses will be available in the impact assessment accompanying the legislative proposal planned for the end of 2025.

4.4 Electricity

Due to the physical characteristics of electricity and its specific forms of trading, the CBAM rules for this good differ slightly from those that relate to the other tangible goods. This consideration applies, in particular, to the methodology that has to be used to calculate the embedded emissions of imported electricity.

The main rule applied under the CBAM for calculating embedded emissions for electricity, unlike the rest of the CBAM goods, is a default value based on fossil fuel-based electricity production. While this reflects the price-setting mechanism of electricity in the EU, this methodology limits the recognition of non-EU countries' decarbonisation efforts in their energy mix. Although importers will be allowed to refer to actual emissions instead of default values, many stakeholders have criticised that the conditions they have to fulfil in order to report actual emissions would be too difficult to comply with. In particular the conditions for the definition of power purchase agreements (PPAs), network congestion and capacity nomination would be difficult or even impossible to meet, thereby impeding the incentive for decarbonisation in non-EU countries.

In order to address the concerns raised by stakeholders, the Commission is considering several options for possibly changing the rules for electricity, such as changing the default value from the use of the CO_2-only based emission factor to another factor, clarifying the applicability of different types of PPAs, simplifying the requirements for physical network congestion, and clarifying the application of the criterion of capacity nomination for the use of actual values.

The objective of possible changes would be to ensure that the CBAM is effective in promoting decarbonisation efforts for the production of electricity in non-EU countries, and that the CBAM liability is more reflective of the carbon content of the imported electricity.

4.4.1 Electricity imports from Western Balkan countries and Ukraine

These changes will be particularly relevant for the Western Balkans. EU imports of electricity from the Western Balkans while covering only some 1% of EU electricity demand, represent a

significant share of the national electricity consumption in some Member States (e.g. Croatia, Bulgaria or Greece)[33]. The exports of electricity to the EU may also be significant for some Western Balkan countries. For instance, exports of electricity to the EU represent some 58% of Montenegro's exports to the EU, or 5% of Serbia's or Albania's exports to the EU. The change of default values rules and the simplification of the rules for declaring actual emissions are expected to lead to a lower CBAM obligation for electricity imports from countries where renewables are present. Most of the Western Balkan countries have a highly carbon-intensive electricity. But the changes to the electricity rules will have a significant positive impact for imports from countries where the share of renewables is higher, such as Albania, where electricity generation is solely relying on hydro and solar power, or in Montenegro[34] where 61% of electricity was generated from renewable sources in 2023. The changes to the rules on electricity under consideration will allow to better recognise these countries' efforts in greening their electricity grid and will encourage further decarbonisation while providing the right price signal and thus incentivise imports of cleaner electricity.

Moreover, Western Balkan countries and Ukraine are committed to introducing an ETS or CO_2/ carbon taxes. The possibility introduced in the CBAM simplification for declarants to refer to a default carbon price per country for the carbon price paid will greatly simplify the claim of a carbon price effectively paid by the Western Balkan electricity operators.

4.4.2 Electricity imports from the UK

In 2024, the UK accounted for 39% of the EU's total gross commercial electricity imports (in MWh) from countries not participating in the EU ETS[35]. In 2023, more than 60% of the electricity produced in the UK was generated from renewable or decarbonised sources[36]. UK electricity producers pay a carbon price under the UK ETS and a Carbon Price Support (CPS). The changes to the CBAM rules for calculating the embedded emissions of electricity will allow to better reflect the high level of decarbonisation of the UK electricity grid in in the CBAM financial adjustment for electricity imports from the UK. In addition, the possibility to claim the carbon price paid based on default values which was introduced in the CBAM simplification package will address the concerns raised in particular by UK stakeholders that the burden of proof to be met for allowing a deduction of a carbon price paid in a third country is too high, especially when the declaration is based on default values, because of the difficulty to trace electricity to its source and therefore to provide evidence of the carbon price paid. In practice, the deduction of default carbon price values for electricity imported from the UK would lead to no CBAM financial liability as long as the combined UK ETS and CPS carbon price is higher than the carbon price under the EU ETS.

4.5 Carbon leakage

The CBAM Regulation requires the Commission to provide a report by 2028 as well as every two years thereafter on the application of the regulation and functioning of the CBAM which should include an assessment of the impact of the CBAM on carbon leakage, including in

[33] Source. Eurostat and IEA.
[34] Source: IEA.
[35] Source: European Commission based on ENTSO-E Transparency Platform.
[36] Source: IEA.

relation to exports. Carbon costs for EU ETS operators are expected to increase as free allocation is reduced reflecting the declining ETS cap and as the allowance price is expected to increase. This increased price signal for decarbonisation is expected to promote cost-effective GHG emission reductions. However, in the sectors that are additionally affected by the CBAM factor induced accelerated free allocation phaseout, the production of some goods might face an increased remaining carbon leakage risk. Preliminary estimations suggest that for the industrial sectors affected by the CBAM factor (iron & steel, cement, aluminium, fertilisers, hydrogen) in total around 15 million allowances less would be allocated free of charge in 2026 and 2027 as a result of the application of the factor as defined in the EU ETS Directive (Article 10a(1)). Assuming a carbon price of EUR 95/tonne, this corresponds to an estimated loss in free allocation for concerned operators of around EUR 1.4 billion in the years 2026-2027[37].

For the goods produced to be sold on the EU internal market, it can be considered that this phase out of free allocation is mitigated by the fact that CBAM ensures that products produced in third countries and imported to the EU internal market will pay the same carbon price as if the goods were produced in the EU. This mitigating effect does however not apply to goods which are produced in the EU and to a significant degree traded with third countries which do not apply the EU ETS or comparable carbon pricing mechanisms. Producers of these goods can be considered to face an increased remaining carbon leakage risk.

The decrease in emissions under the EU ETS in recent years was largely driven by the electricity sector. Emissions in the energy-intensive industry sector, on the other hand, experienced less decreases, which were also partly explained by decreases in output. These developments point to a need for more investment into decarbonisation measures because these investments reduce the exposure to carbon leakage risks and are also needed to achieve EU climate targets.

Operators of EU ETS installations facing increased remaining carbon leakage risks may therefore need incentives and support to accelerate investments into decarbonisation measures.

The Communication on Delivering on the Clean Industrial Deal I also recognised remaining risks of carbon leakages, such as in the context of exports[38]. The Commission is bringing forward an additional proposal to support the decarbonisation of relevant sectors.

4.6 Default carbon prices

The recently adopted amendments to simplify the CBAM allow the Commission to determine, as of 2027, default carbon prices for the countries where a carbon pricing instrument applies. Declarants will have the possibility of relying on these values to claim a reduction of their CBAM financial obligation, as an alternative to providing certified evidence of the effective payment of the carbon price. This simplification will notably allow the effective deduction of a carbon price already paid on imported electricity, which would otherwise not be possible when the CBAM declaration is based on default emission values.

[37] Indicative figures based on preliminary analysis.
[38] COM(2025) 378.

The default carbon prices would function similarly to default values for the calculation of embedded emissions: declarants would be given the possibility to choose either to rely on the Commission default carbon price directly available in the CBAM Registry, or to claim the deduction of the carbon price effectively paid based on certified evidence. Default carbon prices would ensure an automatic deduction of the carbon price effectively paid in the country of origin for all CBAM goods as from the 2027 declarations covering imports from 2026, thereby considerably reducing compliance costs. The methodological approach for the determination of default carbon prices will be based on the best available data from reliable, publicly available information and information provided by third countries.

4.7 Methodology to calculate embedded indirect emissions

The general rule to calculate embedded indirect emissions in CBAM is to use default values[39]. Actual embedded indirect emissions can only be reported when certain conditions are met. In the transitional period, this default value is based on a 5-years average of the emission intensity of the country of origin electricity grid. The CBAM Regulation requires the Commission to choose between three options for the default value to be set for the definitive period: (a) the average of the emission factor (EF) of the Union electricity grid; (b) the emission factor of the country of origin electricity grid; (c) the CO_2 emission factor of price-setting sources in the country of origin.

The Regulation also prescribes that the choice and calculation method must be determined on the basis of the most appropriate way to (i) prevent carbon leakage; and (ii) ensure the environmental integrity of the CBAM, i.e. in this context, to incentivise emission reductions by operators in third countries. The Commission's conclusion is that the same approach to the calculation of the emission factor that was used in the transitional phase ought to be applied in the definitive phase, i.e. the emission factor of the country of origin electricity grid. This is based on the considerations which are listed as follows in relation to the three options listed in the Regulation.

Firstly, the option to use the average of the emission factor (EF) for the EU electricity grid should be discarded, as it would fail to deliver carbon leakage prevention or incentives to decarbonisation. The average EF for the EU grid would provide low carbon leakage prevention because it would be low in comparison to the prevailing EFs of third countries, due to the decarbonisation of the EU electricity grid. Its value would be lower than the price-setting source of electricity in the EU, which is still, in most cases, fossil fuel-based, and thus not reflective of the costs incurred by EU producers. On the other hand, it would provide limited incentives to decarbonisation, as it would not reflect progress in the decarbonisation of third countries electricity grids.

Secondly, the Commission assessed the possibility to use the CO_2 emission factor of price-setting electricity sources in the country of origin. A 'CO_2 emission factor' only reflects the emission intensity of fossil fuel sources of electricity. Different approaches to the calculation of such a CO_2 emission factor were taken into account. The first, using a 'marginal generation

[39] Default values in the context of indirect emissions refer to the emission embedded in the electricity consumed to produce CBAM goods. These default values are multiplied with the actual electricity consumption to produce the goods to determine the indirect emissions.

CO_2 emission factor', reflecting the marginal power plant that would set the price of electricity in a liberalised power market in a third country (commonly a fossil fuel source), was discarded as not feasible. Such an approach would not be suitable to non-liberalised markets and would also be technically very complex to calculate, requiring tools such as dispatch models.

The second approach is using the average emission intensity of fossil fuel sources of electricity in a third country (CO_2 EF) as a proxy for the CO_2 emission factor of the 'price-setting sources' for electricity referred to in the CBAM Regulation. This could be applied to all third countries, regardless of their energy market structure. However, it would provide limited incentives to decarbonisation as it could only reflect changes in the emission intensity of fossil fuel technologies but would not account for the presence of renewables.

Thirdly, the use of the emission factor of the country of origin electricity grid was explored. As mentioned, this is currently used for the calculation of embedded indirect emissions in the CBAM transitional period. This option is the one that provides the most incentives to decarbonisation in third countries. It provides less protection against the risk of carbon leakage compared to a CO_2 emission factor. However, this impact is expected to be overall rather limited, as indirect emissions in the case of cement and fertilisers, i.e. the sectors for which indirect emissions are currently covered by the CBAM, are minor compared to direct emissions. Indirect emissions typically do not exceed 10% of direct emissions[40].

4.8 Free allocation adjustment

The number of CBAM certificates to be surrendered by CBAM declarants will be adjusted to reflect the extent to which allowances are allocated free of charge in the EU ETS during the period 2026-2034. The methodology to calculate this adjustment will include CBAM benchmarks which are derived from the applicable EU ETS benchmarks, with which free allocation is determined at installation level under the EU ETS. For the purposes of CBAM, those EU ETS benchmarks are combined into CBAM benchmarks.

EU ETS benchmarks are determined for the periods from 2021 to 2025 and from 2026 to 2030. The CBAM benchmarks to be applied in the period from 2026 to 2030 will be based on the EU ETS benchmarks applicable during that period to ensure equal treatment of imports. The CBAM benchmarks will be set in an implementing act.

4.9 Streamlining administrative processes

In order to facilitate compliance and reduce administrative burden for all parties, and to ensure accurate reporting, the Commission has been developing automated processes for the CBAM Registry for the definitive period which significantly improve efficiency and accuracy compared to the transitional registry.

The CBAM Registry will perform automated validation checks to validate information such as emissions data submitted by importers, to reduce error rates. This automation minimises manual verification efforts and accelerates processing times for both declarants and NCAs.

[40] Vidovic, D., Marmier, A., Zore, L. and Moya, J., Greenhouse gas emission intensities of the steel, fertilisers, aluminium and cement industries in the EU and its main trading partners, Publications Office of the European Union, Luxembourg, 2023, https://op.europa.eu/en/publication-detail/-/publication/85cb6b79-60d7-11ee-9220-01aa75ed71a1/language-en, JRC134682.

Since December 2024, third-country installation operators can submit emissions data once to the CBAM Registry, eliminating the need for repetitive submissions to multiple declarants. This reduces administrative duplication and simplifies compliance for third-country producers. Based on the information reported and processed in the CBAM Registry, including by several parties, the Commission will be able to pre-fill reporting templates in the CBAM Registry to streamline declarants' reporting obligations and help them accurately calculate and report embedded emissions, reducing errors and saving time.

5 Outlook: Extending and completing the CBAM: Step 2

In addition to the improvements made and proposed for the CBAM in 2025, the Commission has been assessing the possible necessity and possibility to extend the scope of the mechanism, as also mandated by Article 30(2) of the CBAM Regulation. The criteria applied for this assessment include notably the carbon leakage risk in relevant EU ETS sectors in relation to emission and trade intensity, and the technical feasibility of developing and applying an effective methodology for calculating embedded emissions for the goods analysed.

At the end of the CBAM transitional period the Commission is proposing first adaptations of provisions related to downstream products, risk management, default values and electricity. By 2027 the CBAM will be further revised and refined based on experiences and information collected during 2026, the first year of the definitive period. By early 2026, we will also adopt an Implementing Act setting the rules for the deduction of a carbon price effectively paid in third countries, which will determine the methodology and way forward on deducting carbon price paid in the context of CBAM.

Step 2 following a review at the end of 2027: possible proposals for revisions to the scope of the CBAM and the treatment of indirect emissions. The next Commission report is due before 1 January 2028 and every two years thereafter.

5.1 Indirect emissions

The current framework

Carbon leakage protection measures in the EU ETS cover both direct emissions and, more selectively, indirect emissions. For indirect emissions, the main instrument is indirect cost compensation (ICC), where Member States can compensate a share of electricity-related carbon costs for electro-intensive industries listed in the State aid guidelines. These indirect carbon costs differ across Member States due to different carbon-intensities of the marginal price-setting technology.

Some Member States have opted to grant ICC, while others have not. ICC covers up to a maximum allowed aid intensity of 75% of eligible costs. ICC depends on the carbon cost in the electricity price, which differs across geographic areas in the EU, and on the type of industrial sectors in the economy. Cement, fertiliser and agglomerated iron ore imports were included in the CBAM scope in 2023 for both direct and indirect emissions, as EU producers in these sectors were not eligible for ICC. By contrast, aluminium, steel and hydrogen are exempt from CBAM charges for indirect emissions, since EU producers in these sectors were eligible for ICC. This approach was designed to avoid double carbon leakage protection,

meaning a situation where EU producers would receive compensation for their indirect carbon costs through ICC while importers were simultaneously charged under the CBAM for indirect emissions in those sectors.

Possibilities to extend the CBAM to indirect emissions across all CBAM sectors

The Commission has explored several conceivable technical solutions to extend CBAM to cover indirect emissions across all sectors, while considering the interaction with ICC. The analysis assessed each technical solution and, where relevant, sub-solutions, against the following criteria:

- Environmental integrity assesses the extent to which indirect emissions are covered under CBAM by a technical solution, depending on whether the technical solution provides full or partial coverage (across sectors and products) and whether coverage is immediate or phased.
- Preventing carbon leakage evaluates the extent to which a technical solution mitigates the risk of increased emissions due to EU production relocating to regions with weaker climate policies, depending on the extent to which the technical solution imposes costs on indirect emissions resulting from the production of imported goods.
- Even-handed approach to imports assesses whether a technical solution avoids overlap, where EU producers are overcompensated with respect to the indirect emissions covered by CBAM.
- Feasibility considers the administrative burden and clarity of a technical solution for regulators, importers and operators.
- Ease of adaptation assesses the level and speed of adjustment required by EU producers (due to the removal of ICC) and by EU importers (due to new CBAM obligations) to a technical solution.

The first technical solution considered would involve the immediate introduction of the CBAM to cover all indirect emissions once the definitive period begins or shortly afterwards. Two sub-solutions could be conceived. Under sub-solution 1a (ICC maintained), the CBAM would cover all indirect emissions while ICC continues. Under sub-solution 1b (ICC removed), ICC would be removed at once, in parallel with the introduction of the CBAM to cover indirect emissions.

The second technical solution considered would involve the expansion of the CBAM to cover only the share of indirect emissions not compensated under ICC. Several sub-solutions could be considered. Sub-solution 2a would assume the maximum aid intensity of 75%, so the CBAM would cover the remaining 25% of indirect emissions. Sub-solution 2b would involve using Member State data on actual ICC payments to calculate the uncompensated share of indirect emissions covered by the CBAM. Solution 2c would involve applying harmonised assumptions or benchmarks to approximate effective aid intensity. Calculating actual aid intensity involves comparing the maximum compensation as determined by the State Aid Guidelines with actual payments made. Where Member States grant below the maximum, the effective aid intensity is lower, and the uncompensated share of costs is higher. Under option 2c, a harmonised value

(e.g. observed EU average or sectoral benchmark) representing the real maximum aid intensity (which provides a more accurate estimate of the share of indirect costs compensated compared to the fixed value used in option 2a) could be applied to avoid relying on confidential national data.

The third technical solution would be to gradually expand the CBAM to cover indirect emissions while ICC is gradually reduced, at the same rate and at the same time so as to avoid double carbon leakage protection.

A fourth technical solution would be to gradually phase out ICC and delay the introduction of the CBAM to cover indirect emissions until ICC has been entirely withdrawn. Once introduced, the CBAM would apply to 100% of indirect emissions in a single step.

A fifth technical solution would be to maintain ICC while introducing the CBAM to cover indirect emissions of imports, while adjusting the amount of ICC that beneficiaries can receive to reflect potential differences between the CBAM costs for indirect emissions embedded in CBAM goods and the indirect carbon cost in the marginal price-setting design in the EU.

Some of the technical solutions considered could be adapted if ICC eligibility were expanded to CBAM sectors currently not eligible for ICC, but they would likely require adjustments.

Immediate full coverage of indirect emissions by the CBAM, as in Technical Solution 1b could be the most robust regarding environmental integrity and an even-handed approach, pending further analysis. Retaining ICC alongside CBAM, as in Technical Solution 1a may risk introducing double carbon leakage protection. Intermediate approaches might offer more balanced outcomes: Technical Solutions 2 provide in principle ways to align CBAM with ICC to avoid overcompensation, but viability in practice of some sub-solutions requires further analysis, due to data limitations and complexity linked to different approaches to ICC in different Member States and other methodological challenges. Technical Solutions 3 could potentially provide smoother transition paths, with varying levels of complexity. Technical Solution 4 at this point appears relatively weak on environmental integrity. Technical Solution 5 appears strong on environmental integrity, but it would require careful calibration to ensure an even-handed approach and avoid overcompensation.

In conclusion, the analysis conducted so far confirms that technical solutions for expanding the indirect emissions scope of the CBAM can be conceived, beyond the approach enshrined in the current text of the CBAM Regulation, according to which ICC and CBAM are mutually exclusive. However, further analysis is needed, on one hand, to fully explore the viability in practice of several of these solutions and, on the other hand, to perform a more developed assessment of the impacts that such solutions would have. The aforementioned criteria will be used to assess potential technical solutions against the current approach of the CBAM Regulation.

The Commission will consider the issue for a possible proposal in 2027, based on the experience gained with the CBAM by then and in line with policies on carbon leakage protection to be considered for the fifth EU ETS trading period. In the meantime, specific cases may require earlier consideration. For instance, in the case of fertilisers, as announced by the

RESourceEU Action Plan[41], by Q2 2026, the Commission will propose an action plan to ensure the availability and affordability of domestic fertilisers, including actions to enable recycled nutrients and other alternatives to fertilisers.

5.2 Transport emissions

The Commission has evaluated the feasibility of extending the CBAM to cover emissions embedded in the transport of goods listed in Annex I to the CBAM Regulation and transportation services. The assessment of emissions embedded in the transport of CBAM goods focuses on identifying the embedded non-EU transport emissions associated with the import of goods currently within the CBAM scope, including cement, hydrogen, iron and steel, fertilisers, and aluminium. The assessment of a possible scope extension to transportation services focuses on aviation and maritime transportation services.

Key Findings on embedded emissions in the transport of the goods listed in Annex I

The estimated emissions due to the transport of CBAM goods from their production sites to the EU border account for approximately 5% of total embedded emissions. This share varies considerably depending on the country of origin and mode of transport, highlighting the importance of distance and logistics patterns in understanding the carbon intensity of goods imported under the CBAM.

Shifting production of CBAM goods abroad in general does not allow to fully avoid transport-related EU carbon costs for CBAM goods destined for the EU market, limiting any potential import-related carbon leakage risk due to transportation because:

- For CBAM goods transported by air, the EU ETS already covers intra-EEA flights.
- For CBAM goods transported by ship, the EU ETS includes 100% of emissions from voyages within the EEA, and 50% of emissions from voyages between an EEA port and a non-EEA port.
- As of 2028, road transport emissions related to CBAM goods will be covered for the EEA part of the journey via the ETS 2.

Transport emissions related to upstream processes (i.e. distribution of fuels and input materials) will be affected by EU ETS 2, potentially impacting the costs of production.

While the Commission's assessment suggests that it could be technically feasible to measure, store, and share transport emissions data along logistics operators, designing and implementing a verification system applicable to multiple logistics operators across international locations would be complex and require specific expertise. Small transport operators in third countries may not be equipped to provide the necessary data, and the verification process of transport emissions at the level of CN code remains a strong challenge as it is not a practice that transport operators are used to. CBAM verifiers would need to verify emissions in different transport chain elements, rendering the verification process complex and potentially costly.

[41] economy.ec.europa.eu/document/download/01c448d6-dc93-40d7-9afe-4c2af448d00c_en.

Key findings on aviation and maritime transportation services

At this stage, the potential need as well as the suitability and effectiveness of a CBAM for aviation and maritime services are still under assessment[42]. Although existing evidence of carbon leakage for aviation is limited for the period between 2014 and 2024, continued evaluation of the risk of carbon leakage may clarify whether extending CBAM to this sector would be relevant. Concerning maritime transport, the Commission's report on the monitoring of the implementation of the EU ETS extension to maritime transport found no concrete evidence of evasive actions directly attributable to the introduction of the EU ETS. Nevertheless, the Commission is continuing its monitoring activities as required by the ETS Directive and the FuelEU Maritime Regulation, and various possible anti-evasion measures, including CBAM, are being analysed in order to prepare for eventual actions in case the need arises.

Regulatory costs related to EU climates policies that could possibly lead to carbon leakage are expected to increase in the future. However, such cost increases are not only due to the EU ETS, but also to non-price-based climate policies, in particular the ReFuelEU Aviation Regulation and the FuelEU Maritime Regulation. As CBAM can only address carbon leakage resulting from the EU ETS (or other forms of explicit carbon pricing), it may not be a suitable instrument for aviation and maritime transportation services[43]. In addition, a CBAM for aviation and maritime transportation services would need to be limited to the subset of routes prone to carbon leakage, which would create administrative complexities.

To summarise, a CBAM for aviation and maritime services would be complex to administer and could only address part of a potential leakage risk. Therefore, if a policy measure were to be introduced, it should be carefully designed to address potential carbon leakage arising not only from the costs of carbon pricing policies but also from other policies, such as Sustainable Aviation Fuel (SAF)-related measures or FuelEU Maritime, while being appropriately tailored to the specific circumstances of the relevant sectors.

5.3 Extension of the CBAM scope to other sectors

This chapter analyses possible CBAM scope extensions to precursors and to additional goods, i.e. to goods that are neither precursors nor downstream goods in relation to the current goods covered by the CBAM. The latter is also referred to as a horizontal scope extension. Any potential scope extension should also assess the impacts on international trade, and EU downstream industry's competitiveness.

[42] Draft study, commissioned by the European Commission's Directorate-General for Mobility and Transport, titled 'Economic Study for an assessment of potential carbon leakage in the aviation and maritime sectors and mitigating measures'.

[43] With respect to aviation and maritime transport, the EU ETS currently includes only intra-EEA flights, the emissions from cargo and passenger ships voyages within the EEA and at berth of an EEA port, and 50% of emissions between EEA ports and non-EEA ports.

5.3.1 Precursor goods

This assessment sought to identify precursors of goods under the current CBAM scope, as well as precursors of additional goods that could possibly be included in horizontal CBAM scope extension.

First, relevant value chains of goods were mapped to identify a list of potential precursors. Subsequently, available data on emissions, tradability, and treatment under the EU ETS for these precursors was analysed. Ultimately, the technical feasibility of including each precursor in the CBAM was assessed using the same methodology developed for the scope extension (as outlined in the chapter on additional goods).

Assessment of the technical feasibility of extending the scope to precursors goods

The assessment shows that it would be technically feasible to include precursors of iron and steel, aluminium and cement as well as of chemicals and ceramics (subject to a possible extension of CBAM to those sectors). The products considered as feasible are calcined lime, dolime, magnesia, alumina (and aluminium hydroxide). Another example could be soda ash, provided that the glass sector is considered as a potential candidate for extension.

It may be challenging to include other precursors which have co-products[44], such as coke, because they require developing a specific methodology for attributing embedded emissions of co-products, such as for co-products of the coking process (including tars, oils, and aromatics), as well as refinery products.

Including chemicals in the CBAM (see the chapter below on additional goods) may also have implications for the treatment of coke co-products and refinery products, as they are precursors for chemicals and polymers. It could therefore be envisaged to include both coke and its co-products as relevant precursors in the scope of CBAM, if the scope extension is to cover the chemical sector. Alternatively, coke could be treated as a standalone precursor for iron and steel and ferro-alloys, with its co-products excluded from the CBAM scope. Regarding the inclusion of certain organic chemicals precursors from refinery products, such as naphtha, pygas and reformate, it is discussed under the horizontal scope extension (see the chapter on additional goods).

If the CBAM was extended to cover various types of scrap as precursors for several sectors, including iron and steel, aluminium, it would also be a relevant consideration for glass (cullet) and pulp and paper (recycled pulp).

Our analysis has not identified additional relevant precursors for hydrogen and fertilisers beyond those already covered by the current CBAM scope.

In conclusion, the assessment has identified some precursors that could be technically feasible to include in the CBAM, while others may pose some challenges due to methodological complexities.

[44] A co-product means any of two or more products resulting from the same production process.

5.3.2 Additional goods

This assessment aims to identify and prioritise potential goods and sectors not yet included in the CBAM scope but deemed at risk of carbon leakage under the EU ETS, notably organic chemicals and polymers.

Our analysis applied the same carbon leakage indicator as phase 4 of the EU ETS with a threshold value of 0.8[45]. Other criteria considered the presence of at least one EU ETS installation belonging to the same NACE code as a sector analysed, and annual EU ETS emissions of at least 25 $ktCO_2$-eq reported in relation to this sector. Further considerations involved the inclusion of upstream goods currently out of scope (e.g. alumina), as well as whether the sectors analysed have same precursors and similarities in the production processes as current CBAM sectors or whether the products of these sectors are directly downstream goods.

In a second step, identified sectors were further evaluated based on additional criteria, including how much of their production takes place in EU ETS installations, how significant they are for EU production and imports from third countries, and their trade intensity.

Finally, we assessed whether to retain the goods identified in the previous two steps in their current format or aggregate them into broader product categories, taking into account a combination of statistical factors and other relevant considerations[46].

Ultimately, the chemical sector's complexity necessitated a systematic, substance-centred value-chain approach to identify key substances for a possible inclusion in the CBAM, rather than relying on statistical analysis, which would have resulted in the identification of dispersed substances throughout the value chains that are not aligned with the processes generating significant emissions. This approach focused on those value chains of chemicals that are substances, rather than mixtures or formulations of several substances. Chemicals and relevant polymers with EU ETS product benchmarks, produced at high volumes in the EU more than 1 megatonne per year), or leading to significant emissions have been selected for assessment. Additionally, precursors and downstream substances linked to goods currently covered by the CBAM have been also considered to ensure covering complex value chains and capturing significant emissions.

Based on the application of the above criteria, we prioritised the following sectors for further considerations: **pulp and paper**, **glass, ceramics**, **ferro-alloys**, **aluminium** and **other non-ferrous metals**. They include the preliminarily identified goods, as well as similar goods within the same group or harmonised system chapter or specific precursors.

The substance-centred approach was used to preliminarily shortlist approximately 120 substances, including **inorganic chemicals**, **organic chemicals** and **polymers**. The analysis revealed that coal, crude oil, and natural gas are primary feedstocks for organic chemicals,

[45] The carbon leakage indicator takes into account emission intensity and trade intensity. See the list available at: EU ETS phase 4 Preliminary Carbon Leakage (List 6_cll-ei-ti_results_en.pdf).

[46] These considerations include the inclusion of similar goods within the same product category to prevent circumvention, the addition of direct downstream products to the shortlisted goods, and the exclusion of codes for unspecified products, as well as goods with relatively low import volumes or low embedded emission intensities, to minimise administrative burdens.

yielding crucial building blocks. Additionally, **refinery products** were identified both as an individual sector and as precursors to inform the assessment of organic chemicals and polymers. Chemicals are therefore identified as being at risk of carbon leakage.

Based on the criteria presented above, **goods from mining activities** and **fertilisers** (e.g. potassium chloride) have not been selected for further consideration.

Assessment of the technical feasibility of extending the scope to additional goods

The relevant criteria for selecting additional goods to be covered by CBAM are: first, relevance of sectors in terms of emissions, namely whether the sector is one of the largest aggregate emitters of greenhouse gas emissions; second, the sector's exposure to significant risk of carbon leakage, as defined pursuant to Directive 2003/87/EC; and third, the need to balance broad product coverage in terms of greenhouse gas emissions, while limiting complexity and administrative burden.

The technical feasibility of expanding the scope to include additional goods was evaluated by verifying that the goods are properly identified (by CN codes or other means such as CAS numbers[47] for chemicals) and that monitoring rules are available, particularly with regard to production processes and routes, which must be known and not overly complex.

Additional criteria applied included the need for rules to attribute emissions in processes with co-products, the ability to determine default values for embedded emissions, and the capacity of the MRV system to cover longer value chains. Furthermore, for chemicals and polymers, understanding the challenges of tracking and verifying production processes was crucial for comparing value chains. This was captured in a 'complexity measure' that looks at factors like number of production routes, precursors, co-product attribution, and monitoring challenges.

The assessment of **chemicals** and **polymers** shows that the complexity of the chemical industry, characterised by multiple subsectors and interconnected production routes and processes, would make a potential inclusion of these products in the CBAM technically very challenging. This finding is backed by a comprehensive value-chain analysis covering basic chemicals (like olefins, aromatics, and methanol) that carry significant embedded emissions, as well as more complex products such as polymers under the CBAM Regulation. Most substances can be identified with standard codes (CN, CAS), but some require additional clarification. The assessment ultimately shows that more precise accounting methods are needed to capture the complex production routes and emissions of the chemical industry.

Ranking substances by value-chain complexity alone does not give a clear basis for deciding whether or not to include them in CBAM. The assessment carried out focused on lower-complexity substances with EU ETS benchmarks or large production volumes, but high volume of a product does not always mean that including this product in CBAM would be technically feasible. Some simpler goods were included only because they are precursors to more relevant chemicals; if the more complex products are excluded, these precursors may also need reconsideration. Other goods were assessed solely because they appear as co-products, intermediates, or by-products, despite low volumes and limited tradability. Excluding them could reduce unnecessary complexity and streamline the overall approach. Overall, despite the

[47] Chemical Abstracts Service (CAS) lists unique numbers representing complex chemicals.

challenges stemming from the complex interrelationships between these substances, the assessment has shown that **the inclusion of certain chemicals and polymers in the CBAM would be technically feasible**. However, defining clear conditions for including or excluding specific chemicals or polymers in the CBAM is complex. A phased approach gradually expanding the **CBAM's scope to organic chemicals and polymers may help address the complexity of the sector. For instance, this could involve initially considering the inclusion of preferred candidates that meet specific criteria, such as relatively simple value chains, or established EU ETS product benchmarks, and then progressively expanding coverage to a broader range of substances**.

Ultimately, the inclusion of chemicals and polymers in the CBAM would require tracing relevant chemicals and polymers and their embedded emissions across intricate value chains and production routes that span downstream sectors, including detergents, cosmetic, pharmaceuticals (downstream to organic chemicals), textiles, packaging, and others. Tracing these value chains is particularly challenging due to the sheer diversity and complexity of the downstream products involved, which encompass a vast array of industries and applications.

When it comes to **refinery products** our analysis considered two groups: organic chemical precursors (such as naphtha, pygas, and reformate) and commercial fuels (although naphtha can straddle both categories). There are two possible approaches to including refinery products in the CBAM: 1) including only organic chemical precursors, which would target a limited number of products contributing to embedded emissions. However, this approach would exclude most of the refinery emissions and require the creation of new categories, as current CN codes encompass a wide range of substances; or 2) including all refinery products, which would cover the sector's entire emissions. Nevertheless, this approach may impact commercial fuels already subject to taxation, leading to economic and social implications. Preliminary findings suggest **that including only the organic chemical precursors would be challenging but that, even if the entire refining sector is difficult for monitoring, reporting, and verification (MRV), these challenges do not appear insurmountable, as similar MRV processes are already in place under the EU ETS.**

Our assessment also suggests that it is technically feasible to consider including certain shortlisted goods in the CBAM from sectors such as **pulp and paper**, **glass**, **ceramics** (including refractories) and **ferro-alloy** (e.g. ferro-silicon and ferro-silico-manganese). Additionally, alumina and its intermediate aluminium hydroxide, which are also included as precursors (see the chapter on precursor goods), may also be considered as potential candidates. There are either no technical barriers to including these goods or they are similar to the shortlisted goods, which would prevent circumvention and ensure equal treatment. However, within these sectors, certain groups of goods appear to be too heterogeneous, and their production process too complex to include them in the CBAM. This complexity is the primary reason why our analysis does not show the **non-ferrous metals** sector (encompassing lead, zinc, and copper) as a candidate for inclusion at this time.

Furthermore, the assessment identified groups of goods that are typically manufactured in non-EU ETS installations, and which would be classified as downstream goods of the potential candidates for CBAM scope extension. These goods may be considered as potential candidates,

subject to two conditions: firstly, their precursor goods must be already included in the CBAM and secondly, a specific assessment must confirm that they are at risk of carbon leakage. Although these goods are not currently being suggested for potential inclusion, they may be added at a later stage pending the formalisation of rules for downstream goods.

Finally, scrap materials from certain sectors such as pulp and paper, glass and aluminium (including paper and paperboard scrap, cullet and aluminium waste and scrap) may be considered potential candidates. However, their inclusion would need to consider broader issues related to the incorporation of scrap into the CBAM (see section above on CBAM avoidance).

In conclusion, extending the CBAM scope to additional goods presents both significant advantages and challenges. On the one hand, it can help reduce carbon leakage, promote low-carbon production, and increase the overall coverage of value chains subject to a carbon price, thereby contributing to a more comprehensive reduction in greenhouse gas emissions. Considering potential candidates substantially contributing to emissions, such as chemicals, polymers, and refinery products, may enable obtaining **impactful outcomes**. On the other hand, including such products in the CBAM would be technically complex, due to the very diverse products and production processes in these sectors, and potentially increase administrative burden, particularly for SMEs which may not have the resources or expertise to comply with the new requirements. Furthermore, attributing embedded emissions to certain goods, such as scrap or downstream products, can be methodologically challenging and require the development of new methodologies or rules. Ultimately, a thorough assessment of these pros and cons is essential to ensure that the CBAM's extension effectively reduces emissions while minimising negative impacts, requiring a balanced approach that weighs the environmental benefits against the potential costs and challenges to achieve an effective outcome.

5.3.3 Downstream goods

Downstream extension in steps

Art 30.3 of the CBAM regulation requires the Commission to report on a possible downstream scope extension of the mechanism. By the end of 2025, the Commission will propose a scope extension to downstream products of the metals CBAM sectors iron and steel, and aluminium, as outlined in Chapter 4.1. Chemicals (fertilisers and hydrogen) and cement will not be included in this proposal[48]. This chapter explains why.

Downstream goods make use of goods listed in Annex I of the CBAM Regulation, i.e. CBAM basic goods, as inputs in their production. The key principle for the extension of CBAM to these goods is to limit the application of the border adjustment to the emissions that would be covered under EU ETS, if the good were produced in the EU.

[48] Downstream products of electricity are not considered given that electricity is used in the production process of virtually all goods, rendering the determination of the input share and embedded emissions of electricity in all possible imported goods unfeasible.

If the Commission proposes an extension to downstream goods of chemicals and cement, it will apply the same criteria as outlined in chapter 4.1 on downstream goods to metals, namely the cost push induced by CBAM, tradability, relevance of emissions, and technical feasibility.

Chemical downstream goods

It would be premature to include products downstream to the basic goods fertilisers and hydrogen in the CBAM, before a possible horizontal scope extension of the mechanism to organic chemicals and polymers that is discussed chapter above, for two main reasons.

Firstly, without the horizontal scope extension only the embedded emissions of the precursors of the current CBAM products would be accounted for in the liable embedded emissions of the downstream goods. This would omit significant parts of the full embedded emissions of these downstream goods from their chemical and polymer precursors. In that case, full compatibility with the EU ETS would not be established. For mitigating this imbalance between the EU ETS and CBAM, several organic chemicals would first need to be included in the CBAM as CBAM basic goods. Those horizontal precursors (organic chemicals and polymers) contribute significant amounts or even most embedded emissions to fertilisers and hydrogen. Therefore, it is preferable to include the identified downstream products from the chemical sector only when the CBAM is extended horizontally.

Secondly, the methodology for assigning emissions to the chemical industry can be better developed by the time of a possible later horizontal extension. Monitoring chemical production emissions can require substantial efforts. Many organic chemicals are produced in highly integrated plants producing many products. If each chemical's embedded emissions must be monitored using system boundaries for each chemical separately, which would be the approach of the current CBAM methodology, this would require not only monitoring many fuels streams including various waste gases and by-product streams from the different processes at the site, but also a multitude of heat flows into and out of each process. Chemicals often have several production routes, each of which would require its own emission calculation methodology. The methodology would also need to factor in that chemicals are transformed or used up in the process of making the downstream good. Consequently, the methodology would need to use stoichiometric ratios to assign the basic good content to a downstream good rather than the weight of basic good input as can be done for iron & steel, aluminium, and cement.

Cement downstream goods

The number of downstream products that use cement as input is relatively limited. These products include for example prefabricated building blocks, cement tiles and bricks and concrete ready to pour. EU import volumes of downstream cement products are very low, with these products being characterised by elements that limit transportability, for example a high weight to value ratio. In addition, products such as asbestos-cement and concrete ready to pour lack tradability altogether because of the ban on trade for asbestos-cement as a hazardous material, and since concrete ready to pour is a perishable product usually produced on-site or nearby. Furthermore, cement downstream products generally have a high degree of material dilution, with cement making up only about 20% on average of the total weight of downstream goods. This means that a carbon price on the cement component of downstream goods likely results in only a limited increase in the overall cost price. Overall, the above-mentioned factors

mean that the risk of carbon leakage for goods downstream of cement is limited. With regard to the 2025 proposal on a downstream extension of CBAM, prioritisation has therefore been given to downstream goods at greater risk of carbon leakage.

6 Conclusions, next steps

The Commission is finalising **preparatory work** for the CBAM financial obligation to begin on 1 January 2026. In addition to its omnibus proposal, it is implementing additional **simplifications and flexibilities** to facilitate compliance by business, especially by small and medium-sized enterprises.

The EUs **Global Gateway** will further enhance the decarbonisation of developing countries' economies. Such support will generate a triple dividend: helping combat climate change globally; supporting development in partner countries; and tangibly demonstrate EU's solidarity. By supporting decarbonisation efforts, it will also contribute to reduce the carbon content of exported goods from these countries and therefore increase industrial competitiveness and mitigate CBAM exposure.

The Commission is now presenting a **proposal aimed at strengthening** the effectiveness of CBAM by mitigating the risk of downstream carbon leakage, strengthening the enforcement of the mechanism, deterring avoidance practices and incentivising the decarbonisation of electricity grids in third countries. In early 2026 the Commission will adopt, based on the **principle of equivalence**, an implementing act setting out rules for the deduction of a carbon price effectively paid in third countries. This will further promote the uptake of carbon pricing instruments by partner countries.

In a second step, in 2027, the Commission will assess whether to propose extending the CBAM further by including additional EU ETS sectors at risk of carbon leakage, more downstream goods or indirect emissions from additional CBAM sectors.

Before 1 January 2028, and every two years thereafter, the Commission will present a report to the European Parliament and to the Council on the application of the CBAM Regulation and the functioning of the CBAM, as required by Article 30(6) of the CBAM Regulation.

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ANNEXES 1 to 4

ANNEXES

to the

Report from the Commission to the European Parliament and the Council

on the application of the Regulation on the Carbon Border Adjustment Mechanism

Contents

Annex 1: CBAM communication campaign

Figure 1: Objectives and actions of the CBAM communication campaign

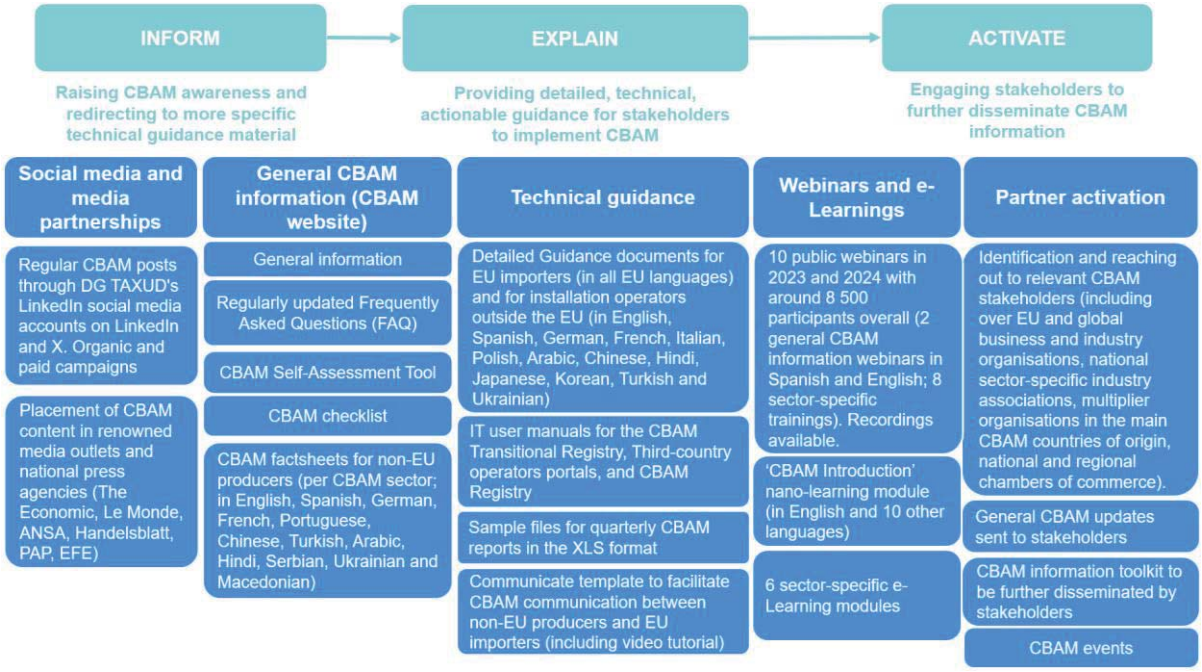


Table: number of participants in 2023 and 2024 public CBAM webinars organised in the context of the communication campaign

Date	CBAM webinar	Number of participants
15 September 2023	Cement	333
21 September 2023	Aluminium	694
26 September 2023	Fertilisers	471
28 September 2023	Electricity	405
3 October 2023	Hydrogen	302
5 October 2023	Iron & Steel	700
10 October 2023	Iron & Steel	350
27 October 2023	CBAM Registry	702
23 May 2024	General CBAM info session in Spanish	Over 600
19 June 2024	General CBAM info session in English	Almost 4 000

Annex 2: TAIEX support to decarbonisation in neighbourhood countries

As a cornerstone of EU integration efforts, TAIEX plays a **pivotal role in accelerating legal and regulatory alignment with EU** standards, strengthening governance frameworks, and driving socio-economic reforms. By **drawing on the expertise of public sector from all 27 EU Member States**, it fosters peer-to-peer exchanges, facilitates best practice sharing, and builds institutional resilience, ensuring that partner countries are equipped to implement meaningful and lasting reforms.

A key objective of TAIEX is to **accelerate the Enlargement process**, helping candidate countries align with EU laws and implement the essential reforms required for EU membership, including in critical challenges such as climate resilience.

Since the introduction of CBAM (October 2023), **demand-driven events on specific CBAM training, carbon pricing, carbon footprint, and greenhouse gases (GHGs) verification and validation system** have been delivered through TAIEX for Türkiye, North Macedonia, Egypt, Morocco, Moldova and Azerbaijan, as follows:

- **Türkiye**: TAIEX Workshop on Carbon Border Adjustment Mechanism (CBAM) **North Macedonia**: TAIEX Expert mission on ETS and introduction to carbon pricing: Monitoring, Reporting, Verification and Accreditation of Verifiers (MRVA) **Egypt:** TAIEX Workshop on CBAM Training
- **Morocco:** TAIEX Study Visit on the establishment of a GHG verification and validation system: GHG and CBAM and TAIEX Expert Mission on the establishment of a GHG verification and validation system and introduction to CBAM
- **Moldova**: TAIEX Workshop on Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)
- **Azerbaijan:** TAIEX Expert Mission on Greenhouse gas emission inventory establishment and carbon footprint

Moreover, a series of events (one expert mission and two work from home) to support **Montenegro** in the transposition and implementation of MRVA secondary legislation are foreseen for the second half of 2025, contributing to Montenegro's alignment with the EU acquis and fulfilling a closing benchmark of Chapter 27. Also, a workshop for **Türkiye** on Carbon Capture, Utilization, and Storage (CCUS) technologies to achieve carbon neutrality is under preparation.

In addition to demand-driven support, from October 2020 until July 2024, TAIEX delivered **42 events** in cooperation with the TRATOLOW project (**Transition towards low emissions and climate-resilient economy in the Western Balkans and Türkiye**) in the areas of EU ETS, carbon pricing, climate mitigation and adaptation plans, monitoring and indicators for adaptation, and energy transition. In total, 1.515 participants from all TRATOLOW

beneficiaries were involved, with Serbia on the lead (378), followed by Montenegro (239) and Bosnia and Herzegovina (217).

A detailed list of **implemented TAIEX events** (including demand-driven, strategic, and TAIEX-TRATOLOW) **in the field of decarbonization** is presented below.

TAIEX assistance to IPA countries

- **Türkiye**

- TAIEX TRATOLOW Domestic workshop on Adaptation, Monitoring and Evaluation TAIEX TRATOLOW Domestic Workshop on Experiences of Monitoring Adaptation to Climate Change: the new online system from Türkiye and way forward
- TAIEX TRATOLOW Regional workshop on synergies and opportunities: drafting National Energy and Climate Plans of Energy Community Contracting Parties
- TAIEX TRATOLOW High level workshop on a regional approach to carbon pricing
- TAIEX TRATOLOW Sectoral Workshop on use of UNFCCC CRF software web application – tool for preparation reporting tables
- TAIEX TRATOLOW Regional Workshop on **Carbon Pricing**
- TAIEX TRATOLOW Regional workshop on development of low emissions and climate neutral pathways
- TAIEX TRATOLOW Regional workshop on Green House Gas national database systems
- TAIEX Workshop on **Carbon Border Adjustment Mechanism** (CBAM)

- **Serbia**

- TAIEX TRATOLOW national workshop for accreditation of ETS verification in Serbia
- TAIEX TRATOLOW Domestic workshop on Monitoring and Indicators for Adaptation Policy Cycle
- TAIEX TRATOLOW Study Visit on National Training for Serbian ETS experts
- TRATOLOW Domestic Workshop on ETS Monitoring and Reporting Requirements
- TAIEX TRATOLOW Study visit for Serbian experts to Austria on "Assessment of GHG permit applications and monitoring plans"
- TAIEX TRATOLOW Domestic workshop for EU ETS verifiers in Serbia
- TAIEX TRATOLOW Regional workshop on synergies and opportunities: drafting National Energy and Climate Plans of Energy Community Contracting Parties
- TAIEX TRATOLOW High level workshop on a regional approach to carbon pricing
- TAIEX TRATOLOW Sectoral Workshop on use of UNFCCC CRF software web application – tool for preparation reporting tables
- TAIEX TRATOLOW Regional Workshop on Carbon Pricing
- TAIEX TRATOLOW Regional workshop on development of low emissions and climate neutral pathways (81711)
- TAIEX TRATOLOW Regional workshop on Green House Gas national database systems (80927)

- **Bosnia and Herzegovina**

- TAIEX TRATOLOW & EU4 Energy: Workshop on ETS implementation for Bosnia and Herzegovina (85664)
- TAIEX TRATOLOW Regional workshop on synergies and opportunities: drafting National Energy and Climate Plans of Energy Community Contracting Parties (86154)
- TAIEX TRATOLOW High level workshop on a regional approach to carbon pricing (83608)
- TAIEX TRATOLOW Sectoral Workshop on use of UNFCCC CRF software web application – tool for preparation reporting tables (81744)
- TAIEX TRATOLOW Regional Workshop on Carbon Pricing (82422)
- TAIEX TRATOLOW Regional workshop on development of low emissions and climate neutral pathways (81711)
- TAIEX TRATOLOW Regional workshop on Green House Gas national database systems (80927)

- **North Macedonia**

- TAIEX Work from Home on the implementation of the National Emission Ceiling Directive part 3 (81787)
- TAIEX TRATOLOW EU4Energy Transition domestic workshop on Multi-level Governance: "Strengthening the role of local actors in Energy Transition, Climate Mitigation and Adaptation planning and implementation at different scales" (84364)
- TAIEX TRATOLOW Regional workshop on synergies and opportunities: drafting National Energy and Climate Plans of Energy Community Contracting Parties
- TAIEX TRATOLOW High level workshop on a regional approach to carbon pricing
- TAIEX TRATOLOW Sectoral Workshop on use of UNFCCC CRF software web application – tool for preparation reporting tables
- TAIEX TRATOLOW Regional Workshop on Carbon Pricing
- TAIEX TRATOLOW Regional workshop on development of low emissions and climate neutral pathways
- TAIEX TRATOLOW Regional workshop on Green House Gas national database systems
- TAIEX Expert mission on **ETS** and introduction to **carbon pricing**: Monitoring, Reporting, Verification and Accreditation of Verifiers (MRVA)

- **Albania**

- TAIEX TRATOLOW EU4Energy Transition domestic workshop on Multi-level Governance: "Strengthening the role of local actors in Energy Transition, Climate Mitigation and Adaptation planning and implementation at different scales"
- TAIEX TRATOLOW Domestic workshop on Monitoring and Indicators for Adaptation Policy Cycle
- TAIEX TRATOLOW Regional workshop on synergies and opportunities: drafting National Energy and Climate Plans of Energy Community Contracting Parties

- TAIEX TRATOLOW High level workshop on a regional approach to carbon pricing
- TAIEX TRATOLOW Sectoral Workshop on use of UNFCCC CRF software web application – tool for preparation reporting tables
- TAIEX TRATOLOW Regional Workshop on Carbon Pricing
- TAIEX TRATOLOW Regional workshop on development of low emissions and climate neutral pathways
- TAIEX TRATOLOW Regional workshop on Green House Gas national database systems

- **Montenegro**

- TAIEX TRATOLOW Domestic workshop on national adaptation plans: the role of monitoring and evaluation and progressing further on implementation of Adaptation
- TAIEX TRATOLOW Study Visit on the implementation of the European Union Emissions Trading System (EU ETS)
- TAIEX TRATOLOW Domestic workshop on Monitoring and Indicators for Adaptation
- TAIEX TRATOLOW Regional workshop on synergies and opportunities: drafting National Energy and Climate Plans of Energy Community Contracting Parties
- TAIEX TRATOLOW High level workshop on a regional approach to carbon pricing
- TAIEX TRATOLOW Sectoral Workshop on use of UNFCCC CRF software web application – tool for preparation reporting tables
- TAIEX TRATOLOW Regional Workshop on Carbon Pricing
- TAIEX TRATOLOW Regional workshop on development of low emissions and climate neutral pathways
- TAIEX TRATOLOW Regional workshop on Green House Gas national database systems

- **Kosovo**

- TAIEX TRATOLOW Domestic workshop on Monitoring and Revision of Adaptation Policy and Measures (82150)
- TAIEX TRATOLOW Regional workshop on synergies and opportunities: drafting National Energy and Climate Plans of Energy Community Contracting Parties (86154)
- TAIEX TRATOLOW High level workshop on a regional approach to carbon pricing (83608)
- TAIEX TRATOLOW Sectoral Workshop on use of UNFCCC CRF software web application – tool for preparation reporting tables (81744)
- TAIEX TRATOLOW Regional Workshop on Carbon Pricing (82422)
- TAIEX TRATOLOW Regional workshop on development of low emissions and climate neutral pathways (81711)
- TAIEX TRATOLOW Regional workshop on Green House Gas national database systems (80927)

TAIEX assistance to Neighbourhood East

- **Moldova**

- TAIEX Workshop on **Carbon Offsetting** and Reduction Scheme for International Aviation (CORSIA)

- **Ukraine**

- TAIEX Study Visit on Support the creation and functioning of an efficient system for the guarantees of origin for electricity from renewable sources

- **Azerbaijan**

- TAIEX Expert Mission on Greenhouse gas emission inventory establishment and **carbon footprint** (84241)

TAIEX assistance to Neighborhood South

- **Morocco**

- TAIEX Study Visit on the establishment of a GHG verification and validation system: **GHG and CBAM**
- TAIEX Expert Mission on the establishment of a GHG verification and validation system and **introduction to CBAM**

- **Egypt**

- TAIEX Workshop on **CBAM Training**

Annex 3: Methodology and additional details for modelling of impact on third countries

Methodology

The JRC-GEM-E3 model

JRC-GEM-E3 is a recursive dynamic computable general equilibrium (CGE) model and as such takes into account interactions between different markets (e.g. international trade, factor markets, carbon market of the EU emission trading system). CGE models are a commonly used tool to assess impacts from changes in environmental or trade policies and have become a standard tool to assess impacts from carbon border adjustments, including the EU CBAM.[1] Being a global model, it covers the EU alongside other major countries or world regions, including an explicit representation of least developed countries (LDCs), listed by the United Nations as countries with the lowest indicators of socioeconomic development. With a detailed sectoral disaggregation of energy activities (from extraction to production to distribution sectors) and energy intensive industries, as well as endogenous mechanisms to meet carbon emission constraints, JRC-GEM-E3 has been used extensively for the economic analysis of climate and energy policy impacts.[2]

The model is divided into 35 sectors of activity, firms are cost-minimising with constant elasticity of substitution (CES) production functions. Sectors are interlinked by providing goods and services as intermediate production inputs to other sectors. Households are the owner of the factors of production (skilled and unskilled labour and capital) and thereby receive income, used to maximise utility through consumption. Government is considered exogenous, while bilateral trade flows are allowed between countries and regions using the Armington trade formulation where goods from different goods are imperfect substitutes. In 5-year steps, an equilibrium is achieved at goods and services markets, and for factors of production through adjustments in prices.

Sources for main data inputs:

- GTAP 11 circular economy database[3] (base year 2017) containing of Input Output tables, national accounts, institutional transactions, bilateral trade, taxes and tariffs.
- Consumption matrix to link household consumption by purpose to output of industrial sectors.
- Energy and emission projections derived from the POLES-JRC model

Adjustments to the JRC-GEM-E3 model

To capture the effect on some important sectors for which CBAM is applied, the sectoral granularity of the JRC-GEM-E3 model was improved for the purposes of the modelling analysis using the new GTAP 11 Circular Economy database, which explicitly captures sectors

[1] Böhringer, C., Fischer, C., Rosendahl, K.E. *et al.* Potential impacts and challenges of border carbon adjustments. *Nat. Clim. Chang.* **12**, 22–29 (2022). https://doi.org/10.1038/s41558-021-01250-z

[2] https://ec.europa.eu/jrc/en/gem-e3/model

[3] Chepeliev (2025). Global Trade Analysis Project (GTAP) Circular Economy Data Base. https://www.gtap.agecon.purdue.edu/events/GTAPVSS/v6n2-2025/GTAPVSS_v6n2.pdf. See also Chepeliev et al. (2026). Circular Economy Transition in Europe Requires Ambitious Policies Beyond Climate Mitigation. *Resources, Conservation and Recycling* 225: 108591. https://doi.org/10.1016/j.resconrec.2025.108591

subject to the EU CBAM. This exercise allowed for the model's underlying database to explicitly feature:

- aluminium
- cement
- fertilisers
- iron and steel.

Compared to the standard GTAP 11 database, the GTAP 11 Circular Economy database splits aluminium, fertilisers and cement sectors out of the more aggregate non-ferrous metals, chemicals, non-metallic minerals sectors, respectively. This dataset draws on several sources including trade and energy statistics and thus captures differences in the input structure of these sectors as well as differences in the trade intensity.

Baseline scenario

The baseline scenario is a scenario that follows current policies and trends, but without CBAM as currently legislated. The scenario includes the implementation of the Fit for 55 package in the EU. The rest of the world is assumed to follow a current policy scenario derived from the Global Energy and Climate Outlook 2024.[4] This scenario assumes that third countries follow existing policies, but not necessarily reach their National Determined Contributions (NDCs) under the Paris Agreement if these targets are not backed by specific policies. The UK and EFTA countries are assumed to have a CBAM and a climate policy of equal stringency in place as the EU, e.g. a carbon price that is effectively paid equal to those in the EU ETS, hence there are no CBAM payments from these countries to the EU, while third countries are assumed to face a CBAM when exporting to the UK and EFTA.

Main policy scenario: phase-in of CBAM and phase-out of ETS free allowances

The scenario models CBAM as currently legislated. Indirect emissions from electricity use are included in the calculation of CBAM payments for fertilizers and cement. It is assumed that existing climate policies in third countries (other than in the UK and EFTA) do not make use of carbon prices that are effectively paid and thus are not deducted from CBAM payments. This is a conservative assumption as such deductions would lead to smaller impacts on trade flows in response to the introduction of CBAM.

The current CBAM regulation already covers some products that are outside the basic CBAM sectors in the sectoral classification of the JRC-GEM-E3 model. This concerns a small share of products under the other equipment goods sector. This is reflected in the CBAM scenario as CBAM is levied on a share of EU imports in that sector based on the upstream emissions from the manufacturing of ferrous metals and aluminium used as intermediate input in this sector.

The introduction of CBAM is not done in isolation and therefore has to be analysed jointly with the phase out of free allowances in CBAM sectors in the EU. This reflects the transition from one anti-leakage measure (free allowances) to another (CBAM). The phaseout pathway follows the trajectory as currently legislated.

[4] Keramidas, K., Fosse, F., Aycart Lazo, F.J., Dowling, P., Garaffa, R., Ordonez, J., Petrovic, S., Russ, P., Schade, B., Schmitz, A., Soria Ramirez, A., van Der Vorst, C. and Weitzel, M., Global Energy and Climate Outlook 2024, Publications Office of the European Union, Luxembourg, 2025, https://data.europa.eu/doi/10.2760/9028706, JRC139986.

Variables, sectors, regions in the JRC-GEM-E3 model

The model estimates several variables. For this analysis, macro impacts are assessed as well as the following indicators at the sectoral level: output, imports, export, CO_2 and overall GHG emissions. The sectors represented in JRC-GEM-E3 are listed in Table 4.

Table 4: Sectors in the JRC-GEM-E3 model

Sectors in the JRC-GEM-E3 model	Power generation technologies modelled as sectors in the JRC-GEM-E3 model
Ferrous metals	Coal fired
Cement	Oil fired
Fertilizer	Gas fired
Aluminium	Nuclear
Other equipment goods	Biomass
Transport equipment	Hydro
Electronic products and electrical equipment	Wind
Coal	Solar
Crude oil	
Oil	
Gas	
Electricity supply	
Non-ferrous metals	
Chemical products	
Plastics	
Paper products	
Non-metallic minerals	
Consumer goods industries	
Construction	
Transport (air)	
Transport (land)	
Transport (water)	
Market services	
Non-market services	
Crops	
Livestock	
Forestry	

Note: Sectors in bold are considered basic good sectors and are subject to CBAM. Part of the Other Equipment Goods sector (in italics) is already covered under the current CBAM Regulation.

The GTAP 11 Circular Economy database explicitly represents 141 regions. The model aggregates them in 50 regions or countries, including several LDCs and the EU as a single region, as reported in Table 5 below. The table also shows which countries are included in the

three large country aggregations (LDCs, other developing and emerging economies, neighbourhood countries) reported in the main text.

Table 5: Regions in the JRC-GEM-E3 modelling

LDCs	
Benin	Rwanda
Burkina Faso	Senegal
Bangladesh	Togo
Ethiopia	Tanzania
Cambodia	Uganda
Madagascar	Zambia
Mozambique	Rest of Africa LDCs
Malawi	Rest of Asia LDCs
Nepal	
Other developing countries and emerging economies	
Ghana	Vietnam
Indonesia	Zimbabwe
Malaysia	South Africa
Cameroon	Rest of Africa
Thailand	Rest of Americas
Trinidad and Tobago	Rest of Asia and Pacific
Central Asian	Brazil
India	Türkiye
EU neighbourhood countries	
Morocco	Jordan
Tunisia	Ukraine
Algeria	Caucasus
Egypt	
Other regions	
EU 27	USA
EFTA region	Rest of Middle East and North Africa
United Kingdom	High income Asia Pacific and other
Canada	Russia and Belarus
China	Rest of Europe

Modelling of emission intensities and sensitivity analysis

In some cases, exporting third countries only engage in the production and exports of a narrow subspace of the products covered in a wider CBAM sector as represented in the GTAP database. This influences the emission intensity that serves as a basis to calculate the CBAM payment at the border when exporting to the EU. In GTAP-based CGE models, the emission intensity is expressed in kg CO_2-eq /US$, rather than in physical intensities (kg CO_2-eq/tonne of output). If the exports contain little value added, this translates into a higher intensity compared to products with the same absolute emissions, but higher value added. In these cases, the emission intensity of exporters may appear high relative to the EU when comparing the broader sector as represented in GTAP, despite having a physical emission intensity that is similar to that in the EU on a product-by-product basis. This implies that in CGE models, these countries would see a relatively high emission intensity and thus a large price increase and a strong reduction in exports to the EU under CBAM, despite having emission intensities that are similar to the EU on a product basis.

For example, as Mozambique mainly exports unwrought aluminium with relatively low value added to the EU, the emission intensity used in a CGE model for that sector thus is relatively high when expressed in kg CO_2-eq/US$. However, physical emissions in Mozambique are relatively low compared to other unwrought aluminium producers in third countries, the model therefore likely overstates the negative impact on Mozambique's aluminium sector. An alternative approach is used to determine the impact on Mozambique with the JRC-GEM-E3 model. This approach is based on an implied CBAM rate calculated based on physical emission intensities (kg CO_2-eq/tonne of output) relative to the EU instead of the standard GTAP emission intensities (kg CO_2-eq/US$). This approach uses physical emission intensities from a JRC report[5] and calculates weighted emission intensities for GTAP sectors using recent trade statistics from COMEXT (for 2023). Countries that have a higher physical emission intensity than in the EU would face higher additional costs. For the case of Mozambique, the trade-weighted physical emission intensity of aluminium is 1.04 times that of the EU. This would mean that a 1% price increase in the EU (from the phasing out of ETS free allowances) would be translated in the model as a 1.04% price increase for EU imports of aluminium from Mozambique under CBAM.

While this alternative approach likely better captures the situation of Mozambique, this is not a perfect measure either. For example, it assumes away any quality differences within product groups which would justify a higher price (in the absence of carbon costs) in the EU. Such a mark-up would imply that the relative price change from phasing out free allowances is lower in the EU compared to lower quality imports without a quality mark-up. Therefore, this alternative approach is not used for all third countries.

[5] Vidovic, D., Marmier, A., Zore, L. and Moya, J., Greenhouse gas emission intensities of the steel, fertilisers, aluminium and cement industries in the EU and its main trading partners, Publications Office of the European Union, Luxembourg, 2023, doi:10.2760/359533, JRC134682.

Annex 4: Data on CBAM importations

This Annex contains all relevant data-related information. Unless stated differently, all data concerns CBAM data of the transitional period between Q4 2023 and Q2 2025. The cut-off date of 31 August 2025 concerns the date when the dataset was taken from the CBAM transitional registry. Any data input after that date was not considered. The data has been cleaned, as the collection of data across 27 EU Member States (MS) brings significant challenges. The chapter on "State of Play: the CBAM at the end of the transitional period" already touched upon some of those elements.[6] Further information on outlier removals and the subsequent minor fluctuations possible (regarding imported tonnes, in particular) can be found below.

Key operational improvements for data quality in the CBAM Transitional Registry

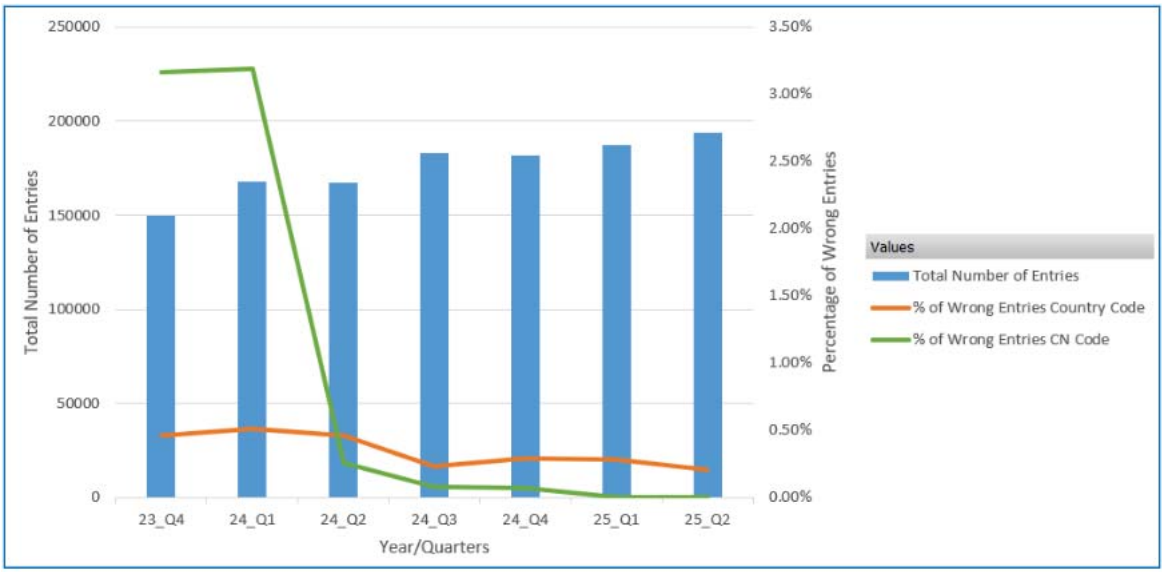
One of the major errors encountered concerned the **input of numerical data**, for instance due to declarants from different Member States using dots and commas for decimal and thousands separator differently. Similarly, the earlier possibility for declarants to choose between kg or tonnes led to errors identified by comparing transitional registry data with customs and trade data. By removing redundant fields, standardizing formats and introducing warning labels, errors caused by inconsistent use of decimals and measurement units were reduced.

In the first reported quarters, there was wider number of **CN codes** reported than required under the CBAM Regulation. The introduction of rigid validation rules led to a significant reduction of entries with wrong CN codes (see Figure 1 below).

Another area of difficulties related to the **country codes** used for 3rd country installations, where different abbreviations were used for the same country (e.g., TR and TC for Türkiye, UK and GB for the United Kingdom). The integration of the Operators Portal into the CBAM Transitional Registry enabled operators of third country installations to input their data once and allows them to share this data with importers of CBAM goods directly via the Transitional Registry. This centralization of operator and installation information in third countries provides better consistency of country codes. See more details in Figure 1 below which shows the reduction of the error rate over time.

[6] Such as the wrong CN codes, which have been excluded from the dataset.

Figure 1: Reduction of error rates in the CBAM Transitional Registry



CBAM Transitional Registry Data for the indicated time period (reporting until 31 August 2025)

The quarterly monitoring from Q4 2023 to the Q2 2025 shows a consistent: The green line shows the percentage of incorrect CN codes (vis-à-vis the total number of entries). After an initial phase with high incidence, there was a sharp decline in Q2 2024, followed by stabilization at residual levels from Q2 2024 onwards, where the errors virtually disappeared. The orange line shows the percentage of incorrect country codes. Here, the downward trend has been more moderate, as the error rate has remained relatively low from the beginning (Q4 2023), with only about 0.5% of declarations affected in the early periods and gradually decreasing further over time.

As a result of corrective actions and continuous collaboration, the Transitional Registry has become a more reliable, user-friendly, and efficient tool. These experiences showed the clear added value of the CBAM transitional period to prepare for the definitive system. The Transitional Registry was continuously improved, with frequent and concrete new releases that benefited from the input of importers, industries, and NCAs to ensure that solutions were practical and applicable to day-to-day operations.

Part 1: Applied cleaning rules

Cleaning rules: basic principles concerning outlier removal of tonnes

Tonnes reported by CBAM declarants have been cross checked with the respective customs imports of all importers across the EU. This allowed to spot and subsequently remove unrealistic outliers. However, two factors come into play: First, not all MS have upgraded to the use of the Surveillance 3 mechanism yet. As such, some customs data does not have the necessary granularity for every case. Second, not every single information on customs procedures is collected uniformly across the EU. As such, there is another element of variance to be considered.

Tonnes have only been adjusted as far as high-end outliers are concerned. There was no adjustment of data regarding potential underreporting, partly due to the circumstances mentioned.

Part 2: Estimation of emissions

All goods except electricity as a CBAM Good

Emissions are not verified in the transitional period. Therefore, all emissions data shown in this report are estimations based on multiplying quantities reported in tonnes with the default values of the transitional period. This method has limitations: Default values of the transitional period rely on one global average default value per CN code. Nuances due to different countries and production methods are not considered.

Electricity as a CBAM Good – emissions data

For the case of electricity as a CBAM sector, 97% of the declarations between 2023 Q4 and 2025 Q2 are relying on the use of the default values provided by the Commission and derived from the International Energy Agency database. Within each declaration, the total quantity of imported electricity and declared on the CBAM Registry is therefore multiplied by the default value attributed to the country of origin. The declarations relying on actual values were taken at face value. See Figure 11 and Table 2 below for detailed data.

Part 3: Statistics of the CBAM Transitional Registry

Below are a number of figures that depict dashboards of the CBAM Transitional Registry data, after it has been cleaned in line with the above outlined rules.

Figure 1 to 5 show a generic overview of CBAM data declared, overall and per sector (except electricity) from Q4 2023 to Q2 2025. By weight, iron and steel is the biggest sector (69%), followed by fertilisers (15%), cement (11%) and aluminium (5%). The National Competent Authorities (NCAs) with the highest number of reports were Germany, Italy and Poland, with around 18-, 16- and 15-thousand reports respectively. An increase in declared use of actual values can be observed, it rose from a mere 8% to 53% overall, with imports above 1,000 tonnes declaring based on actual values increasing from 25% to 93%.[7] The sectors of cement and fertilisers (with 84% and 77% in Q2 2025, respectively) declaring based on actual values suggest being the most prepared for the use of actual values in the definitive period.

Figures 6 to 10 show the same dashboards as 1 to 5, but with a simulated threshold of 50 tonnes annually. Importers who overall imported 50 tonnes or less per year were excluded in those figures. Comparing the figures show that numbers of declarants, importers and reports dropped significantly, while effects on tonnes are hardly noticeable. An overall increase in the percentage of imports declaring based on actual values can also be observed, suggesting that importers of larger quantities are better connected to their supply chains.

[7] Default Values were only allowed to be used in the first three quarters of the Transitional Period. To enable importers who failed to obtain actual values despite their best efforts until then, the option “Actual values not available” has been introduced in the CBAM Transitional Registry to allow them to declare meaningfully. In line with the basic principles outlined in Part 1 of Annex IV, all such cases that are not Actual Values have been labelled as “Other”.

Figure 11 shows aggregated data on electricity as a CBAM good, from Q4 2023 to Q2 2025. The NCAs with the highest number of reports were Denmark (118 reports), Romania (107 reports) and Bulgaria (65 reports). For electricity, the use of default values remained stable over the quarters and represented 97% of the declarations per quarter on average. It is important to note that default values only represent the CO_2 intensity of electricity produced from fossil fuels of the exporting country, as foreseen in Annex IV of the CBAM Regulation.

Figures 12 to 16 present a more detailed deep dive into the five biggest countries producing CBAM goods based on total tonnes: Ukraine, Türkiye, Russia, Canada and China.

Figures 17 to 19 present CBAM data from an estimated[8] emissions perspective. Notably, while aluminium only made 5% of tonnes imported, their emissions (tonnes of CO_2-eq) make 24% of overall emissions (excluding electricity as a CBAM good). Emissions from cement make only half, proportionally, compared to their weight.

Table 2 shows an aggregated emissions estimation per CN code, based on default values of the transitional period, in line with the obligations of Article 14 (5) CBAM Regulation.

[8] See Part 2 of Annex IV for details.

Figure 1: CBAM Transitional Registry, World Overview of portrayed Sectors (except Electricity as a CBAM good), Q4 2023 to Q2 2025

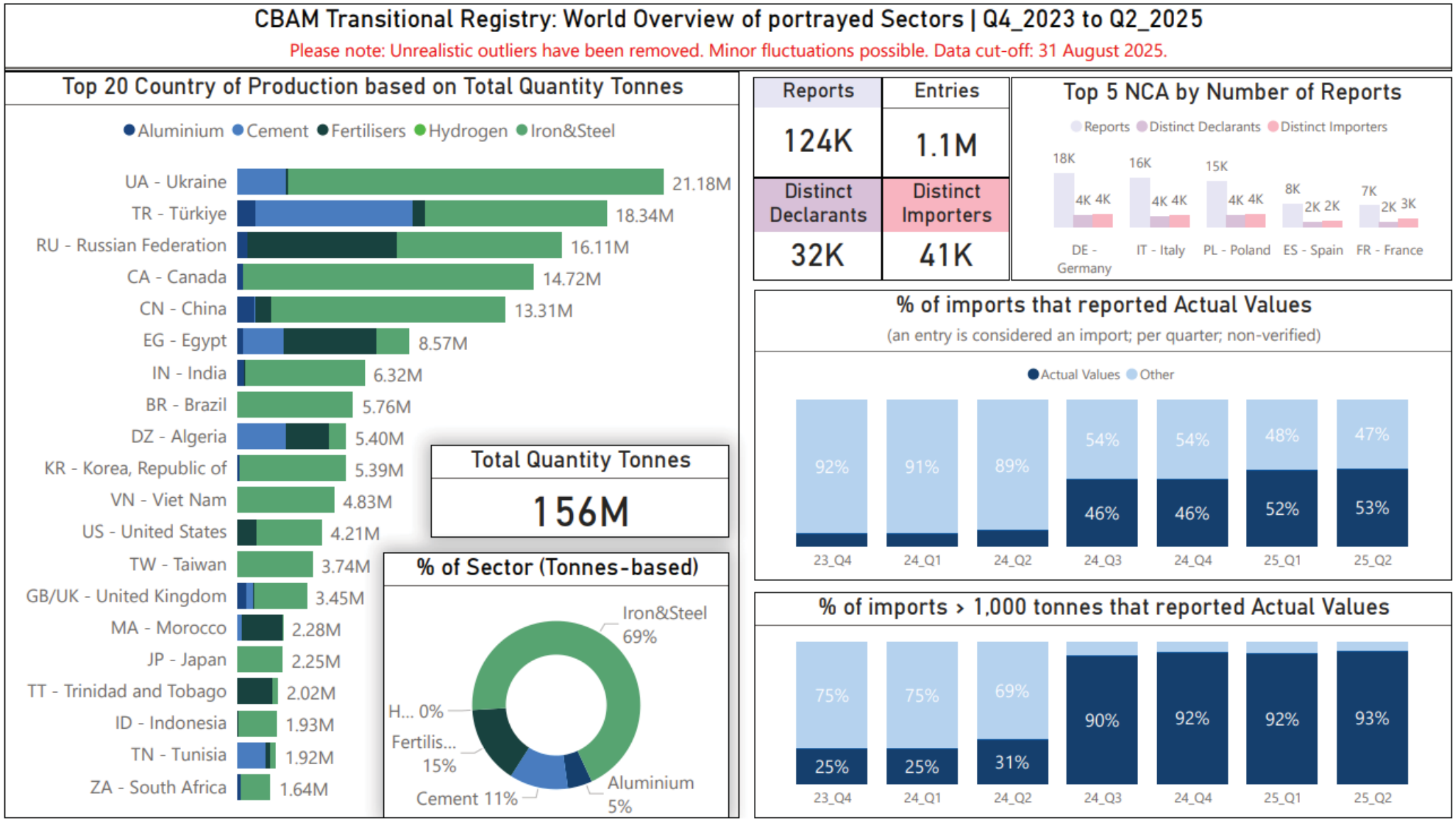


Figure 2: CBAM Transitional Registry, World Overview of Iron and Steel, Q4 2023 to Q2 2025

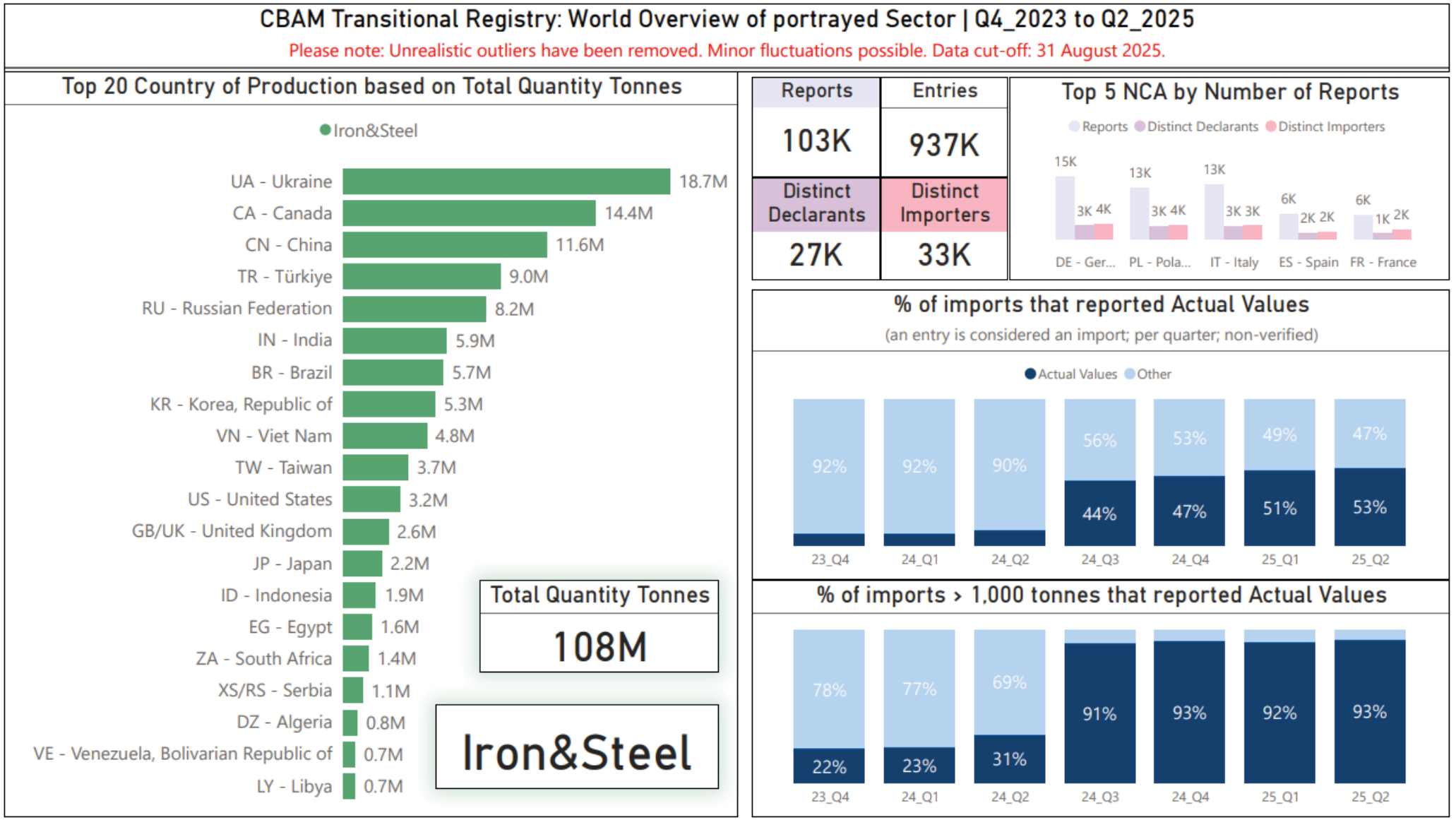


Figure 3: CBAM Transitional Registry, World Overview of Fertilisers, Q4 2023 to Q2 2025

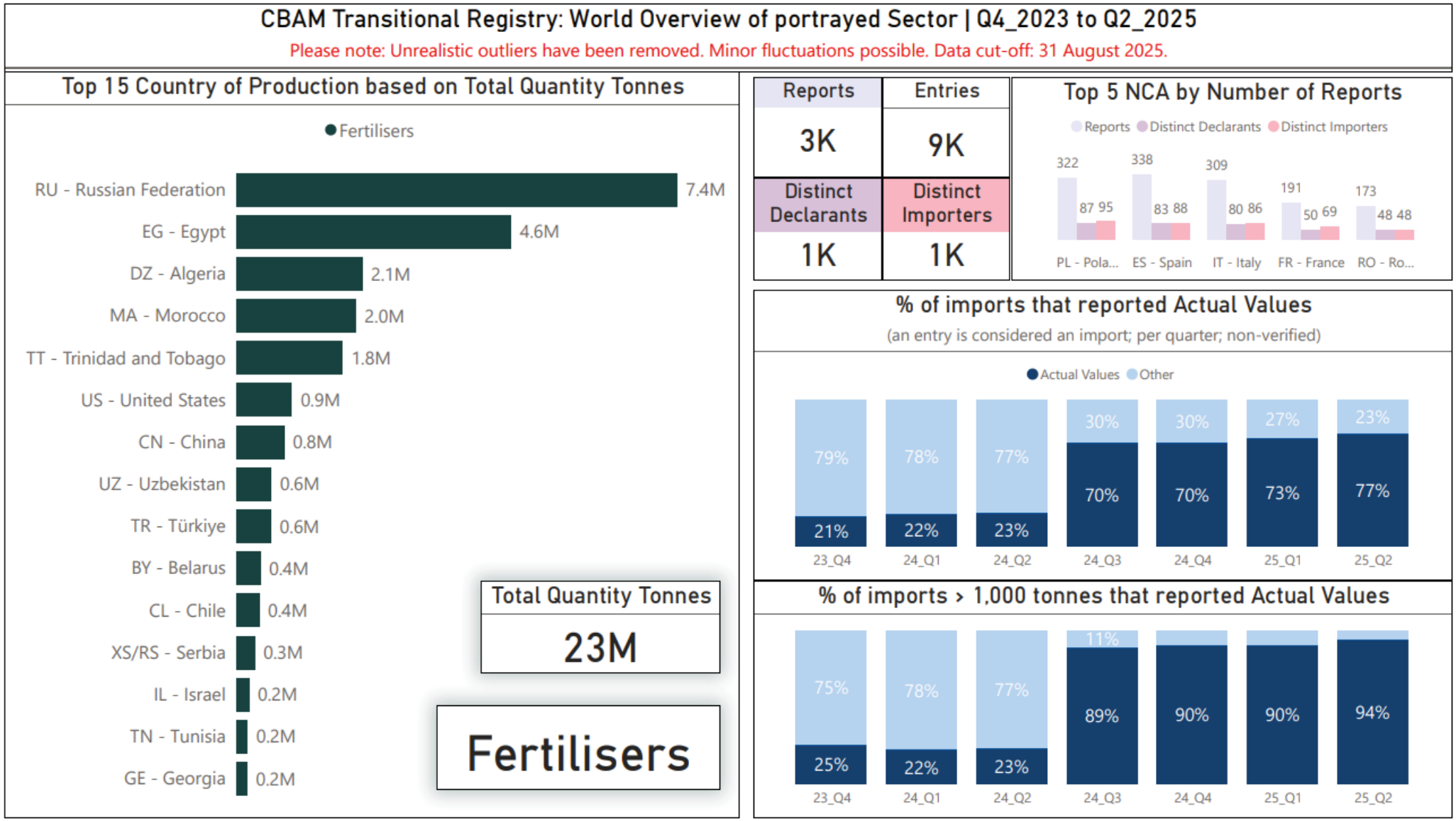


Figure 4: CBAM Transitional Registry, World Overview of Cement, Q4 2023 to Q2 2025

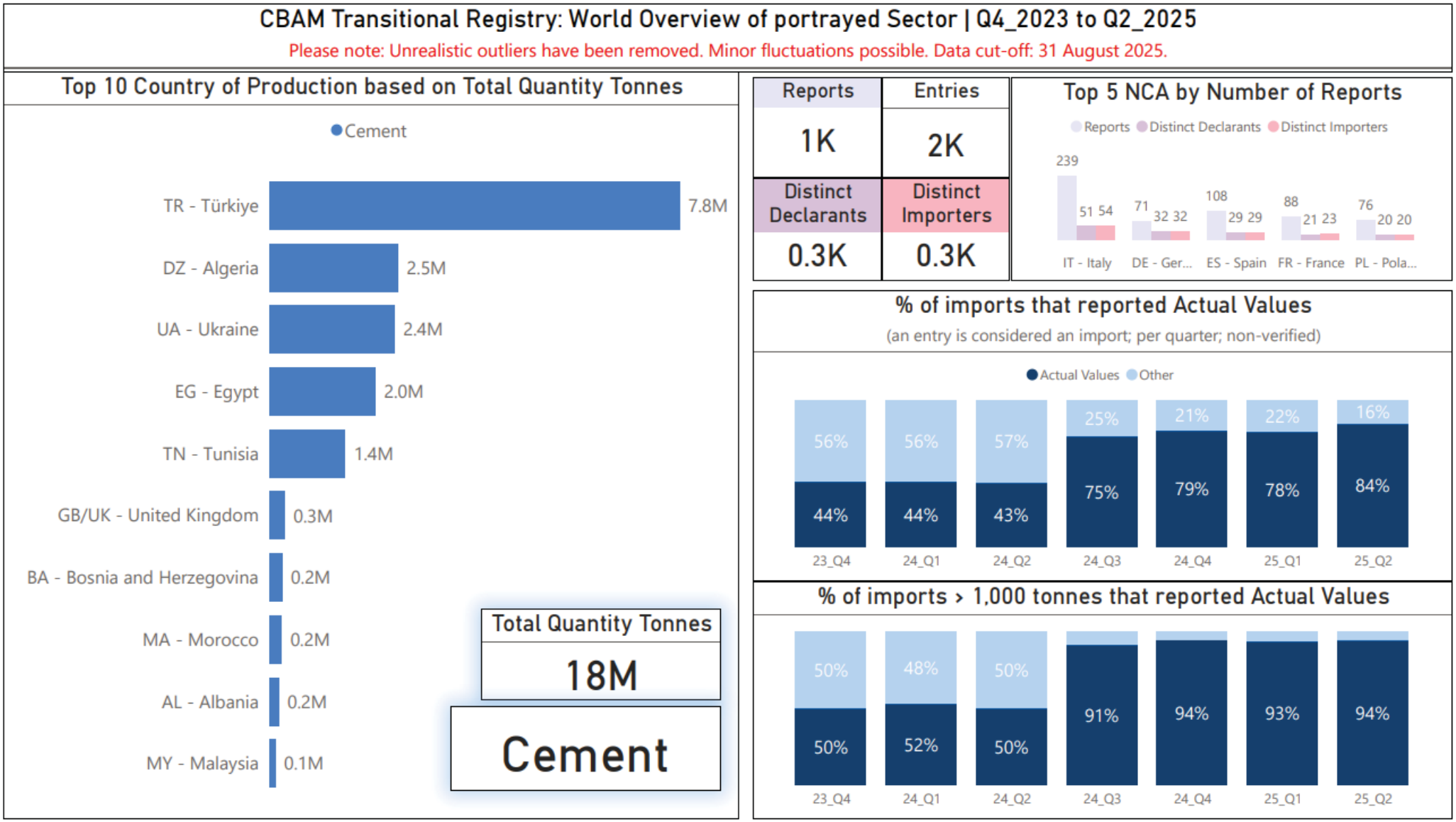


Figure 5: CBAM Transitional Registry, World Overview of Aluminium, Q4 2023 to Q2 2025

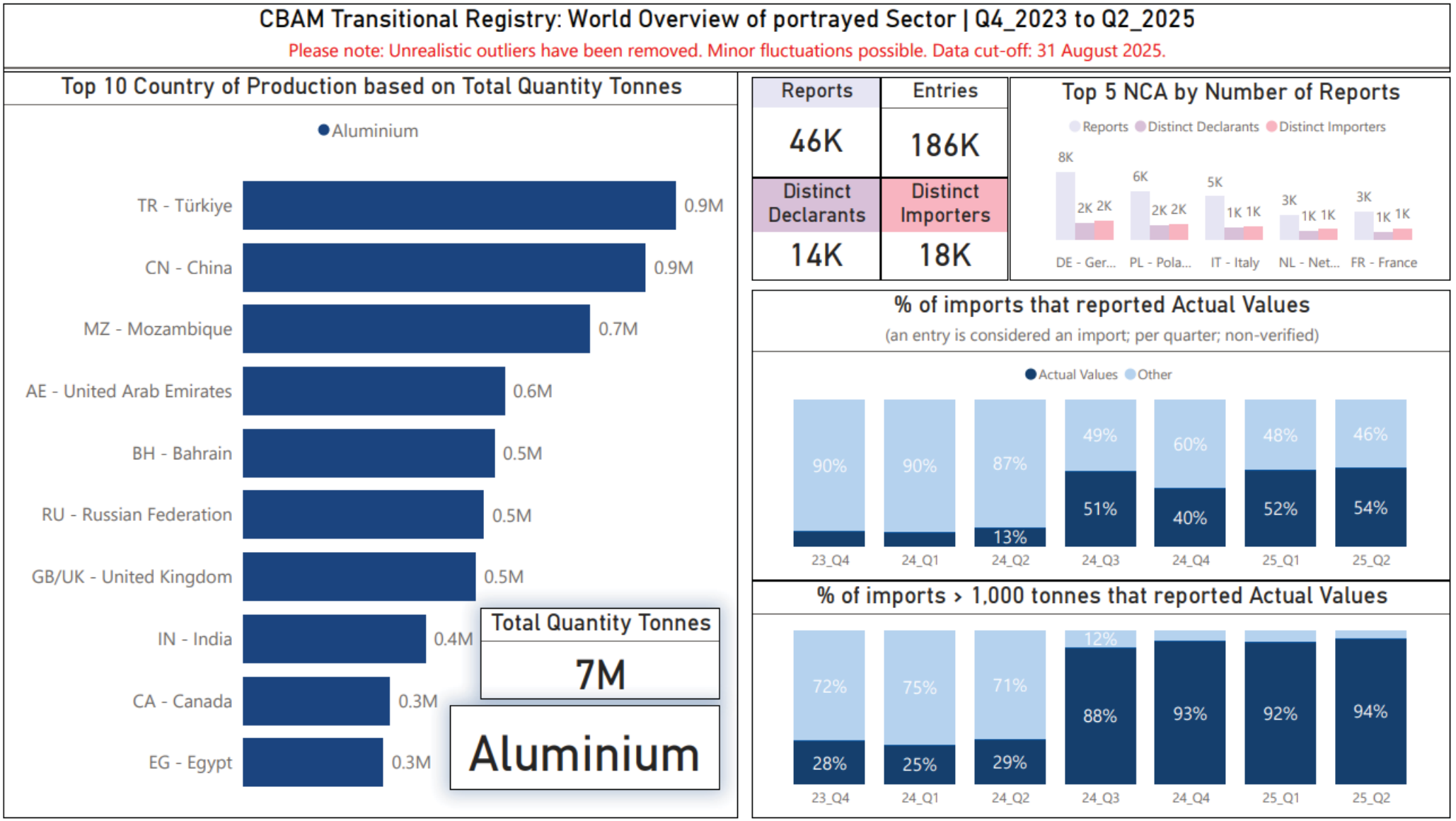


Figure 6: Simulation of 50 tonnes annual threshold - CBAM Transitional Registry, World Overview of portrayed Sectors, Q4 2023 to Q2 2025

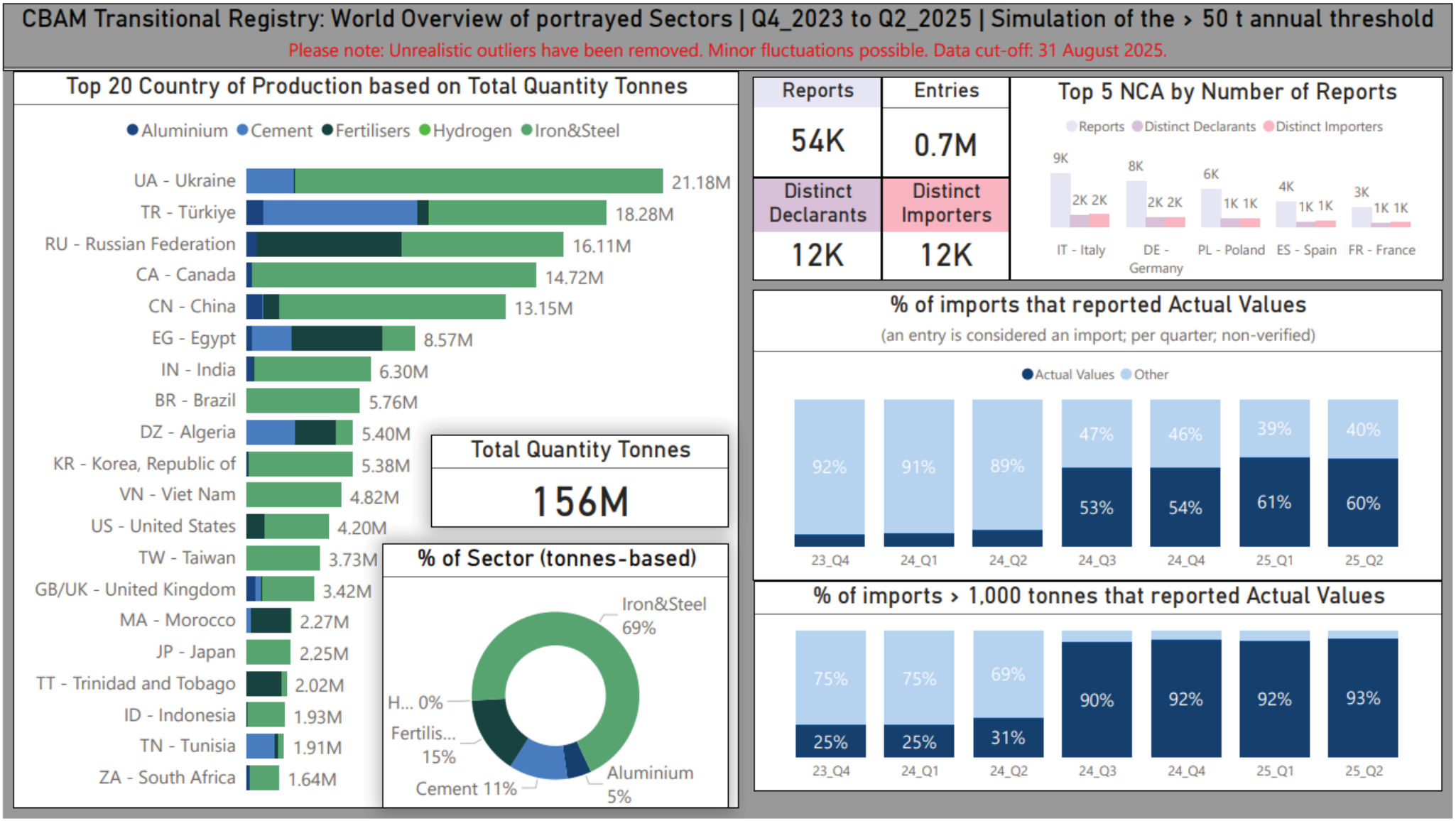


Figure 7: Simulation of 50 tonnes annual threshold - CBAM Transitional Registry, World Overview of Iron & Steel, Q4 2023 to Q2 2025

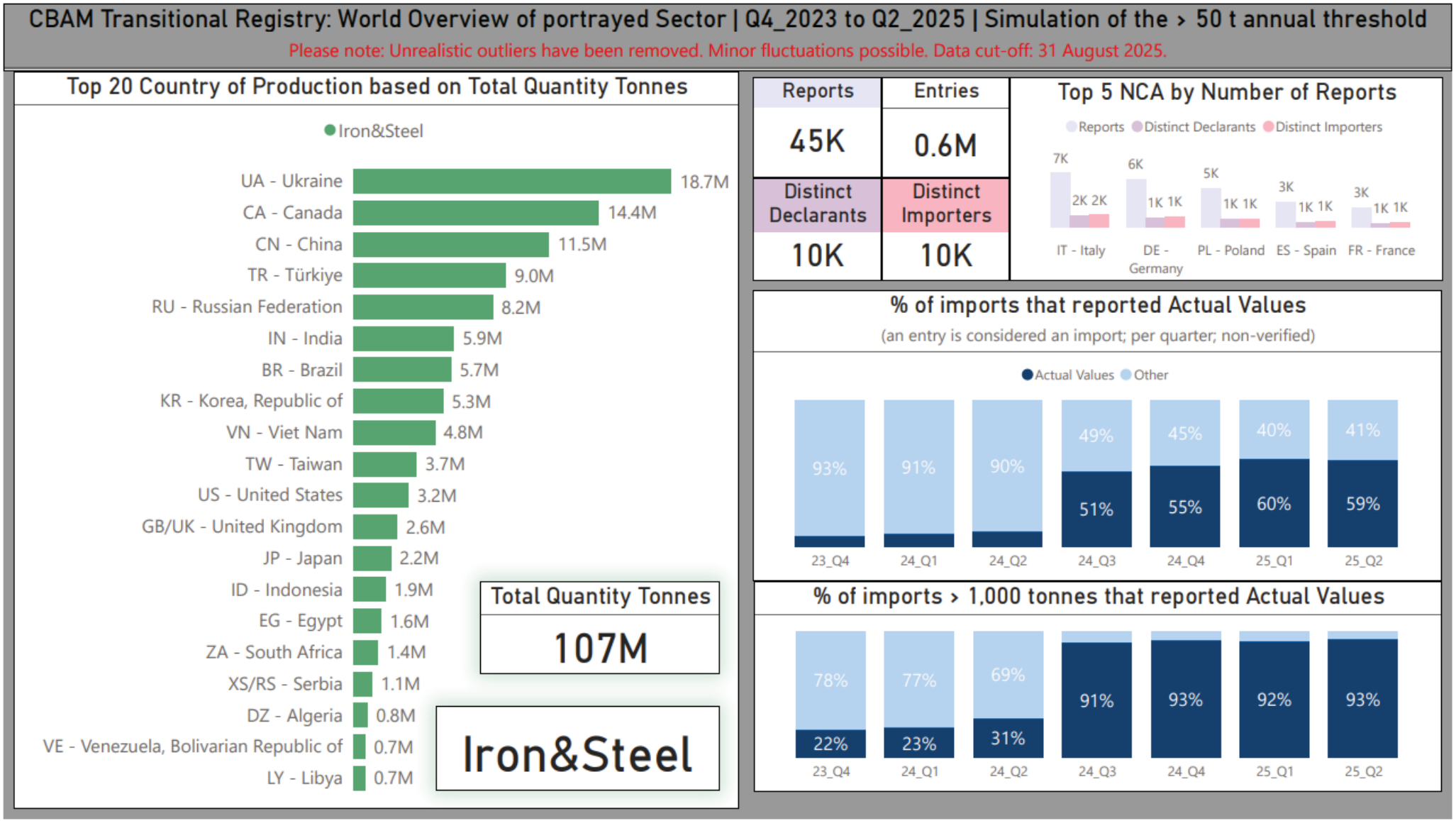


Figure 8: Simulation of 50 tonnes annual threshold - CBAM Transitional Registry, World Overview of Fertilisers, Q4 2023 to Q2 2025

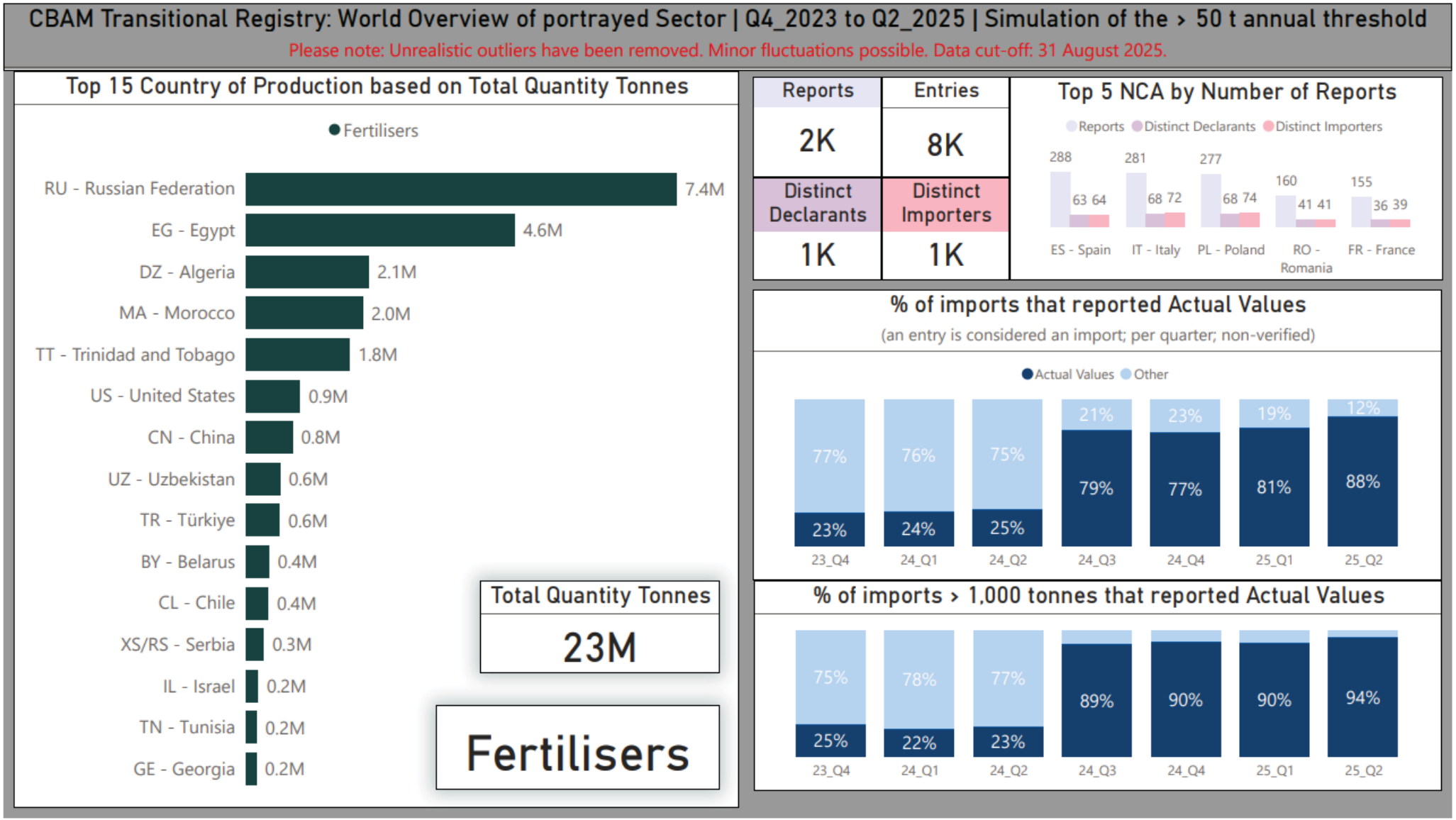


Figure 9: Simulation of 50 tonnes annual threshold - CBAM Transitional Registry, World Overview of Cement, Q4 2023 to Q2 2025

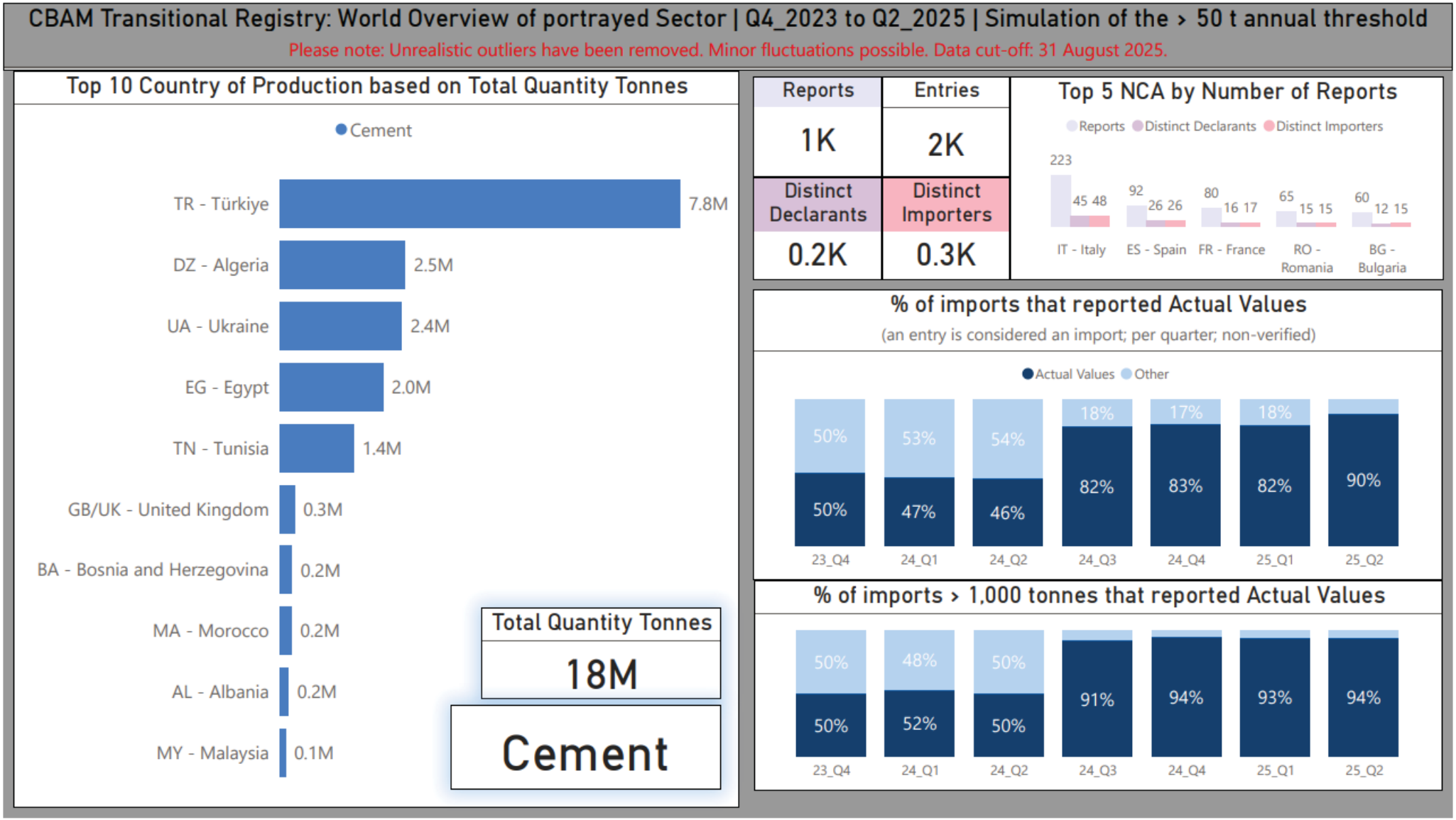


Figure 10: Simulation of 50 tonnes annual threshold - CBAM Transitional Registry, World Overview of Aluminium, Q4 2023 to Q2 2025

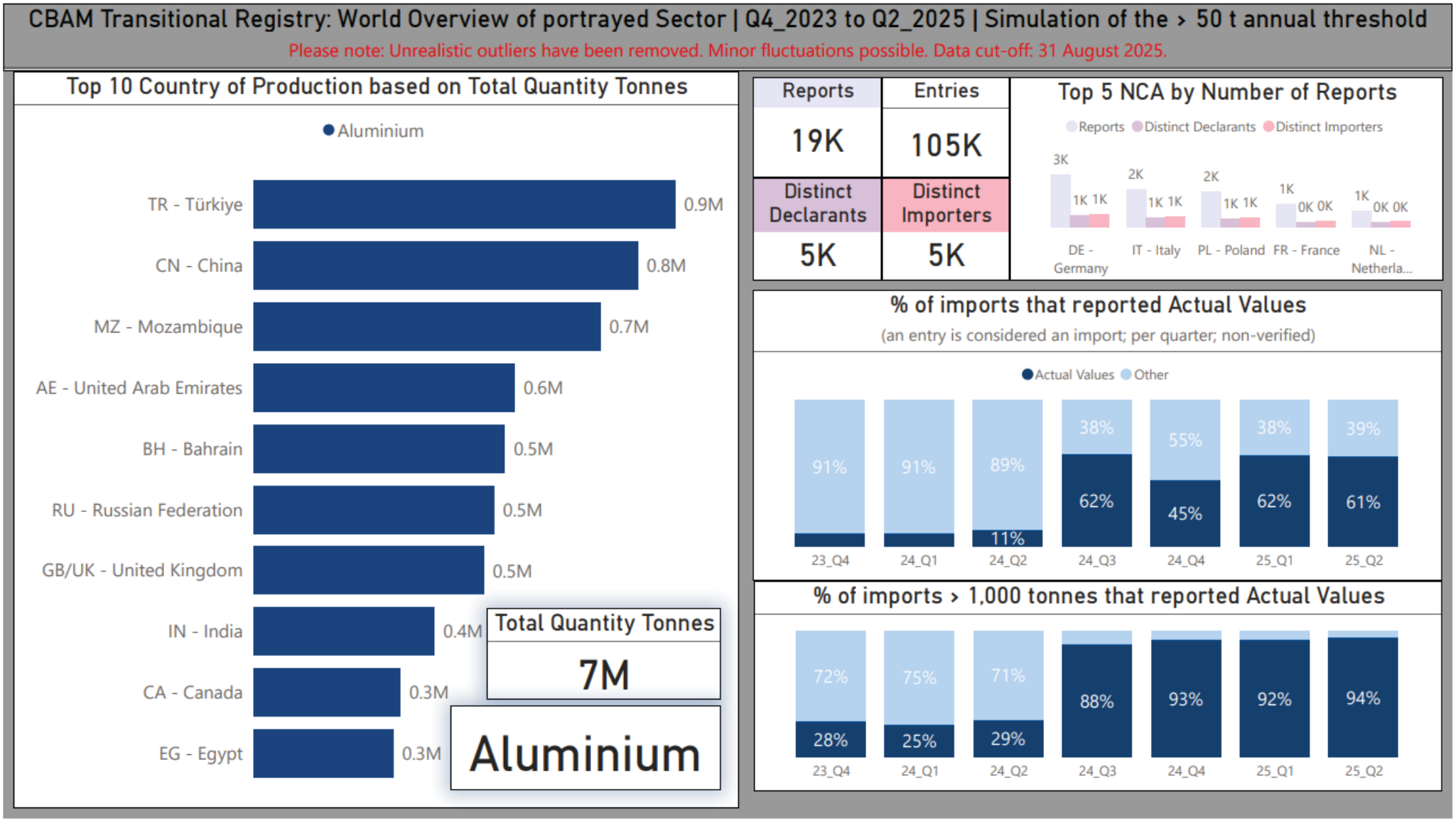


Figure 11: CBAM Transitional Registry, World Overview of Electricity, Q4 2023 to Q2 2025

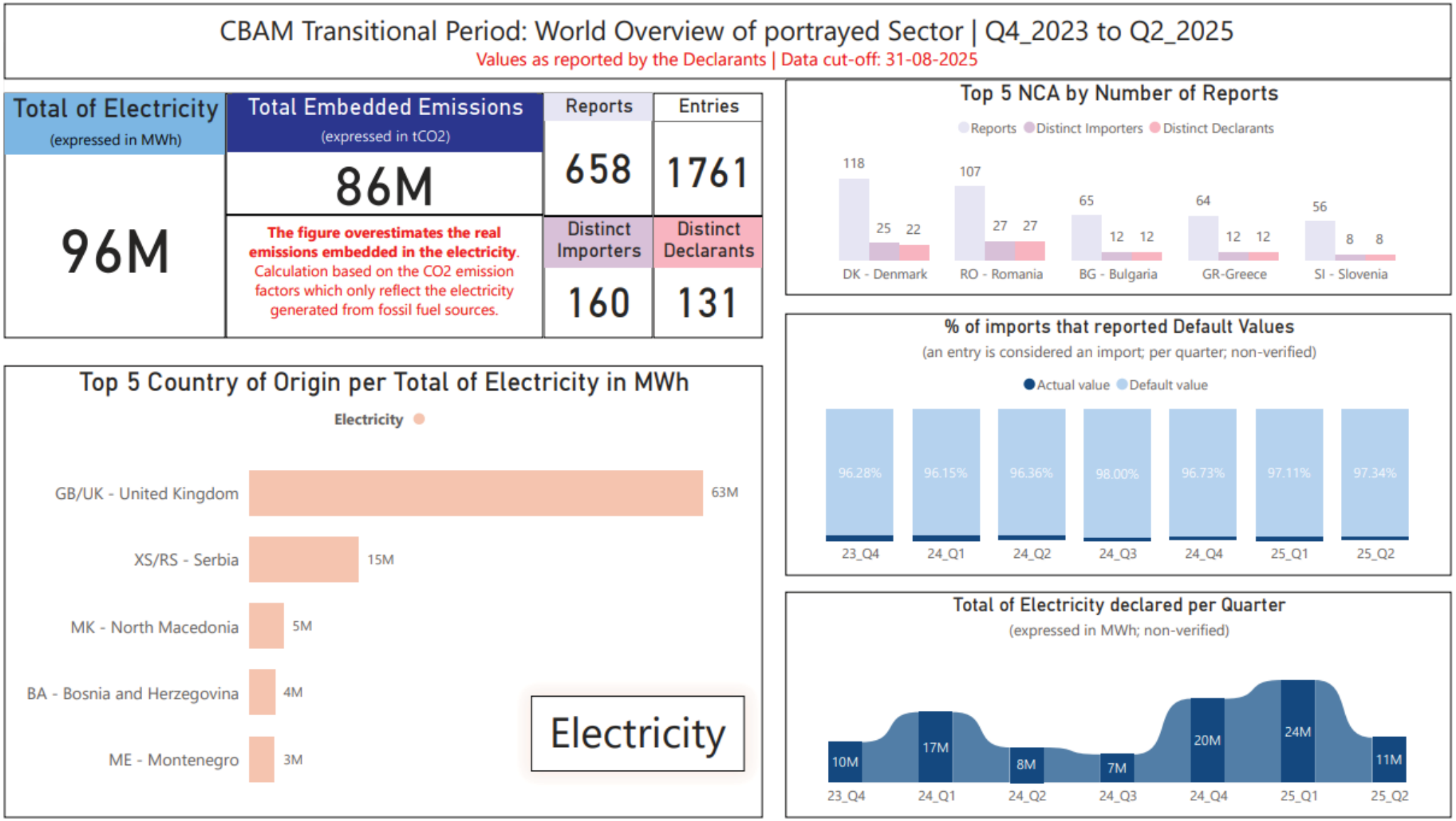


Figure 12: CBAM Transitional Registry, Country Overview of Ukraine, Q4 2023 to Q2 2025

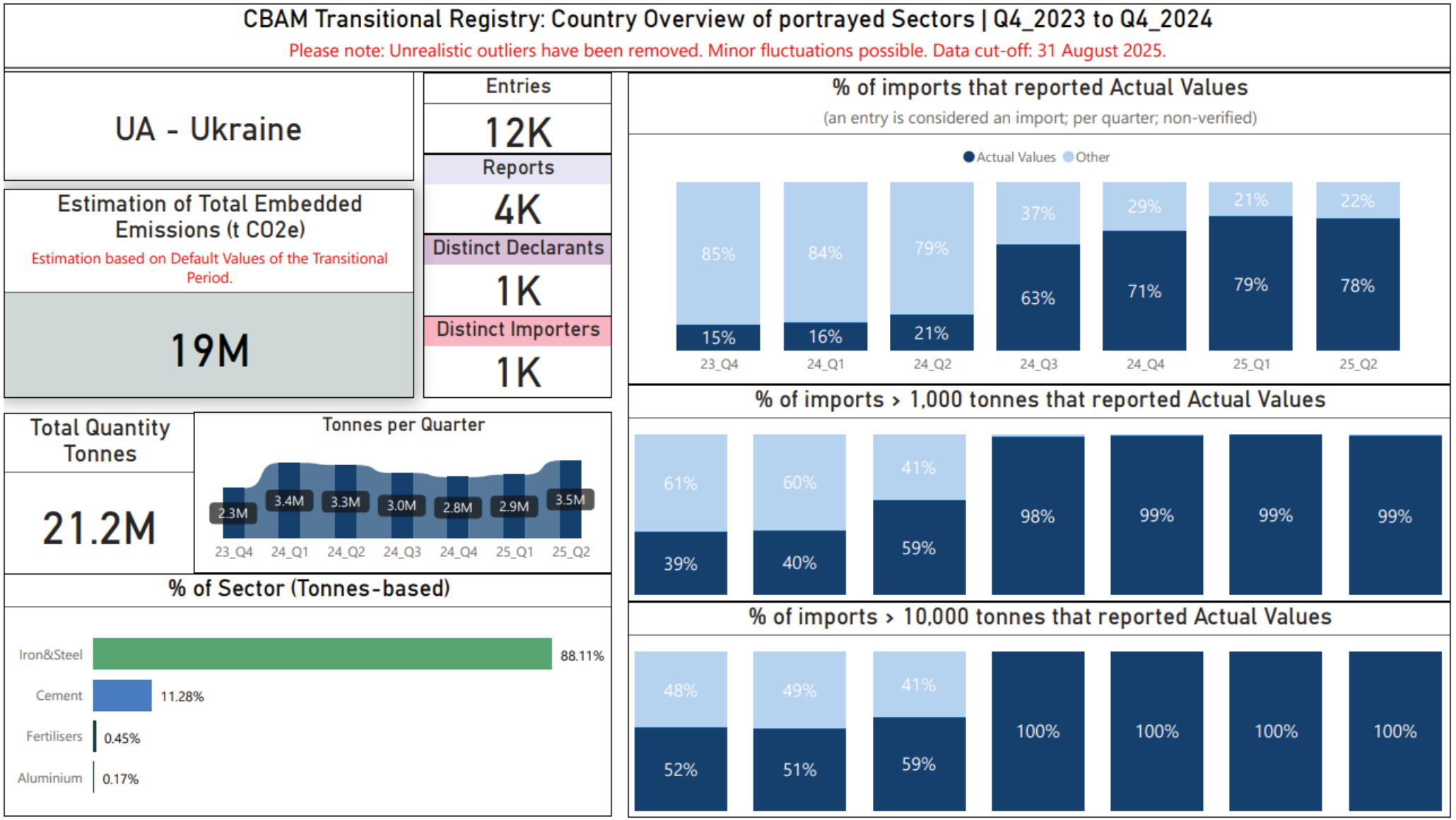


Figure 13: CBAM Transitional Registry, Country Overview of Türkiye, Q4 2023 to Q2 2025

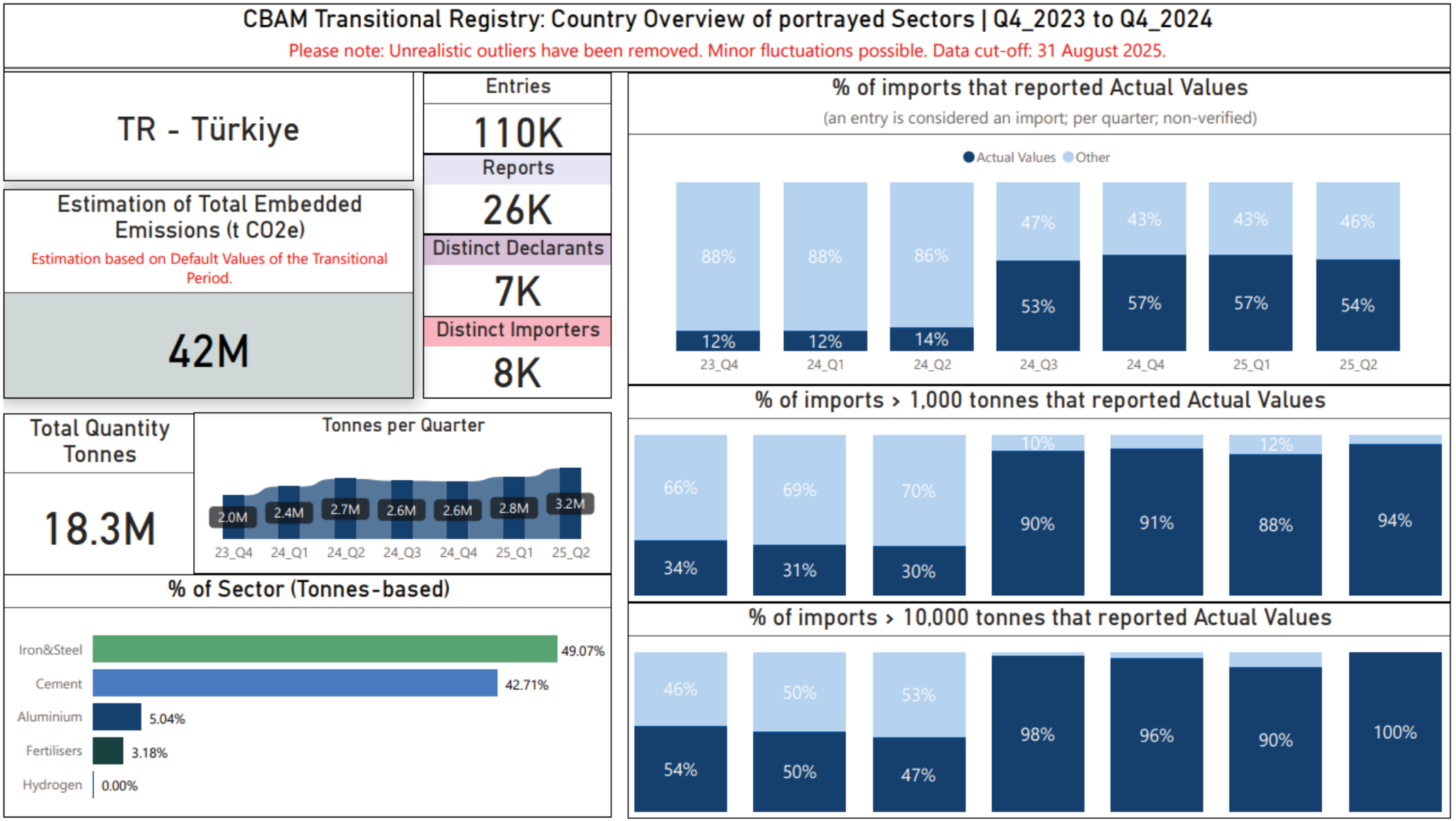


Figure 14: CBAM Transitional Registry, Country Overview of Russia, Q4 2023 to Q2 2025

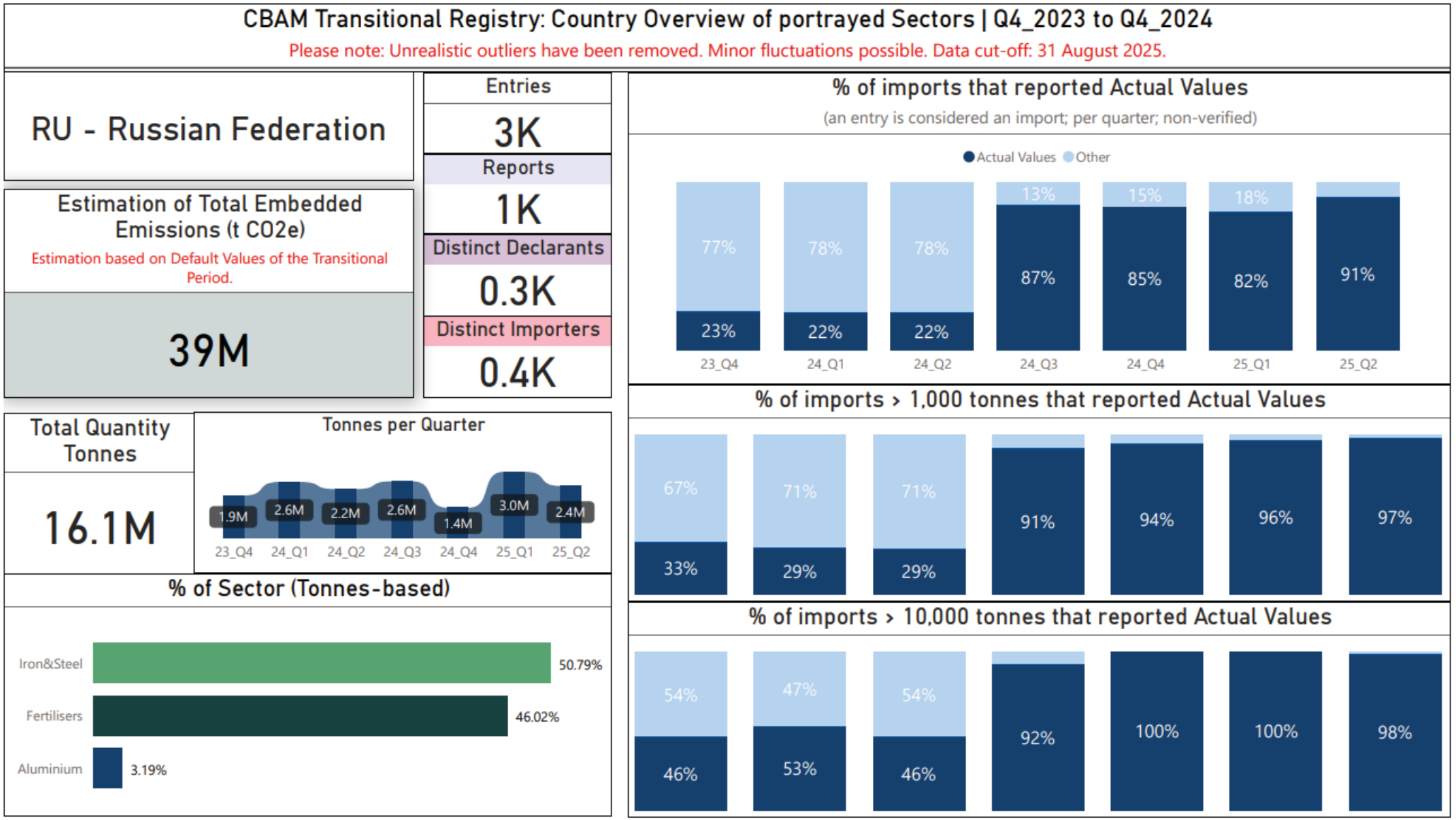


Figure 15: CBAM Transitional Registry, Country Overview of Canada, Q4 2023 to Q2 2025

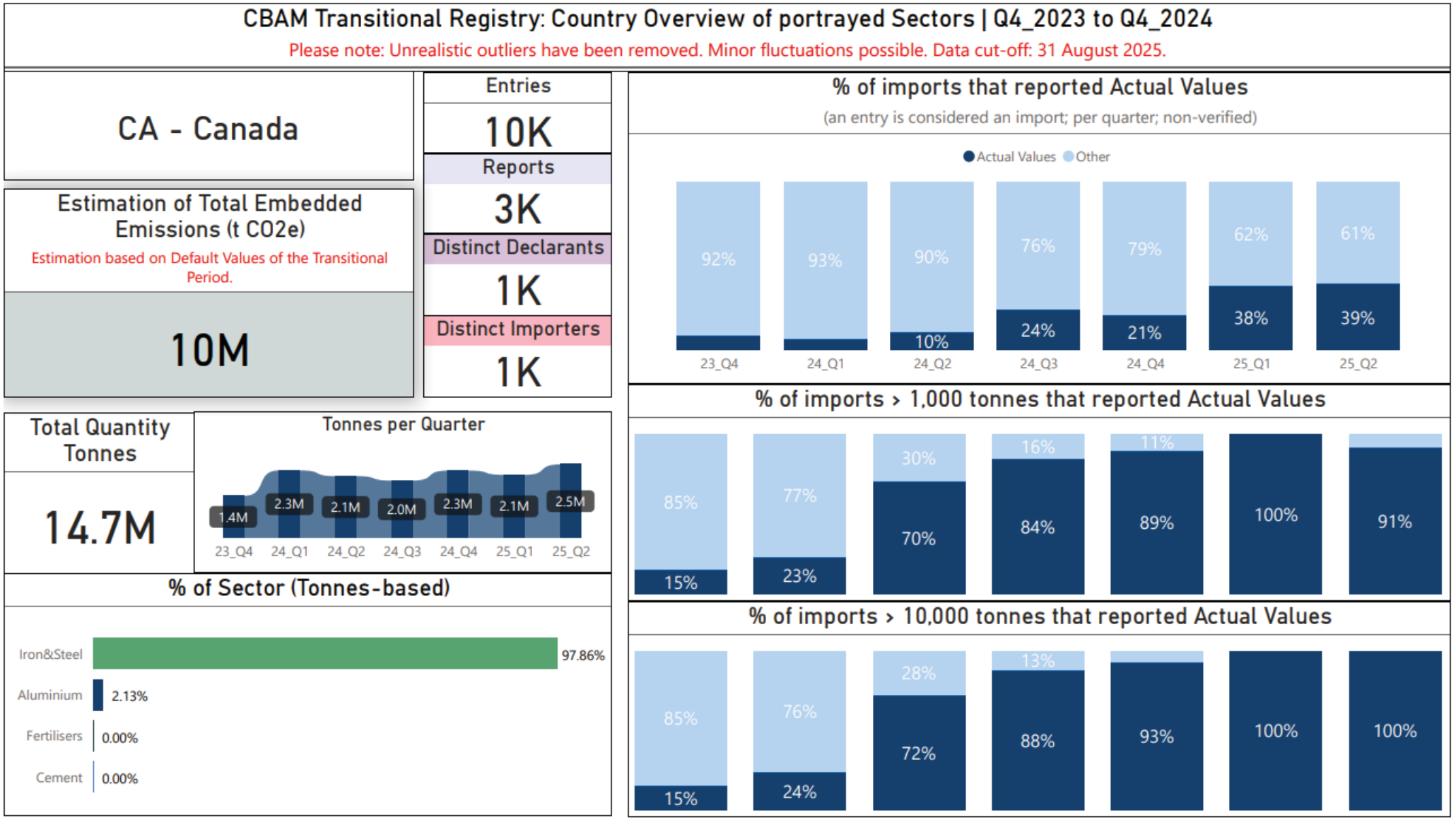


Figure 16: CBAM Transitional Registry, Country Overview of China, Q4 2023 to Q2 2025

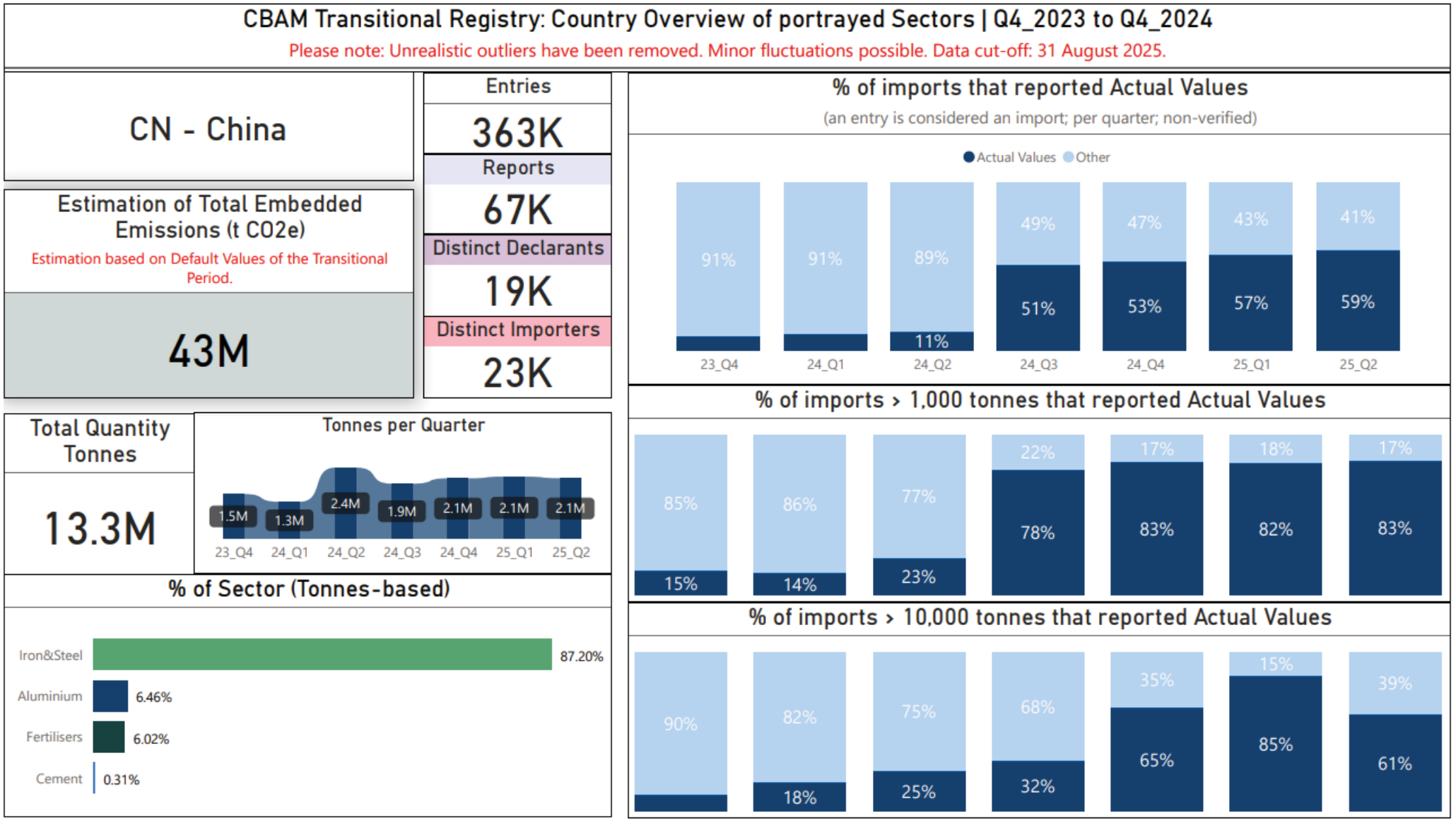


Figure 17: CBAM Transitional Registry, Estimated Emissions, World Overview, Q4 2023 to Q2 2025

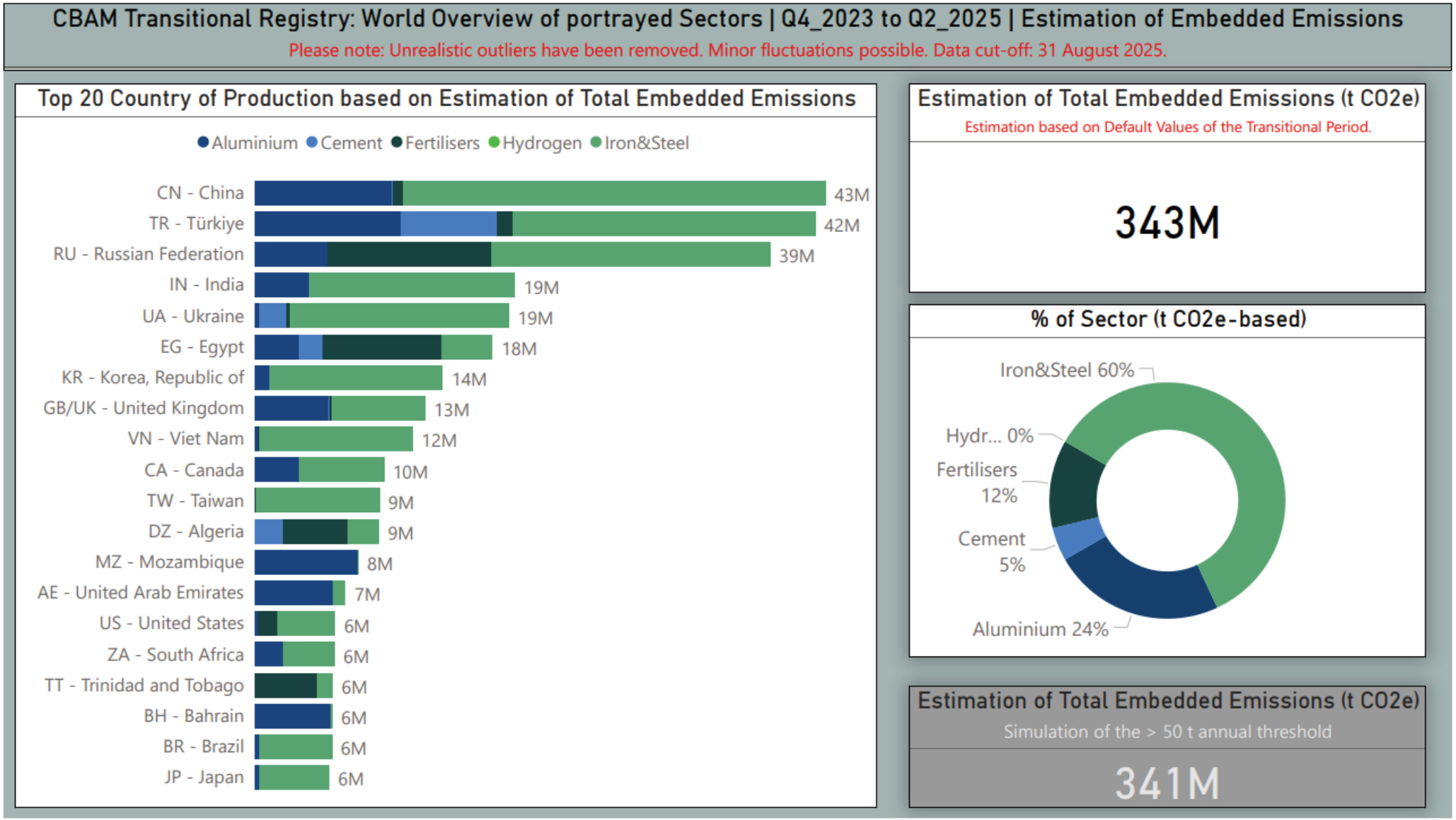


Figure 18: CBAM Transitional Registry, Estimated Emissions, Iron & Steel and Aluminium, Q4 2023 to Q2 2025

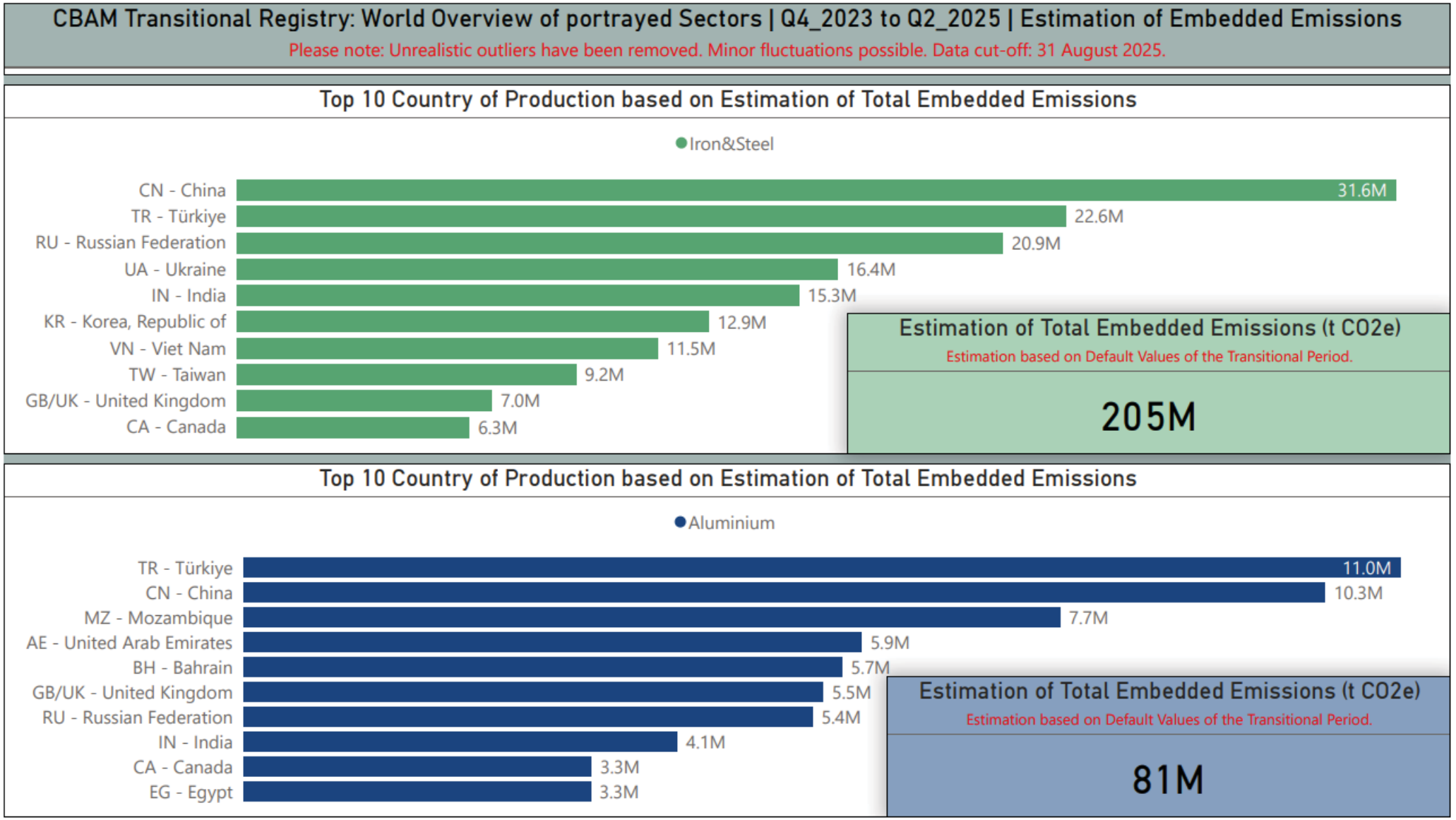


Figure 19: CBAM Transitional Registry, Estimated Emissions, Fertilisers and Cement, Q4 2023 to Q2 2025

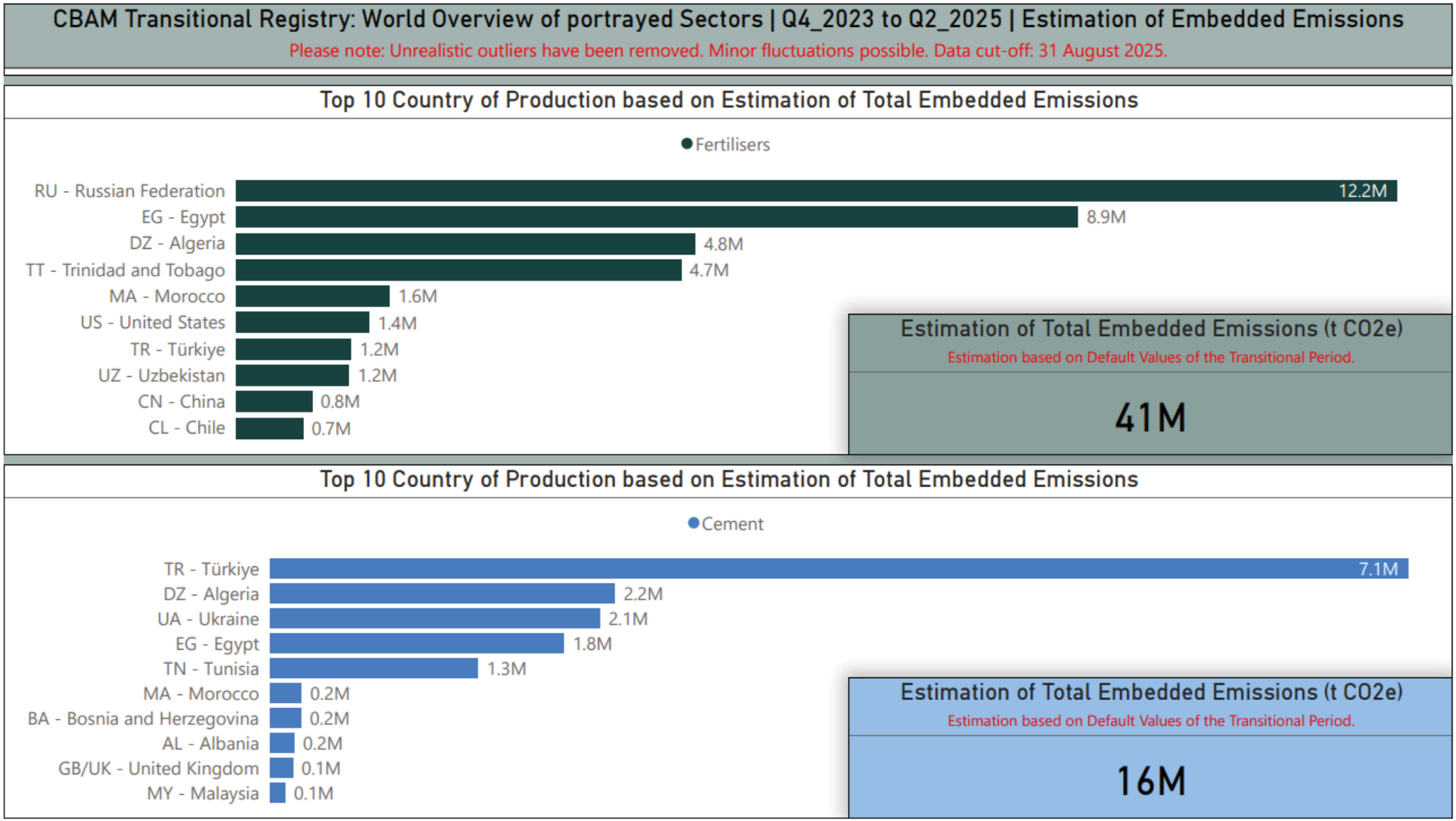


Table 2: CBAM Transitional Period, Estimated Emissions, CN Code Level, Q4 2023 to Q2 2025

CN Code	Estimated Total Embedded Emissions (t CO_2-eq)
25070080	96,273
25231000	7,963,332
25232100	1,214,596
25232900	6,121,116
25233000	229,538
25239000	21,064
26011200	12,521,493
27160000[9]	85,504,134
28041000	591
28080000	7,273
28141000	11,199,078
28142000	7,272
28342100	1,278,308
31021010	10,689,675
31021012	5,085
31021015	235,477
31021019	3,434,065
31021090	1,741,541
31022100	875,894
31022900	97,067
31023010	15
31023090	1,930,845
31024010	1,407,771
31025000	44,179
31026000	235,586
31028000	2,165,774
31029000	20,679
31051000	7,077
31052010	1,811,838
31052090	1,201,321
31053000	1,673,538
31054000	388,455
31055100	131,364
31055900	753,399
31059020	66,754
31059080	12,114
72011011	528,158
72011019	448,989
72011030	716,004
72011090	5,267,339
72012000	0
72015010	0
72015090	52,345
72021120	11,504
72021180	919,353
72021900	440,695
72024110	55,093
72024190	3,590,335
72024910	19,547
72024950	410,735
72024990	78,398
72026000	1,591,580
72031000	18,086,445
72039000	25,385
72051000	116,364
72052100	47,851
72052900	110,497
72061000	1,951
72069000	1,094,781
72071111	15,311
72071114	579,367
72071116	3,267,817
72071190	221
72071210	18,106,096
72071290	4,124
72071912	198,296
72071919	1,594
72071980	1,954
72072015	210,502
72072017	12,201
72072019	50
72072032	396,674
72072039	235
72072052	91,234
72072059	1,981
72072080	4,517
72081000	77,193
72082500	507,023
72082600	826,095
72082700	1,718,721
72083600	1,505,945
72083700	5,501,203
72083800	7,741,849
72083900	10,742,820
72084000	50,614
72085120	4,023,977
72085191	593,535
72085198	1,054,522
72085210	1,285
72085291	721,965
72085299	447,253
72085310	888
72085390	124,184
72085400	34,880
72089020	536
72089080	80,387
72091500	165,897
72091610	3,737
72091690	4,072,525
72091710	636
72091790	3,140,582
72091810	205
72091891	304,506
72091899	83,528
72092500	4,593
72092610	0
72092690	90,241
72092790	32,129
72092890	170
72099020	247
72099080	1,236
72101100	152

[9] Please note that for electricity, the emission factor is based on the CO_2 intensity of electricity produced from fossil fuels within the Country of Origin. Renewable sources of electricity are therefore not taken into account. The actual emission factors as reported by the declarants were used for the calculation.

72101220	2,257,364
72101280	34,977
72102000	3
72103000	293,488
72104100	3,631
72104900	12,730,400
72105000	404,612
72106100	1,538,506
72106900	447,083
72107010	29,780
72107080	3,128,537
72109030	5,467
72109040	16,530
72109080	43,128
72111300	174
72111400	1,612
72111900	38,984
72112320	406
72112330	109,083
72112380	11,592
72112900	17,994
72119020	4
72119080	4,766
72121010	1,050
72121090	2,816
72122000	7,987
72123000	211,715
72124020	5,435
72124080	61,561
72125020	0
72125030	639
72125040	4,307
72125061	404
72125069	121
72125090	14,715
72126000	19,463
72131000	1,362,388
72132000	70,387
72139110	577,167
72139120	112,736
72139141	713,849
72139149	2,735,854
72139170	243,714
72139190	280,768
72139910	26,924
72139990	4,622
72141000	394,727
72142000	3,564,992
72143000	2,500
72149110	281,044
72149190	11,373
72149910	1,209
72149931	316,068
72149939	106,521
72149950	19,666
72149971	407,445
72149979	91,623
72149995	15,737
72151000	9,061
72155011	2,741
72155019	38,508
72155080	55,084
72159000	33,405
72161000	22,531
72162100	184,258
72162200	19,449
72163110	138,633
72163190	16,638
72163211	141,926
72163219	38,564
72163291	96,834
72163299	43,118
72163310	103,844
72163390	209,445
72164010	247,036
72164090	3,451
72165010	11,230
72165091	125,268
72165099	27,465
72166110	110,501
72166190	10,035
72166900	9,714
72169110	110,583
72169180	33,423
72169900	3,238
72171010	11,108
72171031	20,523
72171039	340,348
72171050	32,839
72171090	121,045
72172010	17,729
72172030	876,215
72172050	13,702
72172090	79,815
72173041	35,224
72173049	14,279
72173050	869
72173090	237,825
72179020	19,808
72179050	4,474
72179090	25,063
72181000	46,932
72189110	1,691,437
72189180	2,633
72189911	239,908
72189919	2
72189920	1,513
72189980	12,578
72191100	39,405
72191210	482,586
72191290	17,650
72191310	530,185
72191390	18,738
72191410	108,197
72191490	913
72192110	191,567
72192190	8,356
72192210	141,679
72192290	42,040
72192300	48,247
72192400	6,058
72193100	26,780
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72193290	26,382
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72193390	314,141
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72193490	648,648
72193510	119,051
72193590	147,002
72199020	126
72199080	43,741
72201100	13,388
72201200	7,859
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72202029	1,558
72202041	55,268
72202049	76,461
72202081	82,447
72202089	30,165
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72209080	23,853
72210010	271,305
72210090	46,667
72221111	138,042
72221119	16,058
72221181	86,096
72221189	15,446
72221910	90,566
72221990	348
72222011	68,221
72222019	19,410
72222021	244,940
72222029	28,465
72222031	259,970
72222039	18,675
72222081	48,351
72222089	2,165
72223051	29,576
72223091	5,902
72223097	121,482
72224010	117,805
72224050	5,502
72224090	6,115
72230011	3,872
72230019	428,185
72230091	9,565
72230099	64,597
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72241090	10,528
72249002	9,227
72249003	0
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72249007	51,280
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72249018	1,464
72249038	175,109
72249090	20,840
72251100	801,094
72251910	185,765
72251990	966,602
72253010	55
72253030	255
72253090	106,806
72254012	85,316
72254015	123
72254040	100,669
72254060	4,281
72254090	13,759
72255020	616
72255080	651,218
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72259200	983,497
72259900	376,241
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72261980	11,495
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72269120	10,198
72269191	10,005
72269199	3,569
72269200	22,607
72269910	103
72269930	51,178
72269970	3,953
72271000	17
72272000	23,976
72279010	235,746
72279050	10,491
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72282099	426
72283020	20,145
72283041	4,630
72283049	46,974
72283061	740,467
72283069	797,908
72283070	211,373
72283089	25,376
72284010	204,614
72284090	336,032
72285020	58,333
72285040	2,883
72285061	29,693
72285069	72,813
72285080	7,079
72286020	7,222
72286080	24,053
72287010	38,599
72287090	2,936
72288000	6,553
72292000	396,125
72299020	1,630
72299050	2
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73012000	11,565
73021010	365
73021022	51,123
73021028	3,104
73021040	0
73021050	7,819
73021090	7,012
73023000	14,500
73024000	18,007
73029000	39,432
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73041910	72,737
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73042200	315
73042300	38,808
73042400	16,990
73042910	58,804
73042930	239,547
73042990	9,787
73043120	40,871
73043180	11,073
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73043983	325,556
73043988	34,775
73044100	96,375
73044983	16,961

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73044989	233
73045110	12,842
73045181	10,290
73045189	5,797
73045930	242
73045982	23,321
73045983	41,004
73045989	8,656
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73051200	17,831
73051900	210,360
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73053100	98,299
73053900	218,975
73059000	2,374
73061100	3,268
73061900	68,738
73062100	2
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73063041	214,603
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73063072	213,387
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73066199	2,422,313
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73072100	158,460
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73072390	8,982
73072910	14,438
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73079290	10,819
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73102191	42,766
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73102910	38,041
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73110013	8,232
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73110030	4,873
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73110099	26,156
73181100	73,346
73181210	64,506
73181290	451,716
73181300	48,594
73181410	108,131
73181491	101,482
73181499	355,383
73181520	11,498
73181535	60,266
73181542	352,699
73181548	233,006
73181552	20,634
73181558	139,716
73181562	74,501
73181568	200,131
73181575	162,530
73181582	85,757
73181588	796,097
73181595	365,955
73181631	13,208
73181639	88,271
73181640	11,401
73181660	122,725
73181692	408,903
73181699	341,606
73181900	562,690
73182100	22,667
73182200	231,911
73182300	20,347
73182400	29,736
73182900	155,647
73261100	132,762
73261910	93,408
73261990	150,095
73262000	352,288
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73269040	624,497
73269050	17,491
73269060	22,757
73269092	101,040
73269094	139,466
73269096	8,355
73269098	5,241,417
76011010	1,405,776
76011090	26,993,153
76012030	3,931,541
76012040	9,331,283
76012080	6,311,018
76031000	198,961
76032000	7,799
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76042990	3,200,205
76051100	2,326,069
76051900	22,608
76052100	168,293
76052900	25,978
76061130	112,120
76061150	176,641
76061191	2,193,200
76061193	220,880
76061199	698,427
76061211	1,401,214
76061219	302,550
76061230	320,220
76061250	459,561
76061292	2,859,183
76061293	420,269
76061299	1,268,618
76069100	251,055
76069200	455,361
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76071119	1,725,663
76071190	825,207
76071910	49,140
76071990	302,905
76072010	74,403
76072091	532,117
76072099	235,368
76081000	33,846
76082020	35,283
76082081	238,603
76082089	126,426
76090000	108,882
76101000	520,491
76109010	7,580
76109090	2,793,888
76110000	2,551
76121000	5,606
76129020	38,125
76129030	6,294
76129080	342,006
76130000	63,725
76141000	416,801
76149000	109,157
76161000	56,820
76169100	17,467
76169910	662,900
76169990	4,451,794