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GUIDANCE ON CBAM VERIFICATION AND ACCREDITATION FOR VERIFIERS AND NATIONAL ACCREDITATION BODIES

Disclaimer: This guidance document is not legally binding and it is of an explanatory nature. Legal provisions of Union law take precedence over the contents of this document and should always be consulted. The authentic texts of the EU legal instruments are those published in the Official Journal of the European Union. This guidance was prepared by Commission services and does not represent an official position of the Commission. Only the Court of Justice of the European Union is competent to authoritatively interpret Union law.

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1. INTRODUCTION

This document aims to support stakeholders by explaining the requirements of the CBAM Regulation in a simple, non-legislative, language. This guidance focuses on the **requirements for third-party verifiers** who intend to verify emission reports of operators of installations producing CBAM goods outside of the EU for the definitive period, from 1 January 2026 onwards. It also explains the **requirements for national accreditation bodies** who perform accreditation and surveillance of these verifiers.

1.1. Legal context

The Carbon Border Adjustment Mechanism (CBAM) is an environmental policy instrument designed to mitigate the risk of carbon leakage for installations under the EU Emission Trading System (EU ETS). Its legal basis is the "**CBAM Regulation**" (Regulation (EU) 2023/956) ([1]). In order to reflect the carbon price faced by EU operators as closely as possible, the implementing legislation of the CBAM follows very closely the rules for MRV (Monitoring, Reporting and Verification) of the EU ETS:

- The rules for monitoring of emissions, calculating the embedded emissions of CBAM goods and for reporting these emissions to importers of these goods are laid down in an implementing act pursuant to Article 7 of the CBAM Regulation, the "**Methodology Act**" (Regulation (EU) 2025/2547) ([2]). The rules build on the "MRR" (Monitoring and Reporting Regulation) of the EU ETS with regards to installation-level emissions. For determining embedded emissions of goods, also elements of the "FAR" (Free Allocation Rules Regulation) for the EU ETS are taken into account. Compared to the EU ETS, the methodology is extended by including embedded emissions of "precursors", which is inspired by the approach to the Carbon Footprint of Products (CFP).
- An implementing act (pursuant to Article 8 of the CBAM Regulation) provides verification principles and the content of the verification report. That implementing act is called the "**Verification Principles Act**" (Regulation (EU) 2025/2546) ([3]) throughout this guidance document.
- Furthermore, a delegated act (pursuant to Article 18 of the CBAM Regulation) contains the rules on accreditation of verifiers and requirements for verifiers. The delegated act is referred to in this document as the "**Accreditation and Verification Requirements Delegated Act**" ("**AVR-DA**", Regulation (EU) 2025/2551) ([4]). Both the Verification Principles act and the AVR-DA mirror the respective provisions of the EU ETS as laid down in the "AVR" (Accreditation and Verification Regulation). Verifiers furthermore need to understand the rules for calculating the "free allocation adjustment", which have been put in place pursuant to Article 31 of the CBAM Regulation, in the "**Free Allocation Adjustment Act**" (Implementing Regulation (EU) 2025/2620) ([5]).

1 http://data.europa.eu/eli/reg/2023/956/2025-10-20.

2 http://data.europa.eu/eli/reg_impl/2025/2547/oj.

3 http://data.europa.eu/eli/reg_impl/2025/2546/oj.

4 http://data.europa.eu/eli/reg_del/2025/2551/oj.

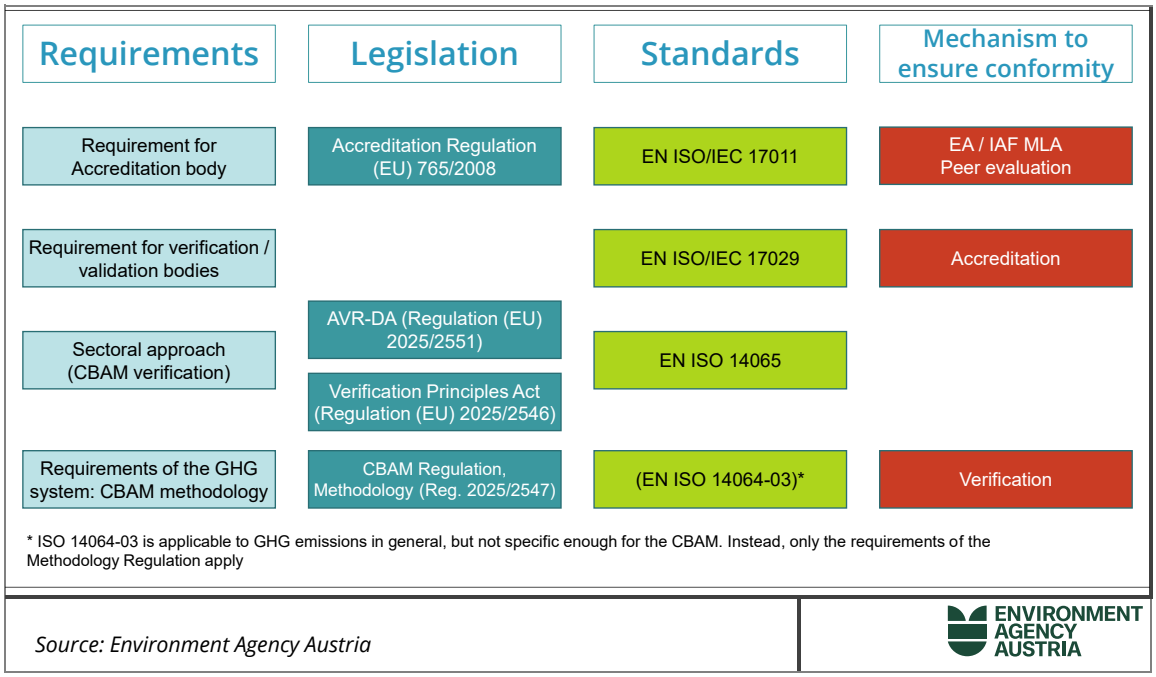
5 http://data.europa.eu/eli/reg_impl/2025/2620/oj.

- In some cases operators will select default values from the "**Default Values Act**" (Implementing Regulation (EU) 2025/2621) ([6]). Verifiers will need to check whether the correct default value was selected.

Legislation and international standards

The AVR-DA is closely linked to the general framework regulation on Accreditation (the AR[7]) that regulates accreditation of conformity assessment activities for all kinds of conformity assessments relevant to various EU legislations, not only for GHG emissions. Synergy between the AR and the AVR-DA exists in such a way that the general requirements of the AR automatically apply if there are no more specific requirements in the AVR-DA. In addition, the AVR-DA and the Verification Principles Act add specific points for CBAM requirements to the general provisions of the AR, e.g. competence requirements for personnel of national accreditation bodies (NABs). The AR requires, where applicable, the use of harmonised standards. Figure 1 outlines the interrelation between the different types of regulations and standards.

Figure 1: Overview of legislation and international standards related to CBAM verification and accreditation



The AVR-DA prescribes the application of a harmonised standard in the accreditation of verifiers and the assessment of their competence, i.e. EN ISO 17029 ("Conformity assessment – General principles and requirements for validation and verification bodies"). Since the latter does not specifically refer to emissions verification, the sector-specific application of this broader generic standard must also be applied by the verifier: EN ISO 14065 ("General principles and requirements for bodies validating and verifying environmental information"). NABs must use these standards on verification approach,

6 http://data.europa.eu/eli/reg_impl/2025/2621/oj.

7 Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and repealing Regulation (EEC) No 339/93; http://data.europa.eu/eli/reg/2008/765/2021-07-16.

competence, impartiality and procedures to assess the verifier's competence and performance.

However, both international standards are programme-neutral (i.e. a general standard applicable to many different sectors, not specific to the monitoring of GHGs). Therefore, these standards must be applied together with the CBAM-specific legislation, i.e. the AVR-DA, the Verification Principles Act, and – regarding the basis of *what* is to be verified – the rules of the Methodology Act and the Free Allocation Adjustment Act. Similarly, a harmonised standard applies for the procedures and competence of the NAB, i.e. EN ISO/IEC 17011 ("Conformity assessment – Requirements for accreditation bodies accrediting conformity assessment bodies"). In accordance with the AR, the NAB must meet the requirements of this standard as well as the CBAM-specific requirements in the AVR-DA. Compliance with these requirements is regularly monitored by the Member State and during the peer evaluations.

To ensure a common interpretation and application of the requirements in the legislation, the European Commission provides guidance documents on various issues of the CBAM. A series of guidance documents is provided by the European Commission for operators of installations producing CBAM goods outside the EU. Another guidance document serves importers of CBAM goods ("authorised CBAM declarants"). The guidance documents are accompanied by an electronic template for the emission report of operators. A separate suite of documents explains the functions and use of the CBAM Registry for different user groups. All documents are listed in detail in section 1.3.

In addition to the set of guidance documents prepared by the Commission services, the guidance documents prepared by the European Cooperation for Accreditation play an important role. Since NABs participating in CBAM accreditation must be members of EA, this implies that these NABs must follow the mandatory guidelines and procedures established by EA (for more information, please see the website ([8]) of the EA). EA will prepare guidelines for NABs relating to CBAM accreditation. In addition, EA has developed general peer evaluation criteria and procedures.

1.2. How to read this guidance document

1.2.1. Document structure

- **Chapter 1**: this is the current chapter you are reading. It gives a first overview of essential information which helps your orientation for finding the guidance you are looking for.
- **Chapter 2** introduces some verification-specific topics about the functioning of the CBAM. It is intended to supplement the more operator-focused general CBAM guidance no. 1 "Introduction to CBAM concepts", which presents the main CBAM concepts: How it works, how are embedded emissions calculated, what are relevant precursors, and how does the CBAM take into account free allocation that is currently being phased out in the EU ETS?
- **Chapter 3** introduces the principles of verification.

[8] https://european-accreditation.org/information-center/ea-publications/.

- **Chapter 4** outlines the process of verification which verifiers have to follow from the pre-contract stage to the final issuance of a verification report. This process includes a risk analysis, a strategic analysis, the development of a verification plan, the process analysis (including a site visit), the establishment of the internal verification documentation, an independent review, and requirements for follow-up to unresolved issues after verification. Following this process is a pre-condition for obtaining and maintaining accreditation.
- **Chapter 5**: Unlike in the EU ETS, the verifier is also responsible for assessing the installation's monitoring plan (MP) for compliance with the relevant legal requirements. Chapter 5 provides guidance on how to implement this validation task in an efficient way alongside the verification itself.
- **Chapter 6** provides guidance on how to deal with different issues identified during verification, i.e. misstatements, non-conformities and non-compliance. The concept of materiality (thresholds) is discussed in this context.
- **Chapter 7**: While many elements of verification described in the previous chapters are largely in line with the verification in other GHG emissions MRV systems or carbon pricing instruments related to industrial installations (where ISO 14065 is applicable), the CBAM requires verification of elements not found in other such MRV systems. These are discussed in this chapter, including the establishment of a unique Installation ID, verification of the treatment of precursors regarding installation of origin, production year, and establishing the appropriate weighted averages where several similar precursors are used, the treatment of imported heat and electricity (where indirect emissions are relevant), the special verification requirements for electricity imported into the EU, and various other issues.
- **Chapter 8** provides guidance to the requirements that a verifier has to comply with in order to obtain accreditation. This covers in particular the procedures a verifier must establish and implement for the management of its independence and impartiality, for the competence of its staff, and various other issues.
- **Chapter 9** focusses on the accreditation process and the requirements the accreditation body has to fulfil for being eligible to perform accreditation on verifiers.
- **Chapter 10** deals with the necessary information exchange between verifier, accreditation body, national competent authorities in the EU, and the Commission.
- **Annexes** finally provide technical details that support the main text of the document:
    - **Annex I** provides a non-exhaustive list of information that the verifier has to keep in the so-called internal verification documentation.
    - **Annex II** gives details on the competence needs for verification teams.
    - **Annex III** lists the competence requirements for different roles: The CBAM lead auditor, the CBAM auditor, the technical expert and the independent reviewer.
    - **Annex IV** lists procedures that the verifier has to establish, document, maintain and implement for the purpose of CBAM verification and for obtaining accreditation.
    - **Annex V** provides reference and exact sources for all relevant legislation.
    - **Annex VI** presents a list of acronyms used in this guidance document.

1.2.2. Where should I start reading as a verifier?

As a **potential verifier who intends to gain accreditation for CBAM, and who already has experience** with some GHG emissions verification, you will benefit most from first reading the introduction to the CBAM (CBAM guidance No. 1 "Introduction to CBAM concepts" and chapter 2 of this document). If you decide that you indeed want to become a CBAM verifier, it is advisable that you increase your knowledge of the CBAM methodology for calculating embedded emissions, in order to either train your staff for that knowledge, or to decide if you need to hire the required staff with that knowledge. For that purpose, it is recommended to study the Commission's guidance documents for CBAM operators (for reference see section 1.3 of this guidance).

Next, you will need to set up your internal processes, for which you can build perhaps already on an existing accreditation for other GHG systems like the EU ETS (see chapter 8). For completeness of your knowledge, you will also have to study chapters 4 to 7 and the Annexes. Chapter 5 on assessing monitoring plans may also be a topic you have not had to deal with in the EU ETS.

As a **verifier who intends to gain accreditation, and who does not yet have experience** with GHG emissions verification, you will benefit most from first reading the introduction to the CBAM (CBAM guidance No. 1 "Introduction to CBAM concepts" and chapter 2 of this document). However, as you then also need to understand the process of verification based on the relevant ISO standards, it is advised to read the following chapters 3 to 8 in the sequence provided in this document, as well as Annexes I to IV. If thereafter you decide to proceed to applying for accreditation, the next recommended documents are the CBAM operators' guidance documents for learning the very details of the CBAM methodology, and the relevant ISO standards.

For both types of verifiers, it is recommended to also study the EU ETS guidance documents that are mentioned throughout this document. Although the CBAM differs in detail from the EU ETS regarding the monitoring methodologies (e.g. there are no "tiers" in the CBAM), overall those documents are very useful for any GHG verifier, as they often contain examples or extensive lists of checks that should be performed. From this current guidance, it should become sufficiently clear which elements of the EU ETS guidance can be skipped by a reader interested in the CBAM only.

1.2.3. Where should I start reading as a national accreditation body?

Being a NAB established in the EU, it is highly likely that you have already had contacts with EU ETS verifiers and the large amount of guidance material available for the EU ETS. Therefore, large parts of this current document will appear familiar to you. It is recommended to first read the introduction to the CBAM (CBAM guidance No. 1 "Introduction to CBAM concepts" and chapter 2 of this document). For deepening your staff's understanding of the CBAM, it is recommended to have some diagonal reading of the Commission's guidance documents for CBAM operators, too. Thereafter, it is logical to read chapter 9 on accreditation requirements. This will lay the groundwork for preparing the new accreditation and surveillance processes, and for a peer evaluation on this new

scope. Chapters 3 to 8 on the verifier's requirements are also an essential reading for preparing your accreditation work.

1.3. Where to find further information

All CBAM guidance documents and templates are available on **the dedicated website** for the CBAM of the European Commission: **https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en**

The Commission website also includes a dedicated page relating to verification: **https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism/cbam-verification_en**

For the specific needs of operators of installations outside the EU which produce CBAM goods, there as a special series of guidance documents which are also of high importance to CBAM verifiers. These are CBAM guidance documents No 1 to 5f, sometimes referred to in this document as "**CBAM operators' guidance documents**":

- **Guidance No. 1 "Introduction to CBAM concepts"** provides an overview of the main changes to the CBAM methodology between the definitive period and the concluded transitional period. It also introduces the CBAM and an overview of the compliance cycle, roles and responsibilities, as well as milestones and deadlines for operators of installations outside the EU during the definitive period and explains the general exemptions from the CBAM.
- **Guidance No. 2 "Quick guide for non-EU operators on CBAM implementation"** provides a quick guidance for operator of an installation producing CBAM goods as well as for verifiers and other stakeholders. It provides a roadmap of the most important concepts of CBAM emissions monitoring and where to find more information in this series of documents.
- **Guidance No. 3 "CBAM methods for the calculation of emissions embedded in goods"** sets out the monitoring and reporting obligations and recommendations which are potentially applicable to any affected producer of CBAM goods. It is thereby also a key reference document for verifiers (referred to as Guidance No. 3 "Calculation of embedded emissions").
- **Guidance No. 4 "Calculation of the free allocation adjustment to the number of CBAM certificates to be surrendered"** provides an overview of how the adjustment for free allocation is to be determined and what information is needed to perform that calculation (referred to as Guidance No. 4 "Calculation of the free allocation adjustment").
- **Sector-specific guidance documents:** These documents present an overview per sector of the production processes and value chains for goods that are included in the scope of the CBAM, as well as sector-specific monitoring, relevant reporting aspects, and examples (some of which are useful across sectors).
    - **Guidance No. 5a (Cement)**
    - **Guidance No. 5b (Chemicals / Hydrogen)**
    - **Guidance No. 5c (Fertilisers)**
    - **Guidance No. 5d (Iron and steel)**

    - **Guidance No. 5e (Aluminium)**
    - **Guidance No. 5f (Electricity)**

- An Excel-based template for the annual emission report for operators to automatically calculate embedded emissions. This will be needed for providing the emissions report to the verifier, and thereafter to communicate the data clearly to importers of goods.
- A separate guidance document will be provided by the European Commission for importers of CBAM goods into the EU ("authorised CBAM declarants"), to help them complete annual CBAM declarations in the CBAM Registry.
- It is planned to provide a series of dedicated guidance documents for users of other monitoring, reporting and verification systems, to facilitate their transition to the CBAM methodology.
- Dedicated webinars are organised for various CBAM stakeholders, including CBAM verifiers. Recordings are available on the Commission's webpage.
- Training videos will also be available on the Commission's webpage.

All EU **legislation** can be found on: **eur-lex.europa.eu/homepage.html**

The **EU ETS related guidance documents** cited in this document can be found under **https://climate.ec.europa.eu/eu-action/carbon-markets/eu-emissions-trading-system-eu-ets/monitoring-reporting-and-verification_en#documentation**.

2. VERIFICATION-SPECIFIC ASPECTS OF EMISSIONS MONITORING AND CALCULATION

Note: CBAM guidance No. 3 "Calculation of embedded emissions" provides a comprehensive overview of the CBAM methodology rules (i.e. approach towards monitoring, reporting and calculation of the installations' CBAM emissions. CBAM guidance document No. 4 describes the calculation of the free allocation adjustment. The following sections 2.1 to 2.4 supplement these guidances with additional elements that are specific to verification. Verifiers should read these guidance documents in order to have a full understanding of the CBAM rules.

2.1. Scope of the CBAM

2.1.1. Sectors and goods

The CBAM covers all goods which are listed in Annex I to the CBAM Regulation. The goods are identified solely by their CN codes, i.e. the codes that are used for customs purposes. Where Annex I to the CBAM Regulation lists CN codes of less than 8 digits, this means that all CN codes starting with the given codes are included. A rough overview of included sectors and goods is given in Table 1. The sector-specific guidance documents 5a to 5f for CBAM operators provide detailed guidance. Note that for quick reference to certain groups of CBAM goods, this guidance document often uses the name of an "aggregated goods category" as also given in Table 1. These categories are defined in the Methodology Act (Section 2 of Annex I).

Where operators or verifiers have doubts about the correct CN classification of some goods, the advice of a customs expert should be considered (i.e. verification teams may require an additional technical expert for CN classification in exceptionally contentious cases).

Table 1: Overview of sectors and goods covered by the CBAM, and their "aggregated goods categories"

Industry sector	Aggregated goods category	CN / TARIC Code	Description
Cement	Calcined clay	2507 00 80 80 ([9])	Other kaolinic clays, calcined
	Cement clinker	2523 10 00 ([10])	Cement clinkers
	Cement	2523 21 00	White Portland cement, whether or not artificially coloured
		2523 29 00	Other Portland cement
		2523 90 00 ([11])	Other hydraulic cements

[9] Non-calcined clays are also found under CN code 2507 00 80, but they are excluded from the CBAM scope.

[10] TARIC codes 2523 10 00 10 (White cement clinker) and 2523 10 00 90 (Other cement clinker including grey clinker) apply.

[11] TARIC codes 2523 90 00 10 (White hydraulic cement) and 2523 90 00 90 (Other hydraulic cements including grey hydraulic cement) apply.

Industry sector	Aggregated goods category	CN / TARIC Code	Description
	Aluminous cement	2523 30 00	Aluminous cement ([12])
Electricity	Electricity	2716 00 00	Electrical energy
Chemicals	Hydrogen	2804 10 00	Hydrogen
Fertilisers	Nitric acid	2808 00 00	Nitric acid; sulphonitric acids
	Urea	3102 10 ([13])	Urea, whether or not in aqueous solution
	Ammonia	2814	Ammonia, anhydrous or in aqueous solution
	Mixed fertilisers	2834 21 00, 3102, 3105 – Except 3102 10 (Urea) and 3105 60 00	2834 21 00 – Nitrates of potassium 3102 – Mineral or chemical fertilisers, nitrogenous – Except 3102 10 (Urea) 3105 – Mineral or chemical fertilisers containing two or three of the fertilising elements nitrogen, phosphorus, and potassium; other fertilisers – Except: 3105 60 00 – Mineral or chemical fertilisers containing the two fertilising elements phosphorus and potassium ([14])
Iron & Steel	Sintered Ore ([15])	2601 12 00	Agglomerated iron ores and concentrates, other than roasted iron pyrites
	Pig iron	7201	Pig iron and spiegeleisen ([16]) in pigs, blocks or other primary forms
		7205 ([17])	Some products under 7205 (Granules and powders, of pig iron, spiegeleisen, iron, or steel) may be covered here
	Ferro-alloy: FeMn	7202 1	Ferro-manganese (FeMn)
	Ferro-alloy: FeCr	7202 4	Ferro-chromium (FeCr)
	Ferro-alloy: FeNi	7202 6	Ferro-nickel (FeNi)
	DRI	7203	Ferrous products obtained by direct reduction of iron ore and other spongy ferrous products
	Crude steel	7206, 7207, 7218 and 7224	7206 – Iron and non-alloy steel in ingots or other primary forms (excluding iron of heading 7203) 7207 – Semi-finished products of iron or non-alloy steel 7218 – Stainless steel in ingots or other primary forms; semi-finished products of stainless steel 7224 – Other alloy steel in ingots or other primary forms; semi-finished products of other alloy steel

12 Also referred to as 'Calcium Aluminate Cement'.

13 The urea six-digit code includes at eight-digit CN code level: 3102 10 12; 3102 10 15; 3102 10 19; 3102 10 90.

14 Only nitrogen (N) containing fertilisers have significant embedded emissions, therefore their precursors are included in the CBAM.

15 This aggregated goods category includes all kinds of iron ore pellet production (for sale of pellets as well as for direct use in the same installation) and sinter production.

16 Pig iron containing alloy ferro-manganese.

17 Only some products of this CN code will qualify as "pig iron", while other goods of this code are classified as "iron or steel products".

Industry sector	Aggregated goods category	CN / TARIC Code	Description
	Iron or steel products ([18])	Includes: 7205, 7208-7217, 7219-7223, 7225-7229, 7301-7311, 7318 and 7326	7205 – Granules and powders, of pig iron, spiegeleisen, iron or steel (if not covered under category pig iron) 7208 – Flat-rolled products of iron or non-alloy steel, of a width of 600 mm or more, hot-rolled, not clad, plated or coated 7209 – Flat-rolled products of iron or non-alloy steel, of a width of 600 mm or more, cold-rolled (cold-reduced), not clad, plated or coated 7210 – Flat-rolled products of iron or non-alloy steel, of a width of 600 mm or more, clad, plated or coated 7211 – Flat-rolled products of iron or non-alloy steel, of a width of less than 600 mm, not clad, plated or coated 7212 – Flat-rolled products of iron or non-alloy steel, of a width of less than 600 mm, clad, plated or coated 7213 – Bars and rods, hot-rolled, in irregularly wound coils, of iron or non-alloy steel 7214 – Other bars and rods of iron or non-alloy steel, not further worked than forged, hot-rolled, hot-drawn or hot-extruded, but including those twisted after rolling 7215 – Other bars and rods of iron or non-alloy steel 7216 – Angles, shapes and sections of iron or non-alloy steel 7217 – Wire of iron or non-alloy steel 7219 – Flat-rolled products of stainless steel, of a width of 600 mm or more 7220 – Flat-rolled products of stainless steel, of a width of less than 600 mm 7221 – Bars and rods, hot-rolled, in irregularly wound coils, of stainless steel 7222 – Other bars and rods of stainless steel; angles, shapes and sections of stainless steel 7223 – Wire of stainless steel 7225 – Flat-rolled products of other alloy steel, of a width of 600 mm or more 7226 – Flat-rolled products of other alloy steel, of a width of less than 600 mm 7227 – Bars and rods, hot-rolled, in irregularly wound coils, of other alloy steel 7228 – Other bars and rods of other alloy steel; angles, shapes and sections, of other alloy steel; hollow drill bars and rods, of alloy or non-alloy steel 7229 – Wire of other alloy steel 7301 – Sheet piling of iron or steel, whether or not drilled, punched or made from assembled elements; welded angles, shapes and sections, of iron or steel

[18] This aggregated goods category includes semi-finished and finished products.

Industry sector	Aggregated goods category	CN / TARIC Code	Description
			7302 – Railway or tramway track construction material of iron or steel, the following: rails, check-rails and rack rails, switch blades, crossing frogs, point rods and other crossing pieces, sleepers (cross-ties), fish- plates, chairs, chair wedges, sole plates (base plates), rail clips, bedplates, ties and other material specialised for jointing or fixing rails 7303 – Tubes, pipes and hollow profiles, of cast iron 7304 – Tubes, pipes and hollow profiles, seamless, of iron (other than cast iron) or steel 7305 – Other tubes and pipes (for example, welded, riveted or similarly closed), having circular cross-sections, the external diameter of which exceeds 406,4 mm, of iron or steel 7306 – Other tubes, pipes and hollow profiles (for example, open seam or welded, riveted or similarly closed), of iron or steel 7307 – Tube or pipe fittings (for example, couplings, elbows, sleeves), of iron or steel 7308 – Structures (excluding prefabricated buildings of heading 9406) and parts of structures (for example, bridges and bridge-sections, lock- gates, towers, lattice masts, roofs, roofing frameworks, doors and windows and their frames and thresholds for doors, shutters, balustrades, pillars and columns), of iron or steel; plates, rods, angles, shapes, sections, tubes and the like, prepared for use in structures, of iron or steel 7309 – Reservoirs, tanks, vats and similar containers for any material (other than compressed or liquefied gas), of iron or steel, of a capacity exceeding 300 l, whether or not lined or heat-insulated, but not fitted with mechanical or thermal equipment 7310 – Tanks, casks, drums, cans, boxes and similar containers, for any material (other than compressed or liquefied gas), of iron or steel, of a capacity not exceeding 300 l, whether or not lined or heat-insulated, but not fitted with mechanical or thermal equipment 7311 – Containers for compressed or liquefied gas, of iron or steel 7318 – Screws, bolts, nuts, coach screws, screw hooks, rivets, cotters, cotter pins, washers (including spring washers) and similar articles, of iron or steel 7326 – Other articles of iron or steel
Aluminium	Unwrought aluminium	7601	Unwrought aluminium
	Aluminium products	7603 – 7608, 7609 00 00, 7610, 7611 00 00, 7612, 7613 00 00, 7614, 7616	7603 – Aluminium powders and flakes 7604 – Aluminium bars, rods and profiles 7605 – Aluminium wire 7606 – Aluminium plates, sheets and strip, of a thickness exceeding 0,2 mm 7607 – Aluminium foil (whether or not printed or backed with paper, paper-board, plastics or similar backing materials) of a thickness (excluding any backing) not exceeding 0,2 mm 7608 – Aluminium tubes and pipes

Industry sector	Aggregated goods category	CN / TARIC Code	Description
			7609 00 00 – Aluminium tube or pipe fittings (for example, couplings, elbows, sleeves) 7610 – Aluminium structures (excluding prefabricated buildings of heading 9406) and parts of structures (for example, bridges and bridge-sections, towers, lattice masts, roofs, roofing frameworks, doors and windows and their frames and thresholds for doors, balustrades, pillars and columns); aluminium plates, rods, profiles, tubes and the like, prepared for use in structures 7611 00 00 – Aluminium reservoirs, tanks, vats and similar containers, for any material (other than compressed or liquefied gas), of a capacity exceeding 300 litres, whether or not lined or heat-insulated, but not fitted with mechanical or thermal equipment 7612 – Aluminium casks, drums, cans, boxes and similar containers (including rigid or collapsible tubular containers), for any material (other than compressed or liquefied gas), of a capacity not exceeding 300 litres, whether or not lined or heat-insulated, but not fitted with mechanical or thermal equipment 7613 00 00 – Aluminium containers for compressed or liquefied gas 7614 – Stranded wire, cables, plaited bands and the like, of aluminium, not electrically insulated 7616 – Other articles of aluminium

2.1.2. Emissions

When they report the embedded emissions of the goods produced at their installations, operators need to account for both 'direct emissions' ([19]) and, where relevant 'indirect emissions' ([20]).

<u>Indirect emissions are relevant only for certain goods</u>

The indirect emissions are *relevant* for all goods that are listed in Annex I *but not in Annex II* to the CBAM Regulation. That means that indirect emissions are relevant for:

- **Goods from the cement sector;**
- **Goods from the fertiliser sector;**
- **Agglomerated iron ores and concentrates** (also referred to in this guidance document as **'sintered ore').**

Also, since the **indirect emissions of precursors have to be added** to the total embedded emissions of the complex goods in which they are used (pursuant to Point 3.1 of Annex I to the Methodology Act), **even where no indirect emissions are relevant**

[19] 'Direct emissions' mean emissions from the production processes of goods including emissions from the production of heating and cooling consumed during the production processes, regardless of the location of the production of the heating and cooling;

[20] 'Indirect emissions' mean emissions from the production of electricity, which is consumed during the production processes of goods, regardless of the location of the production of the consumed electricity.

for the complex good, the indirect emissions of sintered ore will have to be included in all goods from the iron and steel sector, too.

Conversely, where hydrogen in the production of ammonia (fertiliser sector) is separately produced, the indirect emissions of the hydrogen production are omitted from the emissions of the ammonia production process.

Relevant greenhouse gases (GHG):

In analogy to the EU ETS, only CO_2 is to be monitored for both direct and indirect emissions, with the following exceptions:

- In the production of nitric acid, direct N_2O (nitrous oxide) emissions have to be included. Being part of the total embedded emissions of nitric acid, they are also included in all the downstream products where nitric acid is a precursor, e.g. in ammonium nitrate and NPK fertilisers. However, N_2O does not need monitoring in those downstream processes.
- In the production of primary aluminium by electrolysis, direct PFC (perfluoro carbons) ([21]) have to be monitored. Again, those emissions will be propagated into any complex goods where primary aluminium is a precursor.

2.2. Embedded emissions

2.2.1. Principles

The concept of embedded emissions is, for the purposes of the CBAM, based on *but not fully aligned* with the principles and requirements for a carbon footprint of products (CFP). A CFP is usually understood as an amount of GHG emissions (expressed as kg or t CO_2e) per *declared unit*, (e.g. a tonne of good) based on a life-cycle perspective, covering all significant emissions from upstream and downstream processes (called life-cycle stages), from mining and production to transport, use and end-of-life.

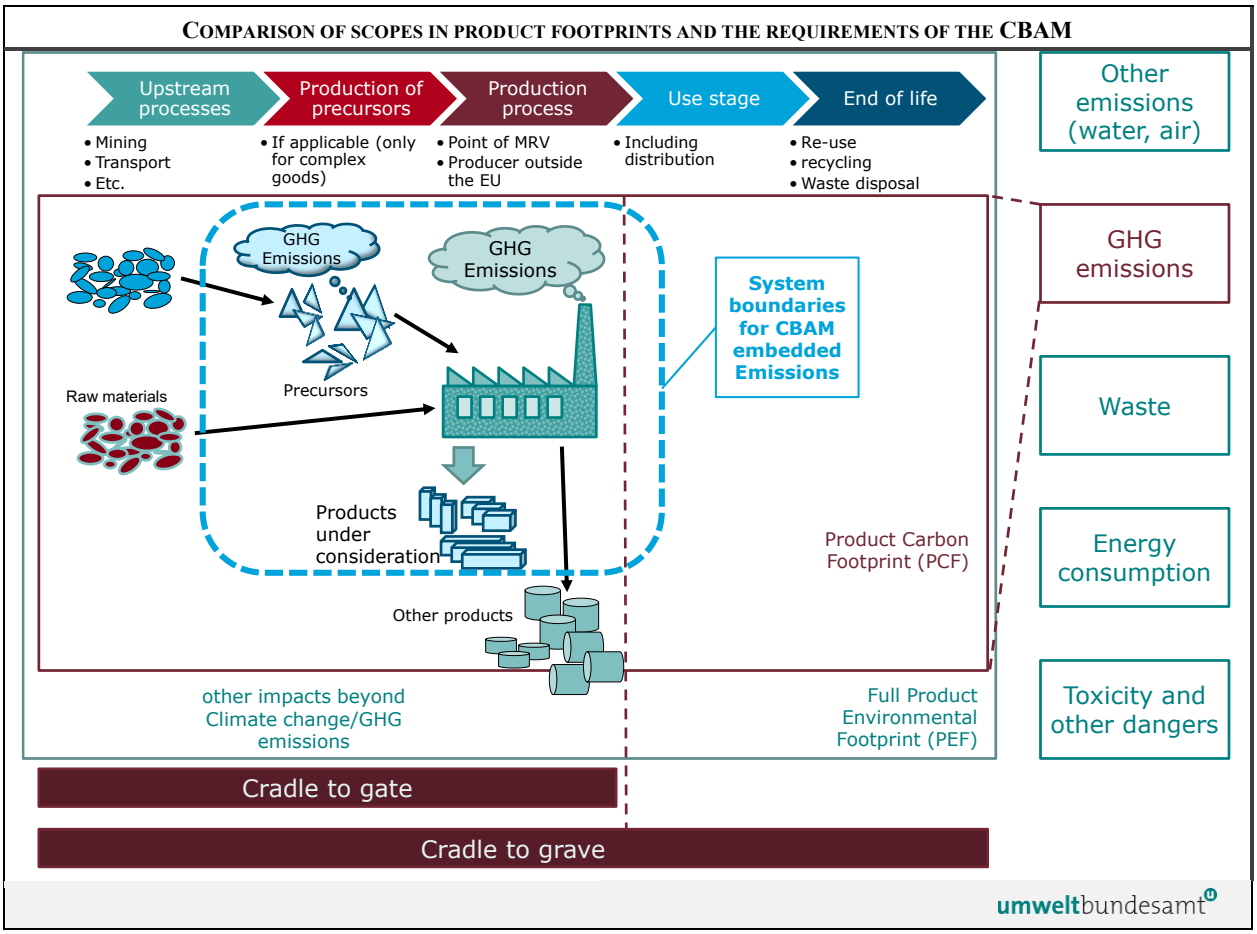
The difference from the CFP scope is because the CBAM is intended to cover the same emissions as would be covered by the EU ETS if the production were situated in the EU. The system boundaries of emissions covered by the EU ETS, and therefore the CBAM, are **narrower than those in a CFP**. Downstream emissions (emissions from the use and end-of-life) of the products are outside the scope of the EU ETS and the CBAM. Emissions from transport of materials between sites and from processes further upstream are not included either. Figure 2 summarises this situation graphically.

For the purpose of determining CBAM embedded emissions at a product level, the starting point are emissions of an installation. The installation's emissions are split ('attributed') to emissions of its production processes. Then any relevant embedded emissions of precursor materials are added, and the result is divided by the activity level of each production process, for products under the same CN code and to which the same functional unit applies, thereby resulting in 'specific embedded emissions' (SEE) of the goods from the production process. These considerations are reflected in the definitions of direct and

[21] Limited to CF_4 and C_2F_6.

indirect emissions, as set out in the CBAM Regulation, and in its Annex IV 'Methods for calculating embedded emissions for the purpose of Article 7' which lays down the basic calculation approach, which in particular requires taking into account precursor materials. The details of this approach are elaborated in the Methodology Act on the CBAM methodology, in particular Annex II 'Rules for determining data set of production processes at installation level' and Annex III 'Rules of attributing emissions to goods'. For detailed guidance, please refer to CBAM guidance document No. 3 ("CBAM methods for the calculation of emissions embedded in goods"). The detailed explanation of the concept of embedded emissions is given in section 4.2 of that document.

Figure 2: Comparison of product environmental footprint, product carbon footprint, and the specific partial carbon footprint that is to be used for determining embedded emissions in the CBAM.



2.2.2. *Functional units and specific embedded emissions*

The term "*specific* embedded emissions" means that it is not the annual total emissions of an installation that is used, but the emissions *per functional unit*, or *per tonne of product (per MWh in case of electricity)*. The same applies to "*specific* embedded free allocation". The **functional unit** is defined in Article 4 of the Methodology Act: It means the reference unit used for the calculation of embedded emissions in goods. The quantities of goods

produced in tonnes classified under the same (8-digit) ([22]) CN code shall constitute the functional unit, except for:

- Cement (except aluminous cement): the functional unit is "tonnes of clinker" (without distinguishing grey and white clinker) contained in the good for goods classified under the same (8-digit) CN code, as embedded emissions are dependent on the clinker content;
- Fertilisers: the functional unit is kg of nitrogen (kg N) ([23]) for goods classified under the same (8-digit) CN code, as emissions are dependent on nitrogen content in the good;
- Electricity as a CBAM good has a functional unit of "kWh".

In some cases, it may be necessary to convert specific data from functional units to tonnes of good. This can easily be done using the factors "kg N per t fertiliser" and "t clinker per t cement" (the clinker-to-cement ratio).

2.2.3. The role of precursors

Following the concept of embedded emissions of a good, a key formula in the CBAM is the following ([24]):

$$EE_{Proc,dir} = AttrEm_{Proc,dir} + \sum_{i=1}^{n} M_i \cdot SEE_{i,dir}$$

$$EE_{Proc,indir} = AttrEm_{Proc,indir} + \sum_{i=1}^{n} M_i \cdot SEE_{i,indir}$$

Where

$EE_{Proc,dir}$ are the embedded direct emissions at the level of the production process over the whole reporting period;

$EE_{Proc,indir}$ are the embedded indirect emissions at the level of the production process over the whole reporting period;

$AttrEm_{Proc,dir}$ are the attributed direct emissions of the production process as determined for the whole reporting period;

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22 For possibilities to group CN codes to production processes, see section 4.3 of CBAM guidance document No. 3 on methodology.

23 Note that for mixed fertilisers, all chemical states of nitrogen are covered under one single functional unit, i.e. ammoniacal N (NH_4^+), nitrate (NO_3^-) and Urea-N. However, as system boundaries of production processes are determined at the level of CN codes, functional units reflect the chemical form of nitrogen in the case of the production of the precursors ammonia, nitric acid and urea.

24 The formulae for determining the embedded free allocation and the embedded carbon price paid follow the same logic, i.e. one value for the production process itself plus contributions of precursors weighted by their consumption in the process.

$AttrEm_{Proc,indir}$ are the attributed indirect emissions of the production process as determined for the whole reporting period;

M_i is the mass of precursor *i* consumed in the production process during the reporting period, expressed in functional units of precursor *i*; However, where a default value is used for SEE_i (taken from the Default Values Act), which is expressed as t CO_2e / t of good, also M_i must be expressed as tonnes of precursor for consistency;

$SEE_{i,dir}$ are the specific direct embedded emissions of precursor *i*, expressed in t CO_2e per functional unit of precursor *i*; However, where a default value is used, it is expressed as t CO_2e / t of good;

$SEE_{i,indir}$ are the specific indirect embedded emissions of precursor *i*, expressed in t CO_2e per functional unit of precursor *i*; However, where a default value is used, it is expressed as t CO_2e / t of good;

Note on the parameter M_i:

Throughout the CBAM methodology, the relevant parameter for "emissions from precursors to be added" are based on the mass of the precursor *consumed* in the production process, not the amount of precursor "contained" in the complex good. This takes into account e.g. the stoichiometry of chemical reactions, but also losses of material throughout production processes. Point C of Annex III to the Methodology Act explicitly clarifies that "*It* [=M_i] *also includes quantities of the precursor which do not end up in the complex goods but may be spilt, cut off, combusted, chemically modified, etc. in the production process and leave the process as by-products, scrap, residues, wastes, or emissions.*"

2.3. Relevant precursors

One task of verifiers will be to check whether the operator has defined the production processes and value chains correctly in the monitoring plan and for the calculation of embedded emissions. The following definitions apply ([25]):

- **'Precursor'** *means any input material into a production process included in the list of goods set out in Annex I to the CBAM Regulation*. I.e. precursors are materials (simple or complex goods) which themselves have embedded emissions not equal to zero and which are identified for monitoring purposes as being within the system boundaries for the calculation of embedded emissions of a complex good.
- **'Simple goods'** *means goods produced in a production process requiring exclusively input materials and fuels having zero embedded emissions* (i.e. no precursors).
- **'Complex goods'** *means goods other than simple goods*, i.e. goods having precursors.

[25] "Precursor" is defined in Article 1 point (7) of the Methodology Act. Simple and complex goods are defined in point 1 of Annex IV to the CBAM Regulation.

The consequence of the definition of 'precursor' is that the operator has to determine which CBAM goods are used in its production processes. This is different from the approach in the transitional period, when the implementing act itself clarified which precursors can be relevant for each production process. However, based on aggregated goods categories, guidance is given in the sector-specific CBAM guidance documents 5a to 5f as well as in Table 2 below. This table gives guidance which goods should be considered as minimum when doing a case-by-case assessment of precursor relevance.

It is an important difference to the transitional period that production processes will often be narrower than relating to a whole aggregated goods category, as discussed in detail in section 4.3 of CBAM guidance document No. 3 "Calculation of embedded emissions". Nevertheless, there may still be production processes where precursors are used in a production process which could be the output of the same production process due to the rules for aggregating products into "multifunctional processes". For example, a process using a steel sheet that is further rolled and formed into a steel profile could be defined in such a way that both the sheet and the profile are products of a single multifunctional process, as the products only differ in size or shape, but not in composition. This is the reason why Table 2 states that "iron or steel products" can be precursors for (other) "iron or steel products". The same logic applies to aluminium products and mixed fertilisers.

It is worth noting that the Methodology Act limits the relevant precursors in a pragmatic way. Section 3.1 of Annex I to the Methodology Act states "*The purchase and maintenance of infrastructure and equipment are excluded from the system boundaries.*" This means that, for example, in case of cement production, there is no need to consider steel elements that are needed to repair the kiln as precursors.

Table 2 provides for different production routes in some cases. However, in line with Article 4(6) of the Methodology Act, no distinction of production routes must be made. This means that whenever an installation produces goods of a CN code using different production routes, the operator must define only one production process covering all the production routes.

Table 2: Aggregated goods categories and their typical precursors – note that this table does not exclude the relevance of other precursors.

#	**CBAM Goods Category** ***Production route***	**Typical precursors**
1	Calcined clay	
2	Cement clinker	
3	Cement	Calcined clay, Cement clinker
4	Aluminous cement	
5	Hydrogen *Steam reforming and partial oxidation* *Steam cracking* *Electrolysis of water and Chlor-Alkali electrolysis*	
6	Ammonia *Steam reforming*	Hydrogen

#	CBAM Goods Category *Production route*	Typical precursors
	Gasification of coal etc.	
7	Nitric acid	Ammonia
8	Urea	Ammonia
9	Mixed fertilisers	Ammonia, Nitric acid, Urea, other (mixed) fertilisers
10	Sintered Ore	
11	Ferro alloys (FeMn, FeCr, FeNi)	Sintered Ore
12	Pig Iron *Blast furnace route* *Smelting reduction*	Hydrogen, Sintered Ore, Ferro alloys, Pig Iron, DRI
13	DRI (Direct Reduced Iron)	Hydrogen, Sintered Ore, Ferro alloys, Pig Iron, DRI
14	Crude steel *Basic oxygen steelmaking* *Electric arc furnace*	Ferro alloys, Pig Iron, DRI, (Crude Steel)
15	Iron or steel products	Ferro alloys, Pig Iron, DRI, Crude Steel, other iron or steel products
16	Unwrought aluminium *Primary (electrolytic) smelting* *Secondary melting (recycling)*	(unwrought aluminium)
17	Aluminium products	unwrought aluminium, other aluminium products
18	Electricity	

Precursors produced in EU Member States or exempted countries or territories

Where a precursor originates in the European Union or in exempted countries or territories ([26]), the precursor's specific embedded emissions (direct and, if applicable, indirect) are counted as zero for the complex good calculation. Also the embedded free allocation is zero. However, the information to identify the precursor and the quantities used must still be monitored and reported (see also section 7.4).

2.4. Embedded free allocation

2.4.1. General approach

EU ETS industry sectors exposed to a significant risk of carbon leakage are entitled to receive a part of their emission allowances free of charge. While the CBAM is being phased in, free allocation in the EU ETS will be phased out accordingly for sectors covered by the CBAM. During that phase-out period, the CBAM obligation is adjusted to mirror the free allocation received under the EU ETS and to ensure an equivalent carbon price. As explained in section 2.4.2 of CBAM guidance document No. 1 ("Introduction to CBAM concepts"), and in more detail in CBAM guidance document No. 4 ("Calculation of the

[26] The countries currently listed in point 1 of Annex III to the CBAM Regulation are: Iceland, Liechtenstein, Norway and Switzerland; the listed territories are: Büsingen, Heligoland, Livigno, Ceuta, Melilla. This means that goods originating from those countries/territories are exempted from the CBAM in the same way as goods produced within the EU.

free allocation adjustment"), authorised CBAM declarants can deduct a "free allocation adjustment" from the embedded emissions to determine the "CBAM obligation", i.e. the number of CBAM certificates to be surrendered for the imported CBAM goods. For this purpose, operators have to determine their goods' "specific embedded free allocation" (SEFA) values, which are reported in the installation's emission report and verified together with the specific embedded emissions.

Details on the calculation of the specific embedded free allocation values are presented in **CBAM guidance document No. 4**. As is outlined there, the operator determines SEFA for each of the goods produced in its installation using "CBAM benchmarks" (see also section 2.4.2 of the current document). When determining SEFA based on actual data, the main parameters required are:

- The production year (for determining the CBAM factor and CSCF values);
- The production route ([27]);
- Nature and quantity of all precursors used (i.e. the "M_i values", see section 2.2.3);
- Where actual data are used for precursors, the SEFA values of the precursors, underpinned by the respective verification reports from the installation(s) producing the precursor.

During verification, verifiers have to check the aforementioned information as well as the actual calculation of the SEFA values of the installation's goods.

Assuming either a simple good, or a complex good for which default CBAM benchmarks (BM) are used, the value SEFA is calculated from the BM values given in the Free Allocation Adjustment Act using the formula:

$$SEFA_g = CBAM_y \cdot CSCF_y \cdot BM_g$$

Where:

$CBAM_y$	is the CBAM factor referred to in Article 10a(1a) of the EU ETS Directive for the year y (dimensionless)
$CSCF_y$	is the cross-sectoral correction factor for the reporting period y determined by the Commission pursuant to Article 10a(5) of the EU ETS Directive (dimensionless)
BM_g	is the default CBAM benchmark set out in Annex to the Free Allocation Adjustment Act.
y	is the relevant production year of the CBAM good g

Note that $CBAM_y$ and $CSCF_y$ are year-dependent constants, i.e. the production year must be known (see section 7.2). The respective values can be taken from public sources (see Table 3: $CBAM_y$ is directly given in the EU ETS Directive, and $CSCF_y$ is published by the Commission once the free allocation to EU ETS installations is known). Despite the need to apply some calculation for SEFA, the result is based exclusively on values outside the

[27] In order to fully reflect the free allocation approach of the EU ETS, some cases exist where different CBAM benchmarks apply to different production routes. This requires sometimes that for the purpose of SEFA, production processes need to be more disaggregated than for the purpose of the Methodology Act (i.e. for determining the specific embedded emissions SEE).

operator's influence. Therefore, $SEFA_g$ values of this type are considered to be "default values".

Table 3: CBAM factor and (partly preliminary) ([28]) CSCF values.

Year	CBAM factor	CSCF (preliminary values for 2031 to 2034)
2025	100,0%	1,0
2026	97,5%	1,0
2027	95,0%	1,0
2028	90,0%	1,0
2029	77,5%	1,0
2030	51,5%	1,0
2031	39,0%	1,0
2032	26,5%	1,0
2033	14,0%	1,0
2034	0,0%	1,0

The Free Allocation Adjustment Act contains two versions of each CBAM benchmark for each CN code: Column A contains BM_g* which refers only to the free allocation of the production process of the good. Column B contains BM_g that is a default value including the whole value chain of the complex good, i.e. the free allocation for the production process and all consumed precursors.

This difference is to be understood in analogy to specific embedded emissions (formula given in section 2.2.3). Here, the use of m_i values monitored by operators generates *actual data* for the specific embedded free allocation, while the BM_g as given in the free Allocation Adjustment Act are considered default values based on default m_i values:

$$SEFA_{g,y} = SFA_{Proc_{g,y}} + \sum_{i=1}^{n} m_{i,y} \cdot SEFA_{i,y_{i'}}$$

Where:

$SEFA_{g,y}$	is the specific embedded free allocation for the complex good g in year y, expressed as t CO_2e / tonne of good g
$SFA_{Proc\ g,y}$	is the process-related specific free allocation in year y calculated for the production process which yields good g expressed as t CO_2e / tonne of good g.

[28] CSCF values for the period 2026 to 2030 have been published in Commission Implementing Decision (EU) 2026/1862 (http://data.europa.eu/eli/dec_impl/2026/1862/oj). The values applying from 2031 are expected to be published by the Commission in late 2030, and the table must be interpreted as containing only preliminary data.

	Note that SFA is calculated from the BM_g* value by multiplying with the relevant $CBAM_y$ and $CSCF_y$ value, like shown for a simple good's *SEFA* above.
$m_{i,y}$	is the specific mass of precursor *i* consumed for the production of one tonne of good *g* during reporting period *y*, as determined in accordance with the rules set out in Methodology Act, expressed as t/t
$SEFA_{i,y'}$	is the specific embedded free allocation of precursor *i* in year y_i', expressed as t CO_2e / tonne of precursor *i*
y	is the reporting period of the production of good *g* (determined in accordance with Article 7 of the Methodology Act) (see section 7.2)
y_i'	Is the production year of the precursor *i*, defined as the reporting period used in the calculation of $SEFA_i$ for precursor *i* as identified in accordance with Article 13 of the Methodology Act (see section 7.2)

Where precursors are themselves complex goods, the calculation of $SEFA_{i,y'}$ shall be repeated recursively, until no more precursors are relevant. This means that the equations are applied along the value chain until the first precursor is reached (i.e. a precursor that itself has no further precursors). In other words: until the precursor is a simple good for which *SEFA* equals *SFA*.

2.4.2. Selecting the appropriate CBAM benchmark

A specific issue for SEFA calculation is the determination of the appropriate CBAM benchmark. In this regard, verifiers need to understand in particular the "decision trees" presented in section 2.2 of CBAM guidance document No. 4 ("Calculation of the free allocation adjustment").

In many cases, the Free Allocation Adjustment Act gives more than one CBAM benchmark per CN code. Two cases are to be distinguished (see Table 4):

- Indicators "(1)" and "(2)": Values given for "(1)" are to be applied for goods of production years 2026 and 2027, while the values given for "(2)" are to be used from 2028 onwards.
- Indicators "(A)" to "(L)" refer to different production routes and/or composition of the CBAM goods applicable in the cement, iron & steel and aluminium sectors.

Table 4: Overview of special parameters relevant for selecting a CBAM benchmark value where more than one value is given for a single CN code in the Annex to the Free Allocation Adjustment Act.

Code	Condition to apply the value
(1)	Value is to be used for production years 2026-27
(2)	Value is to be used for production years 2028-30
(A)	Grey clinker / cement
(B)	White clinker / cement

Code	Condition to apply the value
(C)	Carbon Steel based on BF/BOF (production route: Blast Furnace / Basic Oxygen Furnace)
(D)	Carbon Steel based on DRI/EAF (production route: Direct Reduced Iron / Electric Arc Furnace)
(E)	Carbon Steel based on Scrap/EAF (production route: Electric Arc Furnace, with scrap as main input material)
(F)	Low alloy Steel based on BF/BOF (production route: Blast Furnace / Basic Oxygen Furnace)
(G)	Low alloy Steel based on DRI/EAF (production route: Direct Reduced Iron / Electric Arc Furnace)
(H)	Low alloy Steel based on scrap/EAF (production route: Electric Arc Furnace, with scrap as main input material)
(J)	High alloy Steel (based on EAF) (Electric Arc Furnace, with scrap as main input material)
(K)	Primary Aluminium (i.e. aluminium produced by electrolysis from alumina)
(L)	Secondary Aluminium (i.e. aluminium produced by remelting of aluminium scrap as main input)

For interpretation of Table 4, the Free Allocation Adjustment Act provides the following definitions and rules:

- 'White cement clinker' means cement clinker for use as main binding component in the formulation of materials such as joint fillers, ceramic tile adhesives, insulation, and anchorage mortars, industrial floor mortars, ready mixed plaster, repair mortars, and water-tight coatings with maximum average contents of 0,4 mass-% Fe_2O_3, 0,003 mass-% Cr_2O_3 and 0,03 mass-% Mn_2O_3.
- 'Grey cement clinker' means other cement clinker than white cement clinker.
- In the case of other hydraulic cements (CN 2523 90 00) containing a mixture of white clinker and of grey clinker and/or calcined clay, the CBAM benchmark shall be calculated as a weighted average that reflects the composition.
- 'Stainless steel' means alloy steels containing, by weight, 1,2 % or less of carbon and 10,5 % or more of chromium, with or without other elements.
- 'High alloy steel' means steel other than stainless steel, containing 8 % or more metallic alloying elements or steel where high surface quality and processability is required.
- 'Low alloy steel' means alloy steel other than high-alloy steel.
- 'Carbon steel' means steel other than stainless steel, high alloy or low alloy steel.

For selecting the appropriate CBAM benchmark value from the Annex of the Free Allocation Adjustment Act, for the parameter $SFA_{Proc_{g,y}}$ for their own production processes, operators will know themselves which value BM_g* to choose from Column A, as the production year is known, and also whether e.g. steel is produced using a blast furnace or another route. However, when it comes to precursors received from other installations, the selection depends on whether a positive verification report for the precursor's actual data is available or not:

- The operator using the precursor may use the **actual SEFA value** reported by the producer of the precursor, provided the following applies:
    - The operator has received a positive verification report by a duly ([29]) accredited CBAM verifier, from the producer of the precursor regarding the installation producing the precursor, and

[29] See section 7.3.

- The operator provides evidence to its own verifier that the precursor originates at that installation.

- The operator has to use a **default CBAM benchmark** from column B of the Annex to the Free Allocation Adjustment Act. However, for this purpose, the appropriate selection of values under indicators "(A)" to "(L)" requires further guidance, as given below.

When using default CBAM benchmarks, the underlying production route must be aligned with the assumptions used for determining the default SEE (specific embedded emissions) value as given in the Default Values Act. As also described in detail in CBAM guidance document No. 4 ("Calculation of the free allocation adjustment") ([30]), this requires the following steps:

First, to determine the CBAM benchmark, the **list of default values for specific embedded emissions needs to be considered** as follows ([31]):

- If the country of origin of the good or precursor is known, the applicable production route shall be identified in the last column of the table set out in Annex I to the Default Values Act for the respective country and CN code.
- If the country of origin of the good or precursor is unknown, the applicable production route shall be identified in the last column of the table set out for "Other countries and Territories" in Annex I to the Default Values Act for a good, or in Annex IV for a precursor, for the applicable CN code.

As a result, for goods where such indicators are used in the Free Allocation Adjustment Act, the relevant indicator has been found in the last column of the tables mentioned above. Then the second step is to actually select the CBAM benchmark from the Free Allocation Adjustment Act using the indicator determined from the Default Values Act.

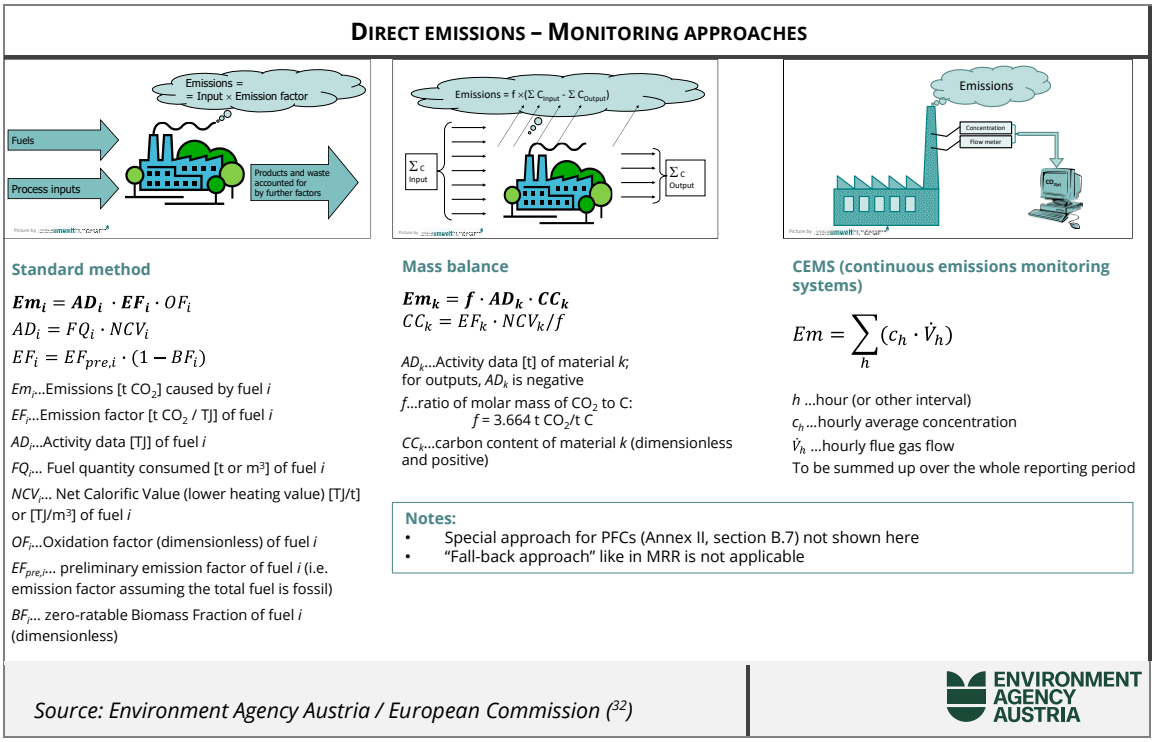
2.5. Monitoring at the installation for CBAM purposes

For the purpose of this guidance document, it is assumed that verifiers are familiar with general methodologies for determining GHG emissions, such as the methodologies presented as overview in Figure 3. This section provides a quick overview of the elements that an operator of an installation producing CBAM goods needs to monitor and report, and that are therefore relevant for the CBAM verification process. For more information, **please refer to the guidance documents for CBAM operators** (in particular guidance No. 3 "Calculation of embedded emissions" and the sector-specific guidance documents No. 5a to 5e).

[30] Calculated examples are provided in the sector-specific CBAM guidance documents.

[31] This is no additional process, since this look-up of the default SEE value has to be performed anyway.

Figure 3: Overview of the main monitoring approaches for direct emissions used in the CBAM. For more information, please consult section 4.6 of CBAM guidance document No. 3 on methodology.



What do operators need to monitor?

In this section we follow the steps of an operator developing the installation's monitoring plan. This is to show (i) the different elements to be monitored, and (ii) the fact that not all elements are equally important to different kinds of installations.

- Step 1: Define the **installation's boundaries**, production processes and production routes. Production process means the system boundaries which are needed to attribute emissions to specific goods produced, to which the same 'functional unit' applies ([33]). A production process shall be identified for goods to which the same functional unit applies and shall, where relevant, encompass all production routes used within the installation for producing those goods.

  Since the functional unit focusses on CN codes for defining the boundaries of each production process, there could be a high number of production processes which require separate monitoring. To avoid this situation, i.e. to aggregate several CN codes into production processes that are more manageable from a monitoring point of view, the Methodology Act provides for rules on how to aggregate goods into larger production processes. These aggregation rules are explained in section 4.3 of CBAM guidance document No. 3 ("Calculation of embedded emissions"). Furthermore, in section 4.4 of that guidance, a step-by-step approach is explained for the practical approach to identifying physical parts of the installation that need to be included in the monitoring methodology for each production process.

32 Pictures are taken from EU ETS MRR Guidance document 1 (general guidance for installations).

33 If you are familiar with the EU ETS, it may help you to understand the concept of "production process" that it is very similar to the "sub-installations" used for benchmarking.

- Step 2: Define the **reporting period** that the operator is going to use. For its own installation's emission monitoring, in the definitive period, the reporting period corresponds always to the calendar year ([34]) during which the goods are produced – with the exception of imported electricity, for which the reporting period is always the year of import. However, where the installation is also subject to another carbon pricing instrument in the jurisdiction where it is located, that other carbon pricing instrument may have a different reporting period. If there is an overlap in emission sources or source streams, operators may want to develop one single monitoring plan for both systems. If the other carbon pricing instruments allow such combined approach, the resulting monitoring plan will have to comply with the minimum requirements of both the CBAM and the other instrument. In terms of reporting period, this means that appropriate provisions must be found in the monitoring plan to allow the attribution of both CBAM or other carbon pricing instrument's emissions to the appropriate reporting period, respectively.

  Examples: CBAM reporting period is the calendar year, other instrument uses a reporting period from 1 April to 31 March.

  - If the installation uses natural gas from a grid, it is not sufficient to read the meter either only on 1 January or only on 1 April. Instead, the monitoring plan must ensure that a reading is made at least on both these dates (a more frequent reading would in fact be more appropriate to reduce the risk of data gaps).
  - If the installation uses coal, it is not sufficient to monitor all coal deliveries, but a stock taking is required on both 1 January and 1 April (both systems may provide some flexibility regarding the exact date, but consistency and completeness over a period of several years needs to be ensured).

- Step 3: Identify all the **parameters the operator needs to monitor**:
  - **Direct emissions** of the installation: Two options are available:
    a) The "calculation-based" approach, where the operator needs to determine the **quantities of all fuels and relevant materials ([35])** consumed, and corresponding "calculation factors" (in particular the so-called "**emission factor**" based on the carbon content of the fuel or material);
    b) The "measurement-based" approach, where you need to measure in real-time the **concentration of the greenhouse gases** as well as the **flow of the flue gas** for each "emission source" (stack).

    In the definitive period, the operator must apply the monitoring and calculation methods laid down in the Methodology Act. For PFC ([36]) emissions from primary aluminium production a special methodology based on overvoltage measurements must be applied. For N_2O emissions from nitric acid production, the measurement-based method is compulsory. In all other cases, the operator may choose which method best fits to the situation of its installation. However, for CEMS, the precondition is that it achieves higher accuracy than the calculation-based method.

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34 Gregorian calendar, i.e. from 1 January to 31 December.

35 The term "source stream" is used to cover both, fuels and other input or output materials that have an influence on emissions.

36 Perfluorocarbons.

Additionally, if the installation has more than one production process, there may be a need to monitor fuel or material streams between the production processes in order to enable correct attribution of emissions to production processes ([37]).
The rules for monitoring these direct emissions are found in Sections A and B of Annex II of the Methodology Act.

- **(Direct) emissions related to heat flows** ([38]): Heat consumption (of both heat produced in the installation or received from a separate installation) needs to be attributed to each production process, and emissions related to heat exported from production processes need to be deducted from the attributed emissions of each production process from where the heat is produced or recovered. Therefore, rules for monitoring heat flows are found section C of Annex II and section A.2.2 of Annex III to the Methodology Act. There are also rules on determining the **emission factor of heat**.
- **Indirect emissions**: For goods listed in Annex I to the CBAM Regulation and not listed in Annex II to that Regulation, indirect emissions must be included. These are emissions occurring during the production of the electricity that the installation then consumes for its production processes, irrespective of whether this electricity was produced within the installation or imported from outside. If the installation produces such goods, the operator needs to monitor the quantities of **electricity consumed** in each relevant production process and multiply it by the relevant emission factor of electricity. For the emissions factor, the following options exist:
  i. If the electricity comes from the grid, the operator uses the default emission factor made available in Annex II to the Default Values Act.
  ii. If the installation produces electricity itself (i.e. it is an "auto-producer"), the operator needs to monitor the emissions of the power plant or CHP plant ([39]) in the same way as the operator monitors other direct emissions of the installation, and **use specific rules to calculate the emission factor from the fuel mix** and taking into account CHP heat production, if applicable. The relevant rules are found in points D.4.1 and D.4.2 of Annex II to the Methodology Act.
  iii. If the installation receives electricity from another specific installation, the operator may want to use that installation's actual emissions data. For this purpose, the operator needs to provide evidence either for the fact that the specific installation (supplying power) is directly connected to its own one, or

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[37] For example, if a blast furnace produces pig iron, a part of the waste gases is usually used as fuel in other parts of the installation (e.g. a power plant or a hot-rolling mill). In such a case, the quantity and calculation factors need to be determined also for this waste gas, although they are not necessary to calculate the total emissions of the installation.

[38] Note 1: This is only about "**measurable heat**", i.e. heat that is transported via a heat medium such as steam, hot water, liquid salts, etc. and where its flow rate can be measured in a pipe, duct, etc. Where heat is produced in a burner and directly used e.g. in a kiln or dryer, there is no need to monitor the heat flow. Instead, the emissions are determined from the fuel consumption. On the other hand, measurable heat is often produced centrally or at several points in the installation, which do not directly correspond to the system boundaries of production processes. It is therefore useful to determine the emissions of the heat production separately, and to attribute the emissions to production processes via the heat consumed in each production process.

Note 2: In the context of carbon footprints, emissions from (imported) heat is often considered "scope 2 emissions" and therefore termed "indirect emissions". Please be aware that in the CBAM legislation as well as in this document, the expression "indirect emissions" refers only to electricity, not heat.

[39] CHP means combined heat and power, also known as "cogeneration".

that there is a valid "power purchase agreement". Furthermore, that power plant must monitor its emissions in line with the same rules as applicable for auto-produced electricity, have it verified and communicate that information to the operator appropriately. If these criteria are fulfilled, the operator may use the resulting emission factor for this electricity.

Where an installation receives electricity from multiple sources during a reporting period, the embedded indirect emissions shall by default be determined as the average of the emission factors of each electricity source, weighted by the share of total electricity consumed that the electricity received from each source represents; however, where sufficient evidence is provided that for a given production process, only electricity from one single source, or from a subset of sources, was used, the embedded indirect emissions for goods produced through that production process shall be determined accordingly.

- **Precursors**: As explained under section 2.2.3, the concept of embedded emissions includes the addition ([40]) of embedded emissions of certain materials used in the production process, the so-called precursors. **Which precursors are relevant** to each production process is determined by the definition of "precursor" in Article 1 of the Methodology Act, which refers to all CBAM goods (i.e. the goods listed in Annex I to the CBAM Regulation) if they are used in a production process. There is no threshold defined for omitting minimal amounts of precursors. However, the Methodology Act clarifies that "*the purchase and maintenance of infrastructure and equipment*" are excluded ([41]). Relevant precursors are discussed in section 2.3 of this document. In addition, cross-sectoral rules clarify how precursor embedded emissions are accounted for (including where precursors are produced on-site or acquired). The following parameters need to be monitored for each precursor material:

  a) **If the precursor is produced within the installation**, all relevant monitoring is already done in line with the above points. The operator only has to take the precursor's embedded emissions into account when calculating the embedded emissions of the goods which use the precursor in the production process.

  b) **If the operator purchases ([42]) the precursor** from other installations, and if the use of actual data instead of default values is envisaged, the operator needs to request data from the relevant producers in the same way as the operator is asked for data when its goods are imported into the EU. This means that a valid, positive verification report from the installation producing the good, covering the relevant reporting period during which the precursor was produced, needs to be provided, and the operator has to keep it in its records. The relevant information to be used in the calculation of embedded emissions – to apply the default weighted-average rules – includes the following, for

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[40] Note the difference between precursors and normal input materials: For the determination of direct emissions it is taken into account that the carbon atoms contained in a material may be oxidised to CO_2 and emitted. However, for *precursors*, additionally the emissions which took place already earlier (during their own production), i.e. the precursor's embedded emissions, need to be added.

[41] E.g. materials purchased by the installation for maintaining its existing infrastructure or creating new infrastructure (such as steel or cement used for construction) are excluded from the installation's system boundaries.

[42] This includes also receiving precursors without financial transaction, e.g. receiving installation from another installation from the same operator.

each precursor, by precursor CN code (and, where relevant, by reporting period and installation of production):

- Identification of the installation(s) and country of origin where it was produced and the applicable reporting period(s);
- The specific direct and indirect embedded emissions of the precursor;
- The quantity of each precursor used;
- The production route, and additional parameters that the importer needs to report when the final good is imported to the EU under the CBAM. These additional parameters are listed in point 2 of Annex IV to the Methodology Act.
- The reporting period applied by the producer of the precursor (noting that, by default, the reporting period of a precursor is the year of production of the complex good, unless sufficient evidence identifies the actual time of production).
- Where actual data is provided for precursors produced outside the installation producing the complex good, the relevant verification report issued by an accredited verifier covering the reporting period during which the precursor was produced.
- The specific embedded free allocation of the precursor.
- If applicable, information on a carbon price paid in the relevant jurisdiction production of the precursor.
- Where a precursor originates in the European Union or in exempted countries/territories ([43]), the precursor's specific embedded emissions (direct and, if applicable, indirect) are counted as zero for the complex good calculation. However, the information to identify the precursor and the quantities used must still be monitored and reported.

c) In both cases, i.e. for purchased or self-produced precursors, operators need to monitor the **quantity of each precursor used** during the reporting period for each production process.

Where indirect emissions are included in embedded emissions for a complex good, note that: (i) if the complex good is listed in Annex II to the CBAM Regulation and includes precursors not listed in Annex II, the precursor's indirect emissions are included; (ii) if the complex good is not listed in Annex II and includes precursors listed in Annex II, indirect embedded emissions from that precursor are not included.

The rules for monitoring precursor-related data are found in point E of Annex II to the Methodology Act.

- Finally, there are some **additional qualifying parameters** that the EU importer needs to report under the CBAM. These depend on the goods produced. For example, for cements imported, the total clinker content needs to be reported, for mixed fertilisers the contents of the different forms of nitrogen, etc. The relevant parameters are listed in point 2 of Annex IV to the Methodology Act. The operator

[43] The countries currently listed in point 1 of Annex III to the CBAM Regulation are: Iceland, Liechtenstein, Norway and Switzerland; the listed territories are: Büsingen, Heligoland, Livigno, Ceuta, Melilla. This means that goods originating from those countries/territories are exempted from the CBAM in the same way as goods produced within the EU.

needs to ensure to collect all the parameters necessary for its CBAM goods and communicate them to the importers of these goods or downstream producers of other CBAM goods.

- Step 4: **Determine the methodology to monitor each parameter** identified above:
  - For **quantities of fuels and materials** (including precursors) used, the operator may either have measurement instruments available for how much has been consumed during the reporting period (e.g. weighing belts, flow meters, heat meters, etc.) or the operator may determine the used amounts from purchase records and stock measurements at the end of each period. Also the measurement using instruments not under the operator's control are admissible (e.g. if the gas meter is owned by the grid operator, or if the weighing of trucks is done by the supplier or a third party service provider).
  - For the so-called **calculation factors** (e.g. the carbon content of the fuel or material) the operator can either choose a "standard value" from applicable literature (in particular national GHG inventories submitted under the UNFCCC/ Paris Agreement) or from point G of Annex II to the Methodology Act, or the operator can determine them based on laboratory analyses, for which the Methodology Act provides further rules in point B.5.4 of Annex II.
  - For continuous emission measurements, heat flow and electricity measurements the operator also needs to define the **instruments to use**, and applicable calibration and maintenance measures.
  - In some cases, it may be necessary to define **estimation methods**, or **indirect methods** based on known correlations of measurement parameters.
  - As the very last resort, if the operator has no other methods available for monitoring the goods' embedded emissions, and in particular if the producer of precursors used does not provide the required data, the operator may use the **default values for embedded emissions** of CBAM goods (which include precursors), as explained in detail in section 4.10 of CBAM guidance No. 3 "Calculation of embedded emissions".

  Note that sometimes operators may have the choice of different monitoring approaches (e.g. if there is more than one measurement instrument, or if the operator can choose between continual metering and use of batch-wise delivery records, or choose between calculation-based and measurement-based methods, etc.) The Methodology Act contains provisions in section A.3 of Annex II on how to select the best available (i.e. most accurate) data source.

- Step 5: **Determine data needs for the free allocation adjustment**:

  As a new element in the definitive period of the CBAM, the operator must also determine the **level of free allocation** which the installation would receive for each production process if the installation were situated in the EU (see section 2.4). Like for embedded emissions, either default values ("default CBAM benchmarks") can be used or values that take into account actual data from the installation. Because the free allocation in the EU ETS is phased out while the CBAM is gradually introduced, the production year of the goods produced and of the precursors used are important parameters. The other data the operator has to collect are the amounts of each precursor used in each production process and each precursor's specific embedded free allocation.

- Step 6: **Determine data needs if you pay a carbon price in your own jurisdiction:**

Does the operator pay a carbon price in its own jurisdiction? To ensure similar treatment between installations in the EU ETS and in other countries, it is possible to deduct the effective carbon price paid in the country where a CBAM good is produced. In order to claim this deduction, the operator needs to include information on the carbon price effectively paid in its monitoring methodology and to share the information with other operators (in case of precursors) and EU authorised declarants.

The rules for the attribution of the carbon price effectively paid to CBAM emissions will be subject to a separate guidance document.

- Step 7: **Set up data flow and control procedures**:

  In order to minimise the risk of misstatements ([44]), the operator shall define data flow procedures and set up a control system accompanying the monitoring plan. The better the control system functions, the simpler will be the verification. While the rules for such control system are not spelled out in detail in the Methodology Act, CBAM guidance document No. 3 "Calculation of embedded emissions" in its section 4.5.6 provides guidance. In the Monitoring and Reporting Regulation (MRR) for the EU ETS there are more detailed requirements, which may serve as guidance for CBAM operators, too. They are explained in detail in the Commission's MRR guidance document No.6 ("Data flow activities and control system") ([45]). For the CBAM, the following step-by-step recommendation can be given:

  - Step 7a: Perform a (simplified, if appropriate) risk assessment on the data flows. This has to take into account the probability of an error to happen, and its impact (e.g. inaccurate data, complete loss of data, size of the data gap resulting). Identify areas of high and medium risk which require control activities.
  - Step 7b: Define the control measures (e.g. corroboration of data with a second data source, regularly performing independent reviews ("4-eyes principle"), installing redundant measurement instruments, define maintenance and calibration cycles for instruments, etc.).
  - Step 7c: Repeat the risk assessment including the control measures defined. If there are still remaining high or medium risk issues, go back to step 7b.

  It is to be noted that a control system is a "living system", i.e. the control measures should be evaluated for their effectiveness regularly, and where relevant, e.g. because new data flows are introduced, the risk assessment may have to be repeated or at least updated. Therefore, the above steps have to be understood as being performed at the time the monitoring plan is developed.

Further information

This section has introduced only some very rough overview of the operator's monitoring tasks. However, a verifier has to understand the whole monitoring and reporting process, as well as the applicable legislative framework. Therefore, **CBAM verifiers should study**

[44] 'misstatement' means an omission, misrepresentation or error in the operator's reported data, not considering the uncertainty permissible for measurements.

[45] It can be found in the MRR guidance section of https://climate.ec.europa.eu/eu-action/carbon-markets/eu-emissions-trading-system-eu-ets/monitoring-reporting-and-verification_en?prefLang=de#documentation

the complete set of guidance documents for CBAM operators. With regard to monitoring and calculation approaches, the following sections of that document are of particular relevance:

- Scope of the CBAM: Sector-specific CBAM guidance documents (No. 5a to 5f).
- Setting boundaries of production processes, definitions of production routes and relevant precursors, definition of functional units: CBAM Guidance No. 3 “Calculation of embedded emissions”, sections 4.3 and 4.4.
- Detailed monitoring rules (calculation, measurement, N_2O, PFCs; zero-rating of biomass, CCUS): CBAM Guidance No. 3, section 4.6.
- Indirect emissions: CBAM Guidance No. 3, section 4.7.
- Rules for embedded emissions: CBAM Guidance No. 3, section 4.8, including:
  - Attributed emissions of production processes (incl. heat flows, CHP, waste gases);
  - Embedded emissions of complex goods & rules for precursors.
- Sector-specific monitoring rules (including elaborated examples): Sector-specific CBAM guidance documents (No. 5a to 5f).

3. VERIFICATION PRINCIPLES

Monitoring, reporting and verification (MRV) of emissions play a key role in the credibility of any carbon pricing system, like in the EU's emissions trading system (EU ETS) and the CBAM. Participants want to have assurance that one tonne CO_2 equivalent emitted finds its equivalent of one tonne reported (for the purpose of one allowance or certificate to be surrendered). This principle has become known already from the early days of the EU ETS as the proverbial postulation: "**A tonne must be a tonne!**"

The objective of verification is to ensure that emissions data have been monitored in accordance with the Methodology Act and that reliable and correct emission data are being reported. This objective is underpinned by general verification principles and obligations laid down in Annex II to the AVR-DA.

To achieve the objective of verification and ensure that the verification is sufficiently robust and of high quality, the verifier has to check that a number of fundamental principles ([46]) have been met, i.e. the principles of completeness, consistency, comparability, accuracy, integrity of the methodology and continuous improvement ([47]). It is the task of the verifier to ensure that the verified report "*shall represent faithfully that, which it either purports to represent or may reasonably be expected to represent.*" ([48])

3.1. Reliability of verification

The fundamental principle is the requirement that a verified emissions report is reliable for its users (i.e. that it is a faithful representation of reality), which include or may include the authorised CBAM declarants, NCAs, operators, verifiers, accreditation bodies, the general public or other parties.

The importance of this principle can be explained by its relationship to the statement of the verifier that the emissions are correct and free from material misstatements. In order to be faithful and therefore reliable, the operator's emissions report must not contain material misstatements. Material issues are determined by the outcome of the evaluation of the other principles – for example: is the report or its supporting data complete, consistent, accurate, based upon integrity and comparable over time? Or are there material issues related to any or all of these principles?

Failure to comply with all or any of these principles is likely to affect the reported data; it may lead to material misstatement(s) and therefore to non-conformity with the key principle of reliability.

Whereas these principles are crucial to assess whether the report involves a fair representation of the emissions, the principle of transparency may be less likely to have a

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[46] These principles apply to all MRV systems for GHGs, since they are based in the IPCC guidelines for national GHG inventories.

[47] The principles of completeness, consistency and comparability, accuracy, integrity of the methodology, transparency and continuous improvement have been laid down in Section A.2 of Annex II to the Methodology Act. If the verifier identifies during the verification that one of these principles have not been met, e.g. the list of emissions sources is not complete, the verifier notes this in the verification report.

[48] Section 2.1.1 of Annex II to the AVR-DA.

direct material effect on the data. However, this does not mean that this principle is less important than the other monitoring and reporting principles. Failure of the operator to obtain, record, compile, analyse and document data in a transparent manner can still affect the reliability of the operator's report. In such a case, it requires that the verifier carries out significantly more work to ensure that it has a sufficiently detailed and precise understanding of how the operator's monitoring and reporting system functions in order to be able to carry out the verification activities. Similarly, continuous improvement of the operator's monitoring and reporting system is an important supporting principle: if the verifier and/or the operator identifies opportunities to strengthen the system and make it more robust, this must be done in order to reduce the opportunity for misstatement and non-conformity ([49]) with the Methodology Act.

3.2. Independence of the verifier

Independence and impartiality of the verifier are key requirements and the pre-condition for accreditation. In order for the declarant or NCA to have confidence in the accuracy of the reported data and the verified emissions, and for the overall credibility of the CBAM's MRV system, it is crucial that the verifier is independent of the operator. This means that the verifier must not only refrain from being an operator itself but also have no relations to the operator which might impact its impartiality and independence. In addition, the verifier must be independent from the Commission and from any NCA that is responsible for the implementation and compliance of the CBAM. There should be no conflict of interest of the verifier in its relation with the Commission or the NCA. Section 1.7 of Annex II to the AVR-DA contains specific requirements on the impartiality and independence of the verifier from the operator. For more information on those specific requirements, see section 8.2.

3.3. Professional scepticism

A verifier shall carry out its activities in a sound and objective professional manner. ISO 14065 uses the term of "professional scepticism" ([50]) for the general attitude, which is also required under point 1(a) of Annex VI to the CBAM Regulation. Applying such professional scepticism and exercising due professionalism have to be key traits of a verifier. This implies for example that the verifier should not automatically accept the evidence obtained during the verification, but the verifier should analyse this evidence thoroughly in line with the required level of assurance. At all times the verifier has to be aware that circumstances may exist that cause the information in the emission report to contain material misstatements. This attitude is, in short, open-mindedness, awareness, free of prejudice.

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[49] 'Non-conformity' is defined in Article 2(5) of the AVR-DA. It actually also encompasses cases of non-compliance (i.e. when legal requirements are not fulfilled).

[50] Professional scepticism (in the context of ISAE 3000): "*An attitude that includes a questioning mind, being alert to conditions which may indicate possible misstatement, and a critical assessment of evidence.*"

3.4. Reasonable level of assurance

The role of verification is fundamental for creating assurance on the accuracy of the data in the operator's emissions report. The degree of assurance that the verifier gives in its verification statement ([51]) on the accuracy of data relates to the depth and detail of verification. According to auditing standards, two levels of assurance are used in assurance engagements ([52]):

- **Reasonable level of assurance** meaning a high but not absolute level of assurance that the subject matter conforms in all material aspects with the required criteria;
- **Limited level of assurance** meaning a moderate level of assurance that the subject matter is plausible in the circumstances. As explained below, this level of assurance is insufficient to meet CBAM requirements.

Each level has a different impact on the nature, timing, and depth of verification activities. The level of assurance obtained in a limited level of assurance engagement is significantly lower than in a reasonable level of assurance engagement. The extent of verification activities carried out to satisfy the requirements of a limited assurance engagement is therefore less detailed than if the engagement were carried out to satisfy a reasonable level of assurance. In the case of limited assurance, the scope and depth of the audit activities are narrower, meaning that the risk is higher that misstatements are not identified. For example, in a reasonable level of assurance engagement, the verifier will check the data flow and the control activities that the operator has implemented, to assess the risk of misstatements; a limited level of assurance would not necessarily involve the testing of control activities. The difference between the levels of assurance is reflected in the manner in which the verification statement is worded. A statement expressing reasonable level of assurance is phrased in positive wording ([53]), a statement expressing limited assurance uses a double negative phrasing ([54]).

The CBAM Regulation (Annex VI) requires the level of assurance for CBAM verification to be reasonable. This means that the verifier has to plan and perform the verification in such a way that it can state with reasonable assurance that the operator's emission report is free from material misstatements. The effort required from the verifier to state with reasonable assurance that the emissions have been determined with a high degree of certainty, is significant. To be able to provide such a statement, the verifier has

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[51] As a verification report can be an exhaustive document listing a lot of findings, each verification report contains a central, well identifiable verification statement, sometimes referred to as "verification opinion statement" which clearly summarises whether the report has been verified as satisfying, or whether the result of verification is negative. See section 4.15, Table 6.

[52] International standard on assurance engagements ISAE 3410, assurance engagements on greenhouse gas statements.

[53] E.g.: *The GHG statement is free of material misstatements and prepared, in all material aspects, in accordance with the applicable criteria*.

[54] E.g.: *Nothing has come to the auditor's attention that causes the auditor to believe, on the basis of the procedures performed, that the GHG statement is not prepared, in all material aspects, in accordance with the applicable criteria.*

to obtain sufficient evidence during the verification process ([55]). Such evidence can for example be gathered through:

- Obtaining the necessary understanding of the information to be provided by operators, as listed in section 2.3 of Annex II to the AVR-DA;
- Continually assessing the risks of material misstatements and adapting the verification activities and procedures accordingly;
- Determining the nature, timing and extent of further verification activities such as testing, sampling, data verification and other verification procedures;
- Carrying out the activities in the process analysis such as data verification and analytical procedures.

3.5. Materiality

Materiality is a key element of verification. It is important in two respects. Firstly, the concept itself is relevant when the verifier determines the nature, timing and extent of verification activities. The planning and design of these activities is based on the assessment of the risks of misstatements and non-conformities and any likely material effect they may have on the reported data. Secondly, materiality is essential in concluding whether an emission report can be verified as satisfactory. Only reports that are free of material misstatements can be regarded as satisfactory.

It is important to note that materiality is not a tolerance band: **Every identified misstatement and non-conformity must in principle be corrected by the operator before finalisation of the verification** ([56]). Materiality is just a tool for the verifier to aid its judgment and decision making, and conclude on the verification opinion.

Section 6 provides further guidance on the situations in which misstatements should be considered as material. The role of materiality in sampling data and the testing of control activities as well as the design of other verification activities is discussed in KGN II.4 ([57]) on sampling.

3.6. Scope of verification

The scope of verification is defined by the tasks which the verifier must perform to achieve the objective of verification, i.e. to ensure that relevant data have been monitored in

[55] Reasonable assurance is not an absolute assurance. Reducing the verification risk to zero is not attainable or cost-beneficial because of, for example, the selective use of testing, the inherent limitation of control activities, the fact that much of the evidence available to the verifier is persuasive rather than conclusive and the fact that judgment is used in gathering and evaluating evidence and forming conclusions based on that evidence.

[56] This however does not prevent the verifier from positively verifying an emissions report containing non-material misstatements, in particular where removing the misstatement would require an alternative data source, which in some cases may not be available.

[57] KGN II.4 means Key Guidance Note II.4, as provided by the Commission for EU ETS verification, which can also be applied for the CBAM. It can be downloaded from the AVR guidance section under https://climate.ec.europa.eu/eu-action/carbon-markets/eu-emissions-trading-system-eu-ets/monitoring-reporting-and-verification_en?prefLang=de#documentation

accordance with the Methodology Act and that reliable and correct data are reported ([58]). To that end, verification must cover the following:

- The conformity of the monitoring plan with the requirements of the Methodology Act;
- The conformity of the applied monitoring methodology with the monitoring plan;
- The completeness of data used, covering the complete reporting period, in particular:
    - The completeness of emission sources and source streams of the installation, i.e. the system boundaries of the installation;
    - The completeness of relevant production processes ([59]) at the installation, and of the goods produced under each production process;
    - The completeness of data on precursors used in the production processes of the installation;
    - The completeness of data for direct and indirect emissions of the installation;
    - The completeness of all data required to determine the attributed emissions of each production process, including data on heat imports and exports of the installation and of each production process, data on waste gas flows and on electricity production or consumption;
- The "correctness" ([60]) of data used, such as:
    - Quantities of source streams, i.e. of fuels and materials consumed and produced in the installation;
    - The values of calculation factors used (carbon content, emission factors, net calorific values, biomass fraction, etc.);
    - Quantities of heat imported and exported;
    - Quantities of electricity consumed or exported;
    - Quantities of precursors used in each production process (including precursors received from other installations as well as those produced in the same installation);
    - The validity of verification reports provided for precursors, heat and electricity received from other installations;
- The correct performance of data flow activities including calculations needed to determine the specific embedded emissions and specific free allocation of the goods produced in the installation;

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[58] While the verifier will most likely focus on emissions data, also other data reported under the CBAM Regulation fall under the scope of the verification, in particular the activity levels of production, data received on precursors, heat and electricity, as well as data for the free allocation adjustment. If the verifier also acts as independent person to certify the carbon price effectively paid in third countries, those carbon price data including information on rebates also need to be verified.

[59] For appropriate definition of boundaries of production processes, see section 4.3 of CBAM guidance document No. 3 on methodology.

[60] "Correctness" means whether the data is free of material misstatements.

- The functioning of the control system established by the operator;
- Whether information can be provided in support of the operator's data flow activities, control system and associated procedures to improve the performance of their monitoring and reporting.

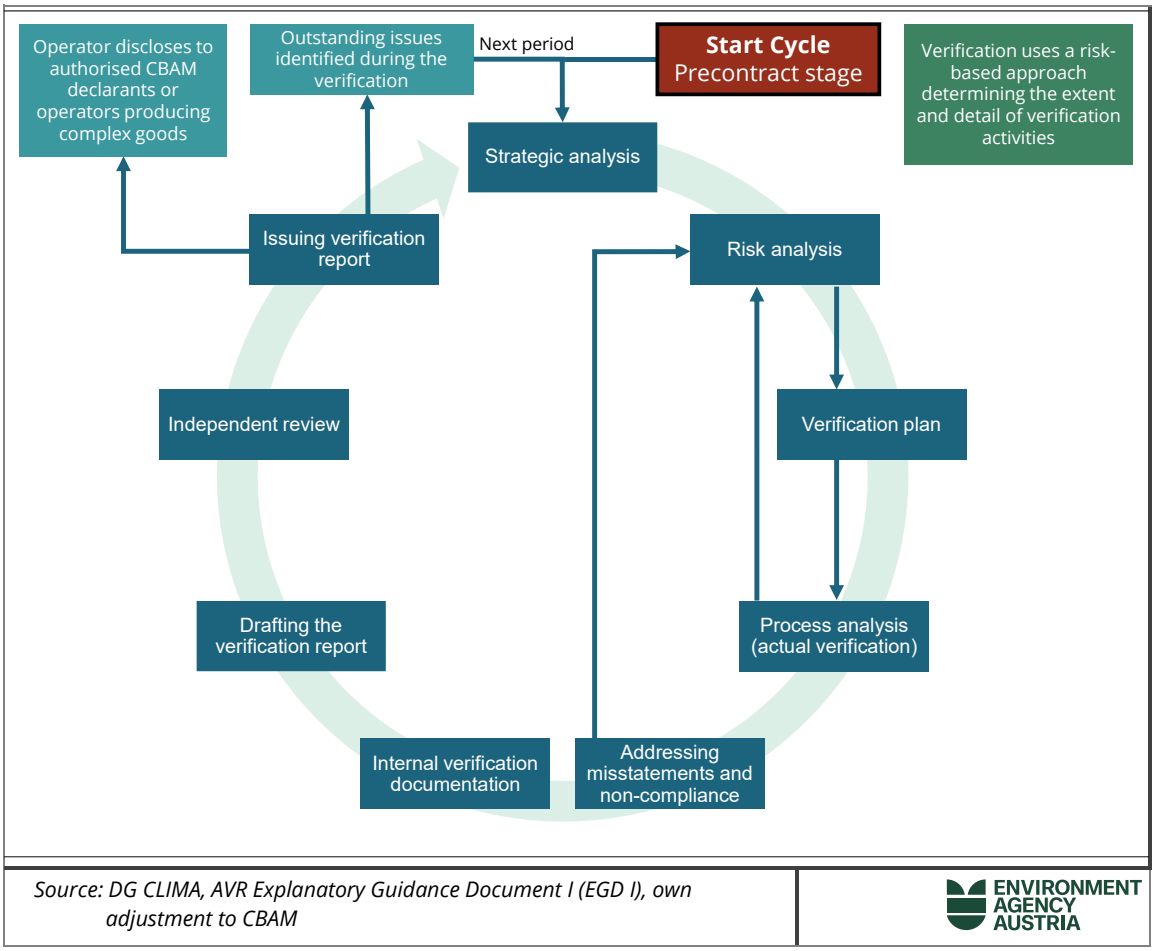
In other words, the verification is not the confirmation of a single number (the total emissions of the installation in the reporting period), nor the confirmation of a larger set of numbers (the specific direct and indirect embedded emissions of each good produced), but includes the confirmation of the operator's compliance with the Methodology Act.

Note on monitoring plans (MPs): Experience shows that every installation is different, and it is virtually impossible to lay down all detailed requirements in legislation in a way that all possible configurations can be described. Therefore, the legislation for a carbon pricing system usually contains more general rules from which the operator can compile the monitoring methodology for actual use at the installation. A **monitoring plan is the written documentation of this installation-specific monitoring methodology**. Therefore, it is the corner stone (or starting point) of every verification. For CBAM, as a first step of verification, **verifiers will have to validate the MP against the provisions of the Methodology Act**. Further guidance on validating monitoring plans is provided in section 5 of this document.

4. THE VERIFICATION PROCESS

The verification process of emissions reports consists of a number of interconnected and interdependent mandatory steps. This means that findings during the verification process can result in the need to reconsider one or more steps taken earlier in the verification process and subsequently adjust those steps. The steps of the verification process are displayed in Figure 4 and further described in the following sub-sections.

Figure 4: Verification process of emissions reports



Source: DG CLIMA, AVR Explanatory Guidance Document I (EGD I), own adjustment to CBAM

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4.1. Timing considerations

In contrast to the MRV systems of mandatory carbon pricing instruments, the CBAM does not provide for a firm deadline regarding the verification of an emissions report. Instead, the timeframe for verification is defined by the following cornerstones:

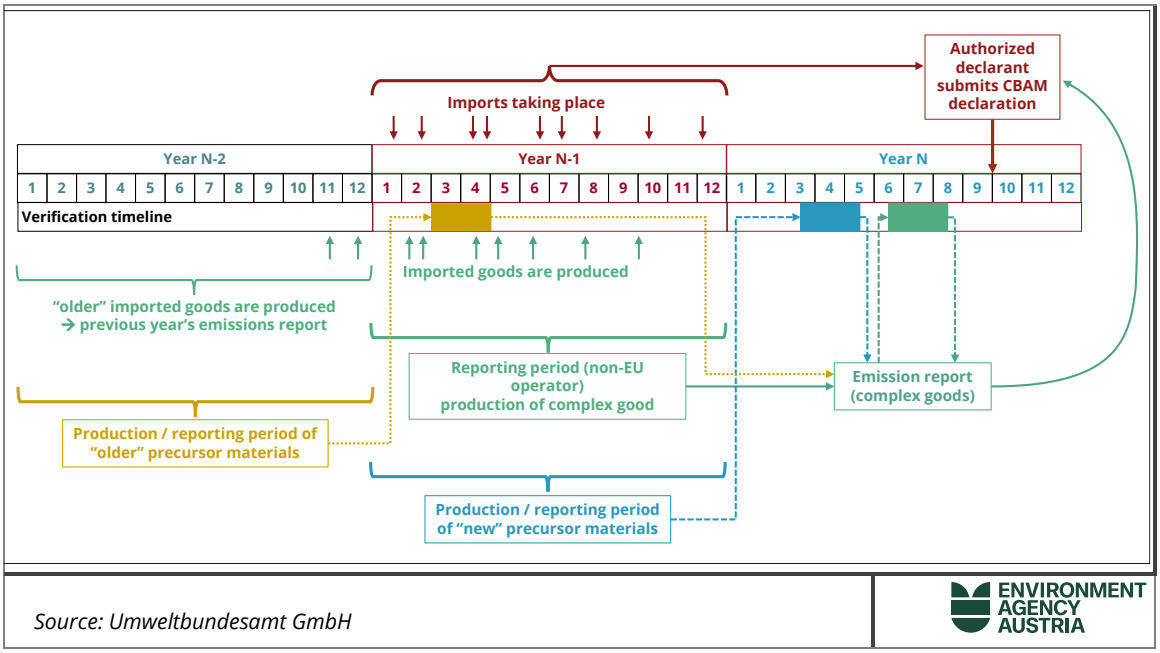
- Operators of installations have to apply the calendar year (1 January to 31 December) as reporting period. Therefore, although verifiers may carry out some activities (e.g. the strategic analysis and risk analysis, site visit) already during this reporting period, verification cannot be concluded before January of the subsequent year, because complete data (up to 31 December) are required before performing the final verification steps.

- Authorised CBAM declarants must submit their annual CBAM declaration by 30 September of each year to the competent authority through the CBAM Registry. Provided that they want to use actual data from operators, they need to receive the fully verified emissions data from operators. It is reasonable to assume that declarants require some lead time to compile the CBAM declaration for the various goods imported and to perform internal quality assurance procedures. Furthermore, they need time to purchase the required number of CBAM certificates also before 30 September. Based on these considerations, authorised CBAM declarants will appreciate receiving the verification reports as soon as possible, but at the latest by mid-August.
- Operators of installations producing complex goods need the verification reports of the installations producing their precursors in time for their own emissions report verification. This means that operators producing simple goods should aim at getting their emissions reports verified as early in the year as possible to ensure good collaboration with the operators of the complex goods. On the other side, operators producing complex goods should agree a timeline with their verifier by which the operators will finalise the emissions report, e.g. during the second quarter of the year. They should set themselves a deadline for the use of actual data for their precursors: For example, if the verification is agreed to be finished by the end of July, the operator should compile the emissions report at the latest by end of June. If by that deadline not all required verification reports for precursors have been received, the operator should substitute those data with default values published by the Commission and proceed with the verification.

Figure 5 shows how these timing considerations can be brought together. Note in that example that precursors from two different reporting periods are used.

Overall, to avoid bottlenecks in the verifier's planning, it is recommended that the verification process starts during the year being reported on, rather than after the year has ended, as this facilitates checking of conformance and compliance, the timely management of issues and addressing possible data gaps, misstatements or non-conformities identified during the verification. However, sufficient data is needed to initiate the process, and any subsequent changes to the operator's systems must be considered well in time for the verified emissions report to be disclosed (submitted) to other operators or CBAM declarants. By the end of the verification, the data for the whole reporting year must be verified.

Figure 5: Schematic description of verification timing in a case of complex goods being produced using precursors produced (a) during the previous reporting period (dark yellow) and (b) the same reporting period (blue) as the complex good (green). The picture also shows that the (conclusion of the) verification of the precursors has to precede the verification of the complex good.



Source: Umweltbundesamt GmbH

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4.2. Pre-contract stage

Operators of CBAM installations are recommended to contract CBAM accredited verifiers already early during the reporting year to give the verifier flexibility for planning their activities (including for audits by the NABs). The pre-contract stage is an important initial phase that precedes the verification process. At this stage, i.e. before accepting the verification engagement, the verifier should assess whether it can undertake the verification for that specific installation. This involves the following activities of the verifier:

- Evaluate the risks involved in undertaking the verification. The verifier should, in particular, consider:
    - The installation's MP and emissions report (if already available for the current year, otherwise the previous year's report) to see what risks are involved in undertaking the verification engagement;
    - potential risks to impartiality and independence of the verifier;
    - risks involved in terms of time allocation to the verification engagement;
    - whether the verifier is able to provide verification in the country of the installation: This depends on whether the verifier has an office in the country (not mandatory, but simplifying the planning), has competent staff capable to communicate in the country's language (if English is not sufficient), whether travel is possible (security considerations, visa are available, travel time is reasonable), etc.;
- This evaluation should be fully documented in the internal verification documentation and should show how the verifier has addressed these business risks

in the contract with the operator, as well as how these risks have been mitigated: e.g. by allocating, if needed, more time to the particular verification engagement, by developing clear and transparent conditions in the contract.

- Undertake a review of the information supplied by the operator. The AVR-DA requires the operator to provide the verifier with relevant information to enable it to perform the activities of the pre-contract stage. Relevant information includes, for example, last year's emissions report and the installation's MP.
- Assess whether it has the competence, personnel and resources required to select a verification team for this specific verification engagement and to complete the verification activities successfully within the timeframe required. This assessment is highly dependent on the type of installation and its production processes and activities. The verifier should have sufficient personnel within its organisation or through contracting to be able to cover the requirements for team composition. More information on competence and verification team requirements is given in Annex II of this guidance.
- Determine the time allocation needed to properly carry out the verification. The verifier should ensure that the scope of the verification work and the time allocated in the contract is consistent with the risks identified. Insufficient contracted time must not lead to reducing the work needed to satisfactorily complete the verification in line with its risks. In case of the CBAM, travel time to more remote installations must be given special attention.

Time allocation

The AVR-DA does not provide rules for verifiers on allocating a specified minimum amount of time for the verification. The verifier has to apply its expert judgment and experience from similar engagements, taking into account the specific situation (as also documented in the MP) of the installation and its activities e.g. size and complexity of the installation.

The time allocated by the verifier is not a fixed number of person/days. If, during the detailed verification, the verifier finds that additional time is needed to properly carry out the necessary verification activities, the time allocation in the contract must be adjusted accordingly. The contract must have a provision for this adjustment.

4.3. Information to be provided by the operator of the installation

The operator must provide the verifier with sufficient information so that it can plan and carry out the verification of emissions reports. The AVR-DA in Section 2.3 of Annex II outlines which information needs to be submitted during the pre-contract stage and the actual verification activities:

(a) the latest version of the installation's monitoring plan;

(b) relevant documentation or a description of the installation, procedures and processes or flowcharts prepared and kept up-to-date outside the monitoring plan;

(c) if applicable, a record of all changes made to the installation and to the monitoring plan since the last verification;

(d) if applicable, the operator's sampling plan;

(e) the operator's emissions report to be verified;

(f) the operator's emissions report and the related verification report for the previous reporting period, if not verified by the same verifier;

(g) where applicable, information on how the operator has corrected non-conformities or addressed recommendations for improvement that were reported in the verification report concerning the previous reporting period;

(h) if applicable, the verification reports relating to precursors used but not produced at the installation;

(i) where the operator used the actual time of production of the precursor to determine the reporting period during which the precursor was produced, evidence of the actual time of production;

(j) if applicable, a description of how precursors were attributed to production processes in accordance with Art. 14 of the Methodology Act;

(k) where goods are produced at the installation for which indirect emissions are relevant, and if the operator uses neither the default value for the emission factor of electricity nor the value for electricity produced at the installation, the following elements:

  (1) the verification report of the installation producing electricity;

  (2) the evidence referred to in point D.4.3 of Annex II to the Methodology Act, i.e. evidence for either a direct connection to the electricity producing installation or evidence for a power purchase agreement (PPA).

(l) where the installation produces electricity imported into the customs territory of the Union, the evidence referred to in point D.2.4 of Annex II to the Methodology Act (i.e. single line diagrams, smart metering data, etc.);

(m) information on databases and data sources used for monitoring and reporting purposes;

(n) any other relevant information necessary to plan and carry out the verification.

Additionally, verifiers may ask the operator to provide any other information relevant, in particular, if applicable:

- an overview of the IT systems used, showing the data flow for the relevant installation;
- evidence of the maintenance and accuracy/uncertainty of measurement equipment/flow meters (e.g. calibration certificates);
- Evidence regarding the composition of the produced CBAM goods, where the functional unit per tonne of product can differ, or where the composition of the produced material impacts which CBAM benchmark must be chosen ([61]);
- any other information relevant to the verification of the emissions report ([62]).

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[61] For the choice of CBAM benchmarks, also the production route may be relevant, but this should be visible from the monitoring plan.

[62] This could for instance include relevant reports, findings, or conclusions from the controls and inspections performed by competent authorities, inspection bodies or third-party verifiers under another

4.4. Strategic analysis

At the start of the verification process, the verifier shall carry out a strategic analysis of all relevant activities of the operator concerning the installation for which the emissions report is verified. This analysis enables the verifier to understand the installation's production process and assess the likely nature, scale and complexity of the verification activities to be performed. It also provides input for the next verification step, i.e. the risk analysis. As a minimum, the verifier shall take into account the information gathered under section 4.3 from the operator, and the elements listed in section 2.4.3 of Annex II to the AVR-DA (Table 5). The examples in Table 5 give an indication of the possible factors that could be relevant when considering these elements.

Table 5: Relevant elements for the strategic analysis

Section 2.4.3 of Annex II to the AVR-DA	**Example of issues that could be relevant for the strategic analysis**
The size and complexity of the installation, the number of different goods produced, the number and nature of production processes and production routes	The type of goods and their nature (e.g. defined by the CN code or other operator-specific naming conventions) can give an indication of the number of production processes, and their nature. The defined production processes and the production routes applied give an indication on the accreditation scope required by the verifier. The overall complexity of the installation gives a first indication of the effort (person-days) required for verification.
The monitoring plan as well as the specifics of the monitoring methodology laid down therein	The monitoring plan, in particular the attached installation plans and flow charts provide further understanding of the complexity of verification tasks. In principle, all the operator's activities (data sources, measurements, data storage, calculations, control activities) should be found in the MP.
The nature, scale and complexity of emission sources and source streams as well as the technical connections between production processes, production routes and other installations, if any	How many source streams are relevant? Are data received from third parties or determined by the operator? This defines the effort on installation-level emissions. How many emission sources are monitored using continuous emission measurement systems (CEMS)? If CEMS is used at all, a technical expert for it may be required in the verification team. What technical connections between processes exist? Is heat exchanged, imported or exported from the installation? Are waste gases or pure CO_2 (CCS or CCU) transferred between production processes or installations? Again, it may require special technical experts to verify the related data.
The measurement equipment described in the monitoring plan, the origin and application of calculation factors and other primary data sources	Whether measurement equipment is under the operator's own control defines if maintenance, calibration and testing have to be performed. If calculation factors are determined by chemical analyses, there are sampling plans, laboratories and their competence, and the used analysis methodology to be checked during verification.

carbon pricing mechanism, if applicable, or findings of previous verifiers or independent persons certifying the carbon price effectively paid.

Section 2.4.3 of Annex II to the AVR-DA	Example of issues that could be relevant for the strategic analysis
	If constant values are used, their data sources are to be checked, if standard values from the Methodology Act are used, the correct assignment of fuel and material types is relevant.
The number of different precursors used but not produced at the installation, and the variety of their sources	Under this point, the verifier can prepare to check whether the correct default values for precursors (incl. for the correct year of production) are used, or if actual data are used, if the verification reports provided fit to the precursors' origin (installation and year of production). The verifier will need to check whether weighted averages of precursors' data are correctly determined, or whether specific precursors are attributed to specific production processes. The number of precursors impacts the overall verification effort.
For goods produced at the installation where indirect emissions are relevant, the number of installations from where electricity is received and the approach used by the operator to determine the emission factor of electricity, and any relevant underlying data	If indirect emissions are relevant, the verifier must prepare to check: • If the metering of electricity consumed is correctly measured and attributed to single production processes; • if the correct default emissions factor for electricity has been used, if applicable; • if the operator uses electricity from its own installation, whether monitoring rules for the emissions of that electricity have been followed; • if other electricity with actual data has been used, the verification report of the electricity producer, and whether the criteria (PPA or direct technical link) are proven by the operator; • if more than one electricity source was used, that the indirect emissions are calculated using the correct (weighted) average of the emission factors from the different sources.
For electricity imported into the customs territory of the Union, the approach used by the operator to determine the emission factor of electricity, and any relevant underlying data	If electricity is to be verified, additional information must be verified (see section 7.6). In this case, also declarant-specific addendums have to be attached to the emissions report, which also need verification. The verifier may have to engage a specialised technical expert.
The data flow activities and the control system	The path the data follows from the primary source to the final emissions report; The data management system and its functions; The type of quality controls implemented to reduce the risks for errors in the data; The type and quality of the controls on the recording and transmitting of data into IT systems.

If the verifier has carried out verifications for the same installation in previous years, the information from those earlier verification(s) must be considered by the verifier. Major deviations compared to previous verifications should attract particular attention from the verifier. Although the strategic analysis will take less time in a situation where the verifier is already familiar with the installation, this does not exonerate the verifier from carrying out that analysis for the present verification engagement.

As part of the strategic analysis the verifier shall check:

- whether the MP presented is the most recent, and has already been assessed during an earlier CBAM verification, either by the verifier itself or another duly accredited verifier (details of MP assessment are discussed in section 5);
- whether changes have occurred to the installation and/or the MP since the last verification.

During these checks the verifier assesses whether the MP is up to date and complete. If the MP is not reflecting the actual installation and actual monitoring methodology applied by the operator, the verifier will request an update of the MP in a way compliant with the Methodology Act. In principle the verifier should put the verification on hold until such update has been made. However, in some cases, the verifier may continue to carry out the verification activities provided the operator is fully aware that some verification activities (at least the MP assessment) may need to be repeated based on the updated MP. Then the verifier continues, repeats or adapts the verification activities, as relevant. In order to prevent undue delays in the verification process, in particular where the actually used monitoring methodology complies with the Methodology Act, the verifier may include minor issues ("non-material non-conformities" and recommendations for improvement) in the verification report instead of waiting for a complete MP update by the operator.

4.5. Risk analysis

The verifier must assess the risks of misstatements and non-conformities and their material effect on the reported data. The outcome of the risk analysis determines how and to what extent the verification activities should be designed, planned and implemented. The risk analysis centres on identifying, assessing and quantifying two types of risks, i.e. inherent risks and control risks. Together with the detection risk, these risks form the overall verification risk, i.e. the risk that the verifier issues an inappropriate verification statement ([63]). More information is provided in key guidance note on risk analysis (KGN II.2) ([64]).

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63 Usually, the verification risk is considered to be:

Verification Risk (VR) = Inherent risk (IR) × Control risk (CR) × Detection Risk (DR)

Where the AVR-DA, Article 1, defines:

'inherent risk' means the susceptibility of a parameter in the operator's emissions report to misstatements that could be material, individually or when aggregated with other misstatements, before taking into consideration the effect of any related control activities;

'control risk' means the susceptibility of a parameter in the operator's emissions report to misstatements that could be material, individually or when aggregated with other misstatements, and that will not be prevented or detected and corrected on a timely basis by the control system;

[implied: 'detection risk' means the risk of a verifier not detecting a material misstatement;]

'verification risk' means the risk, which is caused either by the inherent risk, the control risk, or the risk that the verifier does not detect a material misstatement, that the verifier expresses an incorrect verification opinion when the operator's emissions report is not free of material misstatements;

64 This KGN II.2 applies to the EU ETS. However, the principles described apply also to the CBAM, although under the CBAM, further risk areas need to be considered, e.g. the inclusion of precursors' data. KGN II.2 is found in the AVR guidance section under

The risk analysis is an iterative process and must be changed if the detailed verification in the process analysis shows that the risks are higher or lower than initially assessed. In that case the verification plan also needs to be updated.

As part of this risk analysis, the verifier should identify potential risks related to the monitoring and reporting process, the different calculation steps and should take into consideration any effective risk control methods applied by the operator in regard to these risks.

Potential sources of **inherent risk** to be assessed by the verifier:

- Complexity and number of emissions sources and fuels used;
- Significant manual transfers and input of data concerning fuel consumption, etc., such as e.g. manual transfer from paper-written logs to spreadsheets, from spreadsheets to IT systems, from IT systems to reporting templates;
- Complex data management systems for collecting data and quantifying emissions or activity levels (e.g. multiple spread sheets related/ linked to each other) or changes in data management;
- Inconsistent or complex monitoring methodologies and reporting policies, e.g. incorrect use of emissions factors, incorrect identification of precursors, boundaries of production processes not clearly defined in monitoring plan;
- Unit conversions when consolidating information, e.g. volume to mass; functional unit to mass or mass to functional unit;
- Measuring equipment failure;
- IT system failure.

Examples of potential sources of **control risk**:

- Automated controls in the IT system that are missing or not functioning properly;
- Internal audits that have not been correctly performed;
- No monitoring / maintenance of measuring equipment as required by its producer;
- Missing separation of data input from data checking (i.e. the checking is done by one person which means there is no proper segregation of duties);
- Internal data reviews and the checking of the manual transfers of data that are not carried out, or not carried out to the rigour required in view of the inherent risk level;
- The person responsible for the control activities is not or not sufficiently knowledgeable regarding the task concerned.

The risk analysis must encompass all data sets under verification, such as:

- Direct and indirect emissions;
- Heat flows;

https://climate.ec.europa.eu/document/download/b2305fd4-a760-40e8-a475-878a250c1171_en?filename=kgn_2_verifiers_risks_en.pdf&prefLang=de

- Electricity production and consumption;
- Types of goods produced;
- Activity levels of production processes;
- Sector-specific "qualifying parameters" ([65]).
- Aggregation of data in the emissions report.

When identifying and analysing these issues the verifier must consider the findings of the strategic analysis and the existence, completeness, accuracy, consistency, transparency and relevance of the information reported.

4.6. Verification plan

The strategic and risk analysis determine how the verifier sets up the verification plan which consists of three elements (see Section 2.6 of Annex II to the AVR-DA):

- The verification programme ([66]), which must describe the nature and scope of the verification activities as well as the time and manner in which these activities are to be carried out. It also needs to include planning all activities;

- A test plan, which has to set out the scope and methods of testing the control activities and procedures for control activities;

- A data sampling plan, which sets out the scope and methods of data sampling related to data points underlying the aggregated GHG emissions, fuel consumption and other relevant information.

4.7. Process analysis

The actual verification tasks, i.e. the verification process concerning the emissions report carrying out the verification plan, is usually termed "process analysis". The aim of this part of the verification process is to verify whether the monitoring and reporting systems as described in the MP exist in practice and are properly implemented, and whether the reported data are correct. **The objective of this stage in the verification is to collect and document detailed evidence upon which the verifier can base its verification opinion.** Verifiers will perform interviews with the operator's staff involved in monitoring and reporting activities, access primary data as well as aggregated and processed data, visit the site to get confirmation on the actual functioning of the installation and the metering and sampling systems, etc. During the process analysis the verifier must implement the verification plan and carry out the activities listed in Section 2.7 of Annex II to the AVR-DA.

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[65] Like the alloy grade, production route, etc., i.e. the data listed in Section 2 of Annex IV to the Methodology Act.

[66] The verification programme is not just an agenda for the desk research and site visit but it should provide sufficient detail of planned tests and activities to inform the team members of what activities should be carried out.

Process analysis consists of the following main parts ([67]):

- The **testing of the data flows and the control system**'s implementation and effectiveness, including relevant procedures; This step usually includes "walk-through" testing from the primary data to the final emissions report;
- **Substantive testing of the actual data**:
    - *Data verification*, through applying several methods of testing such as tracing the data back to the primary data source, cross-checking with internal and external data sources, carrying out recalculation of parts of the overall emissions calculation to check certain subsets and elements (e.g. that factors are correctly calculated from source data);
    - *Analytical procedures* which mean an analysis of fluctuations and trends in the data including an analysis of relationships that are inconsistent with other relevant information or that deviate from predicted amounts;
    - Checking of the *correct application of the monitoring methodology*, for example by using spreadsheet assurance techniques, recalculating the reported data, or inserting different input data in the monitoring methodology to check its correct application (re-performance of data aggregation).

  This usually involves a sampling approach based on the risk analysis carried out before (see section 4.5).
- Checking of **specific issues**, e.g. the verification reports of purchased precursors, evidence for allowing zero-rating of biomass emissions, handling of data gaps, etc.

4.7.1. Testing of data flows and control activities

As part of the process analysis, the verifier must check at least the following (Section 2.7 of Annex II to the AVR-DA):

- the data flow activities and systems used for them, including IT systems;
- whether the control activities are appropriately documented, implemented, maintained and effective to mitigate the inherent risks;
- whether the procedures listed in the monitoring plan are effective to mitigate the inherent risks and control risks and whether the procedures are implemented, sufficiently documented and properly updated.

To accomplish their objective, the verifier needs to consider methods such as enquiry with relevant staff, document inspection, and observation and walk-through procedures. The latter means that the verifier tracks the data flow from primary data to the compilation of the emissions report.

Observation and walkthrough procedures may focus on e.g.:

[67] Even more detailed guidance, albeit meant for the EU ETS, but largely also applicable to the CBAM, can be found in the AVR KGN II.3 (Key guidance note on process analysis), accessible in the AVR guidance section of https://climate.ec.europa.eu/eu-action/carbon-markets/eu-emissions-trading-system-eu-ets/monitoring-reporting-and-verification_en?prefLang=de#documentation

- Reading of instruments;
- Manual or automatic documentation of measurements;
- Observation of IT systems such as:
    - Purchase databases (delivery notes and invoices of fuels, raw materials, precursors);
    - Sales databases and stock inventories (e.g. for produced simple and complex goods);
    - Fuel management system;
    - Energy management system (if available);
    - Planned Maintenance System;
    - MRV software/solution, if applicable.
- Data compilation and storage, e.g. by an environmental site manager or similar role;
- Laboratory results;
- Calibration and maintenance logs;
- Preparation of report;
- Control activities on the data.

For checking the control procedures, the verifier must evaluate the operator's risk assessment and inform the operator if it has failed to identify any relevant inherent risks and control risks properly. The verifier must also carry out an own risk analysis and test the control activities, based on the verifier's analysis of the inherent and control risks involved. Assessing the control activities concerns not only assessing the establishment of the operator's control activities, e.g. persons assigned to be responsible for data flow activities and carrying out systematic cross-checks. It also involves an assessment of the operator's documentation, implementation and maintenance of these control activities including appropriate succession or planning of replacement to accommodate situations when personnel change jobs or take leave.

The key question is to what extent the control activities are sufficient to mitigate the risk of misstatements and non-conformities. Relevant questions for the verifier are, for example:

- Are the control activities set up such that they can function properly and effectively?
- What is the frequency of the control activities?
- Are the control activities carried out manually or electronically?
- Are the control activities implemented correctly so that they can function in practice?
- Is there a four-eyes principle applied (double check by another person)?
- Who is responsible for a specific control activity and does this person have sufficient knowledge and experience to carry out that control activity properly?

The areas of control activities as given in point 22 of section A.5 of Annex II to the Monitoring Regulation include:

- Whether measuring equipment is calibrated, adjusted, and checked at regular intervals including prior to use, and checked against measurement standards traceable to international measurement standards, where available, and proportionate to the relevance of the measurement equipment;
- Whether appropriate quality assurance of information technology systems ensures that the relevant systems are designed, documented, tested, implemented, controlled and maintained in a way that ensures processing reliable, accurate and timely data in accordance with the risks identified in the risk assessment;
- Whether segregation of duties is ensured in the data flow activities and control activities,
- Whether necessary competencies of the operator's staff are managed;
- Whether internal reviews and validation of data are carried out;
- How corrections and corrective action are implemented, where necessary;
- How outsourced processes are controlled;
- How records are kept, including management of document versions.

For additional information on how operators should design the data flow and control procedures, please see MRR GD6 ([68]) and AVR guidance document KGN II.3 on process analysis ([69]).

4.7.2. Data verification

Section 2.9 of Annex II to the AVR-DA highlights the need for the verifier to "*verify the data in the operator's emissions report by carrying out detailed testing of the data, including by tracing the data back to the primary data source, cross-checking data with external data sources, performing reconciliations, checking thresholds regarding appropriate data and carrying out recalculations.*" It lists relevant areas of interest in a non-exhaustive list, which includes notably:

- the consistency of the data reported in the operator's emissions report with primary source data;
- where applicable, the data resulting from the primary data source compared to a corroborating data source, if available in the monitoring plan;
- where the operator applies a measurement-based methodology (CEMS), the measured values against the respective corroborating calculation;
- the reported activity levels of the production processes;

[68] EU ETS Guidance Document 6 on Data flow and control system, accessible in the MRR guidance section of https://climate.ec.europa.eu/eu-action/carbon-markets/eu-emissions-trading-system-eu-ets/monitoring-reporting-and-verification_en?prefLang=de#documentation

[69] Key guidance note II.3 on process analysis, in particular section 2.2 on detailed verification approaches on the control system, https://climate.ec.europa.eu/eu-action/carbon-markets/eu-emissions-trading-system-eu-ets/monitoring-reporting-and-verification_en?prefLang=de#documentation.

- the reliability and accuracy of the data.

4.7.3. Analytical procedures

As mentioned before, analytical procedures are used to analyse fluctuations and trends in the data including an analysis of relationships that are inconsistent with other relevant information or that deviate from predicted amounts. This could involve for example comparisons of emissions from the same sources over a period of several years, analysing anticipated production and emission data ([70]), investigation of whether the reported figures can be confirmed by other analytical means, e.g. cross-checking emission data with production and other operational data, comparing with the installation's nameplate capacity and design efficiency.

Unusual high or low figures or unexpected relationships in the data that are identified may assist the verifier in identifying potential risk areas and thereby help to tailor further verification activities such as more strengthened data verification. In general, analytical procedures are therefore used in several stages of the verification process:

- preliminary analytical procedures on aggregated data before the process analysis. This is part of the strategic analysis and assessment of inherent risks;
- substantive analytical procedures on aggregated data and the data points underlying these aggregated data to enable the verifier to identify potential structural errors and immediate outliers;
- final analytical procedures on the aggregated data to ensure that all errors identified during the verification process have been resolved correctly.

Analytical procedures are particularly effective when disaggregated data are readily available or when the verifier has reason to consider that the data to be used are reliable, such as when it is extracted from well-controlled sources, e.g.:

- from the financial reporting system that is subject to other audits; or
- from other systems where common input controls are applied (e.g. if the quantity of purchased fuel as recorded on the fuel invoice(s) is entered into the operator's account payable system in the same way as other data from the invoice).

Where the verifier identifies outliers, fluctuations, trends, data gaps or data that are inconsistent with other relevant information or that differ significantly from expected amounts or ratios, the verifier shall obtain explanations from the operator supported by additional relevant evidence. Based on the explanations and supporting evidence provided, the verifier shall assess the impact on the verification plan and the verification activities to be performed. This could result in additional data verification.

[70] Where there is a relationship between the data sets. Not all installations / production processes have a clear relationship between energy consumption, emissions generation and production.

4.7.4. Correct application of the monitoring methodology

In the CBAM, the verifier not only has to check whether the operator has adhered to its monitoring plan and applied all procedures and calculations correctly, but also assess the monitoring plan itself for compliance with the Methodology Act (see section 5). To assess the correct application of the monitoring plan, the verifier will look at, for example:

- The completeness of overall monitoring activities: whether the operator has collected data for all source streams, emission sources, heat transfers, waste gases, electricity items mentioned in the monitoring plan, etc.
- Whether the operator has used the primary data sources for each of those data sets that are laid down in the monitoring plan, i.e.:
    - for activity data of source streams, whether e.g. invoiced data or readings of specified meters were used;
    - whether stocks have been appropriately taken into account for activity data of source streams and for precursors;
    - for calculation factors, if based on standard values or other constant values, whether the MP-documented sources and values were used;
    - for calculation factors, where analyses were carried out, whether the specified laboratory and standards were used (and whether the laboratory meets the required quality and competence standards) ([71]), whether the specified sampling plan was adhered to;
    - where CEMS ([72]) are used, whether those data were obtained and aggregated as described in the MP;
    - for electricity, heat and precursors received from other installations, whether actual data was based on verification reports established using CBAM rules from those installations, or whether the correct default values were used;
- Whether the operator has carried out calculations (aggregation of data, attribution of data to processes, etc.) as described in the MP;
- Whether the operator has used correct units in the calculations, and e.g. whether calculation factors were used consistently (e.g. whether all values consistently apply to a state “as is” or “laboratory dried”, whether gas data were converted to standard conditions 0°C and 101 325 Pa);
- Whether the operator has used methods for closing data gaps as anticipated in the MP;
- Whether calibrations and other QA measures from the MP have been applied at the defined intervals;

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[71] Please see also EU ETS Guidance document No. 5 (Sampling and analysis), found in the MRR guidance section of https://climate.ec.europa.eu/eu-action/carbon-markets/eu-emissions-trading-system-eu-ets/monitoring-reporting-and-verification_en?prefLang=de#documentation

[72] Please see also EU ETS Guidance document No. 7 (Continuous Emissions Monitoring Systems (CEMS)), found in the Joint MRR & AVR guidance section of https://climate.ec.europa.eu/eu-action/carbon-markets/eu-emissions-trading-system-eu-ets/monitoring-reporting-and-verification_en?prefLang=de#documentation

- If applicable, whether the analysis and metering of waste gases or pure CO_2 from or to other installations are carried out in accordance with the MP. Where CO_2 is transferred for the purpose of geological storage (CCS) or for use in processes in which CO_2 is permanently chemically bound, whether the necessary evidence for permanent storage is provided by the operator.

4.8. Treatment of data gaps

If methods laid down in the MP have been used to close data gaps, the verifier has to verify whether these methods were appropriate and applied correctly. Furthermore, if these methods were not assessed beforehand (in case the method used was not included in the MP before), the verifier has to verify that the approach to complete the missing data ensures that the emissions are not underestimated or production levels are not overestimated, and do not lead to material misstatements.

Where, for technical reasons, it is temporarily not feasible to apply the monitoring plan satisfactorily, the operator shall apply a conservative method based on alternative data sources listed in the monitoring plan for the purpose of performing corroborative checks, or, if such an alternative is not contained in the monitoring plan, an alternative method which provides surrogate data or a conservative estimation, until the conditions for application of the approved monitoring plan have been restored.

Data gaps are a form of misstatements. As is discussed in section 6, the operator must address all misstatements identified by the verifier before the verification statement can be issued. The data gap must therefore be closed by the operator using surrogate data, even if the data gap itself is smaller than the materiality threshold.

4.9. Site visits

Point 1(c) of Annex VI to the CBAM Regulation and section 2.13 of Annex II to the AVR-DA requires the verifier to carry out site visits to the installation ([73]) at one or more appropriate times during the verification process of the installations' emission report. The verifier shall also use a physical site visit to assess the boundaries of the installation and its production processes as well as the completeness of source streams, emission sources and technical connections. The site visit is necessary to assess the operation of measuring devices and monitoring systems, to conduct interviews, to carry out the relevant verification activities as well as to gather sufficient information and evidence enabling it to conclude whether the operator's report is free from material misstatements.

In the case where the installation only carries out processes excluded from the system boundaries ([74]), verification obligations for this installation still apply if operators want to

[73] Note that in the EU ETS for aircraft operators and shipping companies and in the ETS2, "site" is defined as where the critical mass of relevant data is stored and where data flow and control activities are carried out. This can be e.g. the headquarter or another office. However, for stationary installations, the "site" always means the location of the installation, since reasonable assurance can only be gathered by actually comparing the monitoring plan to the installation's physical reality.

[74] For iron or steel products, as well as for aluminium products, certain processes are excluded from the system boundaries. See sections 3.16 and 3.18 of Annex I to the Methodology Act and sector-specific guidance documents No. 5d and 5e for further explanation.

provide actual emissions values. As a result, the site visit requirements described in this section also apply.

Exceptions to the requirement to carry out a physical site visit are provided in the implementing act pursuant to Article 8 of the CBAM Regulation (the "Verification Principles Act"):

- Under certain conditions, a "virtual site visit" is allowed;
- Under certain conditions, in particular for very small and simple installations, the site visit may be waived.

A virtual site visit is in principle a video conference accompanied by any further written/electronic communication. For this purpose, the verifier will request the operator to provide all necessary information electronically. For specific issues such as checking the measuring instrument actually used and its reading, it may be necessary that the staff of the operator visits relevant parts of the installation upon request of the verifier during the video conference and thereby provides video evidence to the verifier. If during the virtual site visit the verifier does not obtain all necessary evidence for positively concluding on the emissions report, the verifier has to consider to carry out a physical site visit.

The verifier shall ensure that the operator provides the verifier with access to its sites.

In the case of a site visit being carried out virtually or being waived, the verifier has to inform the operator and has to take measures to reduce the verification risk to an acceptable level. The verifier must still be able to obtain reasonable assurance that the emissions report is in conformity with the CBAM legislation. The justification for the decision for any virtual or waived site visit has to be recorded in the internal verification documentation.

Conditions for carrying out a virtual site visit or for waiving the site visit

The verifier may carry out the site visit virtually **if all of the following conditions** are fulfilled cumulatively (Article 3(1) of the Verification Principles Act):

- a verifier has carried out a physical site visit during the reporting period immediately preceding the current reporting period;
- the verifier has sufficient understanding of the installation's functioning, the production processes and the monitoring and reporting system, including the operator's control system;
- the verifier considers that the nature and level of complexity of the installation's monitoring and reporting system as well as the inherent and control risks are such that they do not require a physical site visit;
- the verifier is able to obtain and assess remotely all information required for the verification, including on the correct application of the methodology described in the monitoring plan, the data reported in the operator's emissions report, the production processes and precursors used;
- the decision to carry out a virtual site visit or to waive the physical site visit is based on the results of the risk analysis, and the verifier has identified and taken the necessary measures to reduce the verification risk to an acceptable level to obtain

reasonable assurance that the operator's emissions report is free from material misstatements and non-conformities;

- the installation or its monitoring plan has not undergone any significant changes or modifications since the last physical site visit (see section 5 for additional information).

The verifier may also waive the obligation to carry out a site visit under the same conditions as those mentioned above, except for the first condition. For waiving the site visit during a verification exercise, a verifier must have carried out a physical site visit during two reporting periods preceding the current reporting period – and not only during the previous reporting period.

Provided that all other criteria are fulfilled, a physical visit can be replaced by a virtual one every second year, or a complete waiver can take place every third year. Both exceptions cannot be applied cumulatively. Therefore, the following possibilities exist:

- Year 1: physical site visit; year 2: virtual site visit; year 3: physical visit; year 4: virtual site visit.
- Year 1: physical site visit; year 2: physical visit; year 3: waiver of site visit; year 4: physical site visit.

Where electricity is produced, either for imported electricity or used in the production of goods for which indirect emissions are to be reported, a verifier may waive the obligation to carry out a physical site visit of the installation under certain conditions (see below, "**Special case: Zero-emissions power plants for indirect emissions**").

Conditions for a virtual site visit under force majeure

Article 4 of the Verification Principles Act provides an additional option to replace a physical site visit by a virtual site visit under difference conditions, application in case of *force majeure*. To make use of this option, the following conditions must be fulfilled:

(a) the verifier is prevented from carrying out a physical site visit due to serious, extraordinary and unforeseeable circumstances outside the control of the operator, and those circumstances cannot, after using all reasonable efforts, be overcome;

(b) the decision of the verifier to carry out a virtual site visit is based on the results of the risk analysis;

(c) the verifier has identified and taken the necessary measures to reduce the verification risk to an acceptable level to obtain reasonable assurance that the operator's emissions report is free from material misstatements.

These force majeure circumstances could for example consist in pandemics, earthquakes, war, terrorism, other natural or man-made disaster or other disasters which result in the closure of the installation to non-employees or in an inability to travel to the site. Russia's aggression war against Ukraine would qualify as a serious, extraordinary and unforeseeable circumstance.

Special case: Zero-emissions power plants for indirect emissions and for imported electricity

Where operators report indirect emissions based on actual values, they must provide evidence on which installation delivers the electricity (see section 7.5). Furthermore, like for precursors, the actual "embedded emissions" of electricity (i.e. the emission factor)

must be taken from a duly verified emissions report, applying the CBAM Methodology Act. However, if that installation does not emit greenhouse gases, its monitoring plan would be "empty", and the verifier who performs this verification only has to confirm that the installation does not emit greenhouse gases. For this extended possibility to waive site visits, Article 3(2) of the Verification Principles Act requires that all of the following conditions are fulfilled:

(a) electricity is the only CBAM good produced by the installation;

(b) the installation does not use any materials, fuels, or production processes with the potential to emit greenhouse gases during normal operation. The following installations shall not be regarded as compliant with this criterion:

1. installations using biomass as defined in Section 1, point 9, of Annex I to Methodology Act;
2. installations carrying out carbon capture, including for the purpose of geological storage or for use of the GHG in the production of fuels or other materials;
3. installations transferring greenhouse gases to other installations, pipelines or CO_2 transport infrastructures as defined in Article 3(29) of Regulation (EU) 2024/1735 of the European Parliament and of the Council.

(c) a verifier has carried out at least one physical site visit in the last five reporting periods immediately preceding the current reporting period;

(d) the conditions laid out in paragraph 1, points (c) to (f) are fulfilled.

Such "zero-emissions power plants" are in particular:

- Power plants using exclusively renewable energy sources, such as hydro, solar, wind, geothermal, tidal etc. energy;
- Nuclear power plants (provided they do not have auxiliary fossil fuel input).

The following power plants do NOT qualify for the special treatment:

- Thermal power plants using waste or other biomass, since they do emit CO_2 and verification is required as to which extent the biomass may be zero-rated;
- Thermal power plants which perform carbon capture, either for geological storage or for other transport to other installations. Carbon capture always leads to residual emissions, and verification is required.

The special treatment of eligible "zero-emissions plants" consists in the possibility to waive the site visit more frequently. The requirement is that a site visit must have taken place at least once in the preceding *five* years. However, conditions (c) to (f) listed above for general waivers of site visits must still be met, i.e. the verifier must have carried out a risk assessment and can reach a reasonable level of assurance for the verification report.

4.10. Addressing misstatements, non-conformities and the materiality level

As a next step during the verification process, the verifier has to address any misstatements and non-conformities in the emissions report, by informing the operator and requiring action. The operator has to make all necessary corrections to the emissions report in all points identified by the verifier. Thereafter, the verifier has to decide whether any

remaining issues have a material effect on the data provided or not. More guidance on misstatements, non-conformities and their materiality is given in chapter 6.

4.11. Concluding on the findings of the verification

When completing the verification and considering all evidence gathered during the verification, the verifier carries out the following activities:

- Confirming that all (planned and relevant) verification activities have been carried out;
- Performing final procedures to ensure the aggregated data is free of material misstatements;
- Verifying whether the information in the report satisfies the requirements of the Methodology Act;
- Submitting the internal verification documentation and the draft report to the independent reviewer, before issuing the verification report;
- Authorising a person to authenticate the report and the evidence of the internal verification documentation, and notify the operator thereof.

A key aspect of this step is that the verifier has to ensure that it has gathered sufficient evidence to support the verification statement. Sufficiency of evidence is influenced by the risk of the operator's report being materially misstated: The greater the risk of a material misstatement, the more detailed verification activities and the more evidence are likely to be required. In addition, the quality of the evidence also plays a role (the better the quality of the evidence, the less important the quantity of the evidence is likely to become). However, merely obtaining more evidence may not always compensate for its poor quality.

The reliability of evidence is influenced by its source and by its nature and is dependent on the individual circumstances under which it is obtained. For example:

- If evidence is obtained from external, independent and knowledgeable sources (e.g. external laboratory analyses), it could be more reliable than internal sources at the installation.
- Evidence that is generated internally is more reliable when the related control activities are effective or if the verification team has directly obtained the evidence (e.g. observing how the operator has carried out a manual cross check on the data instead of inquiring whether the operator has carried out such a control).

The verifier generally obtains more assurance from consistent evidence obtained from different sources or from evidence of a different nature than from items of evidence considered individually. When evidence obtained from one source is inconsistent with that obtained from another, the verifier will determine what additional verification activities mentioned under the process analysis are necessary to resolve the inconsistency.

4.12. Recommendations for improvement

When compiling the verification report, the verifier should not only report misstatements and non-conformities (whether material or not), but may also include "recommendations

for improvement" as laid down in section 2.20 of Annex II to the AVR-DA. For any uncorrected misstatements and non-conformities not leading to material misstatements, such reporting is mandatory, but the verifier may include also other recommendations for improvement for issues that it finds relevant. The AVR-DA lists (non-exhaustively) the following areas for recommendations:

(a) the operator's risk assessment;

(b) the development, documentation, implementation and update of data flow activities and control activities as well as the evaluation of the control system;

(c) the development, documentation, implementation and update of procedures;

(d) the monitoring and reporting of emissions, including in relation to measuring and achieving lower uncertainty, reducing risks and enhancing the efficiency of the monitoring and reporting.

The operator should address those recommendations, unless the improvement would be considered as small or as causing unreasonable costs etc. These recommendations have to be taken into account by the verifier during the verification in the following year and their implementation has to be verified. If the operator has not implemented them, the verifier must assess whether this fact increases or may increase the risk of misstatements. For operators, it is best practice to document any reasons for or against implementing the recommendations, in order to facilitate next year's verification.

During the process of recommending improvements, it is important that the verifier remains impartial towards and independent from the operator and doesn't give advice or develops parts of the monitoring and reporting process.

4.13. Internal verification documentation

The verifier must compile the internal verification documentation to provide a complete trail of evaluations and decisions that enabled the verifier to reach its verification opinion with reasonable assurance. In accordance with the definition of "verification", the verifier must collect evidence that supports the verification statement. This evidence is to be collected in the internal verification documentation. In accordance with Section 2.16 of Annex II to the AVR-DA, at least the following has to be included in the internal verification documentation:

(a) the results of the verification activities performed;

(b) the information received from the operator (see section 4.3);

(c) the strategic analysis, risk analysis and verification plan;

(d) any justification for not organising a physical site visit (section 4.9 of this guidance);

(e) sufficient information to support the verification opinion, including justifications for judgements made on whether or not the misstatements were material.

Annex I of this guidance document contains a more exhaustive list of elements to be included in the internal verification documentation.

The internal verification documentation furthermore is a key source of information in the independent review (section 4.14 below). Also the result of that review needs to be added to the internal verification documentation. The internal verification documentation needs

to be transparent and must be drafted in such a manner that the independent reviewer and the national accreditation body (NAB) ([75]) can assess whether the verification has been performed in line with the AVR-DA. They have to be able to follow the complete document and data trail and assess the critical decisions and issues that occurred during the verification process.

In line with section 2.16.2 of Annex II to the AVR-DA, upon request, the verifier has to provide access to its internal verification documentation to the Commission or the national competent authority that reviews CBAM declarations. In certain cases, such documentation may indeed help these review authorities assess whether the actual embedded emissions declared are correct. However, the main responsibility for checking the internal verification documentation lies with the NAB during routine surveillance activities.

4.14. Independent review

The verification of an emissions report must undergo an independent review. This happens after the draft verification report and the internal verification documentation on the specific verification have been drawn up, but before the verification report is signed and issued to the operator.

The objective of this review is to provide:

- A quality review function and to look for technical errors or omissions;
- A final check that due professional care and judgement has been applied in the verification process, e.g. that the scope of work is consistent with the installation's activities and achieving a reasonable level of assurance;
- A final check to confirm that the verification team has carried out the verification in line with the AVR-DA and that the procedures for the verification activities have been correctly applied;
- An assessment of whether the evidence gathered is sufficient to support the opinion stated in the verification report;
- A proof-reading function, e.g. to correct simple errors, typographical mistakes and omissions.

If an independent reviewer has identified errors or concludes that insufficient evidence has been gathered, the CBAM lead auditor needs to correct these and obtain the missing evidence or corroboration. Changes that the verifier makes in the verification report as a result of the independent review must be reviewed by the independent reviewer, along with the underlying evidence. Independent review covers all the steps in the verification process and focuses in particular on the following elements:

- The selection of the verification team (e.g. a check on whether the verification team holds the required competences);

[75] Assessment of the verifier's internal verification documentation is part of the NAB's assessment of the verifier's competence and procedures during the accreditation and surveillance process.

- How the verifier has evaluated its risks to undertake this particular verification engagement (e.g. what time was allocated for the verification, what conditions were incorporated in the contract with the operator);
- Strategic analysis, risk analysis and verification plan, including revisions of the risk analysis and the plan;
- The activities performed during the process analysis, the evidence gathered, as well as the changes in the planned and executed verification activities;
- How the verification team has completed the internal verification documentation, and the consistency between the internal verification documentation and the verification report;
- Any issues raised by the verifier, in particular those that are related to the verification statement;
- Misstatements, and non-conformities communicated to the operator, whether these have been addressed by the operator and how these have been reported in the internal verification documentation;
- Review of any uncorrected misstatements and non-conformities; and of how the verifier has determined the material impact of these on the reported data;
- The justification for the opinion in the verification report.

An important requirement is that the independent reviewer must not have carried out verification activities that are subject to their review. This means that the independent reviewer shall not be part of the verification team or be involved in any of the verification activities for that particular installation.

4.15. Verification report

The verifier shall issue to the operator, for disclosure to authorised CBAM declarants or other operators who use the operator's products as precursors, a verification report related to the installation's report it has verified. In order to allow the Commission and the national competent authorities to review the verification report, **it is mandatory to submit the verification report in English** ([76]). The Annex to the Verification Principles Act contains detailed requirements on the content of the verification report.

The core element of the verification report is the verification statement ([77]). Section 2.17.2 of Annex II to the AVR-DA provides a list of **possible verification statements**. Each of those statements and justifications have their own impact and characteristics, as further explained in Table 6.

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[76] This does not prevent the verifier from communicating with the operator in another language, i.e. to prepare the verification report in another language and subsequently to translate it into English. However, for CBAM declarants and competent authorities receiving emissions data, only the English version is relevant. The verifier must therefore inform the operator that the English version is the legally relevant one.

[77] As a verification report can be an exhaustive document listing a lot of findings, each verification report contains a central, well identifiable verification statement, sometimes referred to as "verification opinion statement" which clearly summarises whether the report has been verified as satisfying, or whether the result of verification is negative.

Table 6: Characteristics of verification statements

Verification statement	Clarification

The report is verified as satisfactory, being free from material misstatement (**positive statement**)	A report is verified as satisfactory if:
	• The report contains no misstatements or non-conformities. The verification statement is of the type "**verified without comments**".
	• The report contains issues that have no material impact on the reported data. These are issues that are not resolved at the time of reporting and may include:
	  • non-material misstatements;
	  • non-conformities that have no material effect on the reported data;
	  • recommendations for improvements;
	  If such issues are reported, the verifier should select the statement "**verified with comments**". These comments have to be addressed (see section 4.16).
	  Note that where non-material misstatements or non-conformities jointly become material, this verification cannot be used.

The report contains material misstatements that were not corrected before issuing the verification report	The verifier issues a **negative verification statement**. The outstanding material misstatements or non-conformities which cause material misstatements should be listed in the verification report. See section 4.16 for treatment of outstanding issues and 6 regarding the decision on materiality of misstatements and non-conformities.
Scope of verification is too limited	A **limitation of scope** of verification (which is another form of a **negative verification statement**) may arise from the following situations: • Data is missing that prevents a verifier from obtaining the evidence required to reduce the verification risk to the level needed to obtain reasonable level of assurance, e.g. some or all primary source data are missing and data are only available at an aggregated level; • The MP (in its current version) has not been assessed as satisfactory by an accredited verifier (see section 5). Thus it is not providing a proper reference document for the verifier to check the report against; • The MP does not provide sufficient scope or clarity to conclude on the verification, e.g. parts of the monitoring methodology are not properly described in the MP; • The operator has failed to make sufficient information available to enable the verifier to carry out the verification: e.g. the operator has not provided the verifier with all information required (see section 4.3).
Non-conformities individually or combined with other non-conformities provide insufficient clarity and prevent the verifier from stating with reasonable assurance that the report is free from	**Negative verification statement**: Usually when non-conformities are found during the verification process, such findings affect the risk analysis and the planned verification activities. In particular, if these non-conformities increase the risk of misstatements and create uncertainty over the accuracy of the data, the verification activities must be more detailed and further tests and checks will be required to achieve more assurance and confidence in the data. If for example inadequate control activities have been implemented (e.g. no calibration, no procedures ensuring completeness of the fuel, no proper IT interface that is used to aggregate the data), the verifier will undertake more substantive testing to assess the accuracy of the data. However, further testing will not always provide the verifier with sufficient confidence in the data.

Verification statement	Clarification
material misstatements.	In some cases these non-conformities (individually or combined with other non-conformities) provide too much uncertainty for the verifier to positively state with reasonable assurance that the operator's report is free from material misstatements. This could for example happen if the operator does not calibrate the measurement equipment, the non-conformity is repeatedly not corrected and calibrated measurement results are not present, thereby causing the verifier to be uncertain whether the reported data is free from material misstatements.

Electronic transmission of verification reports

The CBAM Regulation (Article 10a(5)) and Section 2.17.3 of Annex II to the AVR-DA ensure that the verification report must be issued in the CBAM Registry. The AVR-DA clarifies two situations:

(a) If the operator is registered in the CBAM Registry pursuant to Article 10 of the CBAM Regulation, the verification report is directly transmitted by the accredited verifier to the operator within the CBAM Registry.

(b) If the operator is not registered, the verifier shall export the verification report from the CBAM Registry and transmit it to the operator via other means. For export, a standard software format and "a standardised electronic format widely accepted for digital documents" (i.e. PDF) are to be used.

Concerning situation (b), a more detailed process is outlined below:

- The verifier will upload the operator's emissions report file in the CBAM Registry (not visible to the declarant);
- The Registry will extract only the emissions summary from the full emissions report and process it for further use;
- The verifier will create the verification report in the Registry;
- The verifier will be able to download an electronically signed PDF from the registry with the verification report (incl. the verification opinion statement and the summary of the verified emissions);
- The verifier will give this e-signed PDF to the non-registered operators, outside of the Registry via other communication channels;
- The non-registered operator will give this e-signed PDF together with the emission report as an Excel file ([78]) to the declarant outside of the Registry via other communication channels;
- The declarant will upload the e-signed PDF and the operator's emissions report in the CBAM Declarants Portal.

This process will create a heavier administrative burden for the verifier and the declarant, but also for the operator who will have to share the full emissions report and the verification report with the declarant (and without any safeguard of sensitive data elements). Therefore, operator are recommended to register in the CBAM Registry and to collaborate with the verifier via the registry.

[78] The emissions report, similar to the "communication template" used in the transitional phase.

4.16. Addressing outstanding issues in the verification report

Outstanding misstatements and non-conformities with the Methodology Act and recommendations for improvement that have been listed in the verification report have to be addressed by the operator. The different issues and the relevant follow-up are described in Table 7.

Table 7: How to address different outstanding issues

Type of outstanding issues	How to address
The verification report contains no misstatements or non-conformities or recommendations of improvement	No action required by the operator
The verification report contains non-material misstatements	It remains between the operator and the verifier to resolve the issue. For example, the verifier should take it into account for verification in the following year, e.g. by increasing the verification risk accordingly. Usually non-material misstatements will furthermore lead to recommendations for improvement. The verifier will therefore expect the operator to improve its monitoring plan before the next verification.
The verification report contains non-conformities regarding the MP or legal requirements that do not lead to negative verification statement	The operator should update the installation's MP and provide it to the verifier at the latest during the next verification. The verifier shall assess during the next verification year whether these non-conformities have been corrected. If these have not been corrected, the verifier must consider whether this increases or may increase the risk of misstatements. This in turn will affect the planning of the verification and the detail of the verification activities (e.g. further testing). During the verification process the verifier will instruct the operator to correct these non-conformities. If the operator still does not correct the non-conformities, this will be one of the factors to take into account when assessing the materiality of misstatements and non-conformities found during the verification. Continued non-correction may lead to minor issues being escalated to material issues in subsequent verification cycles.
The verification report includes a negative verification statement i.e. it states that the installation's report cannot be verified as satisfactory	The operator's emission report cannot be used for providing actual data on the operator's products' specific embedded emissions or on specific free allocation. Users of those goods (other operators using them as precursors and authorised CBAM declarants) must use default values published by the Commission.
The verification report includes recommendations for improvement	This issue can arise whether the verification statement is positive or not. Recommendations for improvement can cover a whole range of topics. It includes not only suggested improvements to the operator's risk assessment, data flow, control activities and procedures, but it could also involve recommendations concerning monitoring and reporting emissions such as using better measuring instruments. In the following verification year, the verifier shall check whether the operator has implemented these recommendations for improvement and the manner in which this has been done. If those recommendations have not been implemented, the verifier must consider whether this increases or may

Type of outstanding issues	How to address
	increase the risk of misstatements and non-conformities. This in turn will affect the planning of the verification and the detail of the verification activities (e.g. further/more detailed testing).

5. ASSESSING THE MONITORING PLAN

5.1. The importance of the monitoring plan and the role of the verifier

Monitoring, reporting and verification (MRV) of emissions play a key role in the credibility of any carbon pricing system, like in the EU's emissions trading system (EU ETS) and the CBAM. Participants want to have assurance that one tonne CO_2 equivalent emitted finds its equivalent of one tonne reported (for the purpose of one allowance or certificate to be surrendered). This principle has become known already from the early days of the EU ETS as the proverbial postulation: "A tonne must be a tonne!"

As mentioned in section 3.6, legislation for MRV usually provides only general rules for the acceptable monitoring approaches. However, every installation is different (modern, old, many times revamped, using different technologies, different degrees of integration with other processes, etc.), so that it is virtually impossible to lay down all detailed requirements in legislation in a way that all possible configurations can be described. Therefore, the operator must define the specific monitoring methodology for actual use at the installation, taking into account all its specificities like the availability of measurements at certain points in the process. The operator lays down this monitoring methodology in a monitoring plan. **A monitoring plan is the written documentation of this installation-specific monitoring methodology**. Therefore, it is the corner stone (or starting point) of every verification.

Like a recipe for a cook and like the management handbook for a certified quality management system, the monitoring plan serves as manual for the operator's tasks. Therefore, it should be written in a way that allows all – and particularly new – staff to immediately follow the instructions. It must also allow the verifier to understand quickly the operator's monitoring activities. Thereby, the monitoring plan is the guide for the verifier against which the operator's emission report is to be judged.

A list containing the minimum elements to be included in the monitoring plan can be found in section A.5 of Annex II to the Methodology Act. Typical elements of a monitoring plan include the following activities of the operator (applicability depends on the specific installation's circumstances):

- Data collection (metering data, invoices, production protocols, etc.);
- Sampling of materials and fuels;
- Laboratory analyses of fuels and materials;
- Maintenance and calibration of meters;
- Collection of third-party data (in particular verification reports covering the precursors purchased, and also electricity and heat purchased);
- Description of calculations and formulae to be used;
- Control activities (e.g. four eyes principle for data collection);
- Data archiving (including protection against manipulation);
- Regular identification of improvement possibilities.

In the EU ETS, the monitoring plan is usually supplemented by "written procedures". This serves the purpose of reducing administrative burden. This is because monitoring plans require the competent authority's approval, which can be a lengthy process. Therefore, several parts supporting the monitoring plan are taken out and kept separately as "written

procedures" which are only briefly summarised in the monitoring plan. However, such distinction is not of similar importance in the CBAM. Therefore, **this guidance document considers written procedures simply a part of the monitoring plan**.

The verifier's role

Having a monitoring plan is the absolute minimum requirement for an operator to carry out monitoring at its installation, and for the verifier to perform the verification. Therefore, it is important for the verifier that the verifier can trust that the monitoring plan complies with all requirements (i.e. in particular with the Methodology Act). In some carbon pricing systems, and in particular in the EU ETS, it is the competent authority's role to assess the monitoring plan, and, if it is compliant with the relevant legislation, to approve it. In such situation, the verifier only needs to check if the operator has applied the monitoring plan appropriately, but the verifier does not have to repeat the assessment of the monitoring plan during the verification. This separation of roles and responsibilities regarding the checking of the MP and the emissions data is not possible for the CBAM.

Under the CBAM, the assessment of the MP has to be done by verifiers themselves, usually as part of the verification activity. Therefore, verifiers need additional competences as compared to EU ETS verifiers. Verifiers have to obtain from the operator the latest version of the MP, and check whether there has been any modification to the installation or to the MP. They will assess the MP, as well as whether the operator acted in conformity with the MP. If, as part of their assessment, verifiers discover that a monitoring plan has not been correctly applied, or that it is not in compliance with the Methodology Act, they need to take action.

These tasks naturally raises a number of questions. How should a verifier formally confirm whether the monitoring plan is considered compliant, or whether changes are required? In the latter case, how should a verifier confirm to the operator that changes made in follow-up to the verifier's assessment are accepted? How will monitoring plan updates be treated? And how should another verifier deal with a "confirmed as compliant" monitoring plan if the operator chooses a new verifier?

The following section 5.2 deals with those questions and outlines an approach to the verifier's assessment of monitoring plans.

5.2. Assessing monitoring plans

The AVR-DA requires verifiers to be accredited to EN ISO 17029. This standard covers two different forms of conformity assessments:

- *Verification*, defined as "*confirmation of a claim, through the provision of objective evidence, that specified requirements have been fulfilled*", i.e. "*a process for evaluating a claim based on historical data and information to determine whether the claim is materially correct and conforms with specified requirements*". – Regarding the EU ETS or the CBAM, this means that verification confirms that the emissions (and other) data from an already concluded period are free from material misstatements.
- *Validation*, defined as "*confirmation of a claim, through the provision of objective evidence, that the requirements for a specific intended future use or application have*

been fulfilled", i.e. "v*alidation is considered to be a process to evaluate the reasonableness of the assumptions, limitations, and methods that support a claim about the outcome of future activities*." – The assessment of a monitoring plan must therefore be considered a kind of validation, as it is to confirm whether the monitoring plan can be considered appropriate (compliant with the legislation) for its (future) use.

The accreditation of CBAM verifiers also covers both aspects, as the AVR-DA in Annex II section 1.2 states that: "*Each CBAM auditor **shall have the competence required to assess monitoring plans** and verify operators' emissions reports […]*". However, the AVR-DA does not specify in detail how the assessment of monitoring plans is to be performed. Consequently, instead of requiring a formal validation, in this document the term "*assessment of monitoring plans*" is generally used, in order not to impose a formal requirement for a separate MP validation.

The verifier should be free to include the MP assessment in the verification process as deemed most appropriate under the specific installation's circumstances. For example, for an installation which rarely undergoes any changes, or where the monitoring is of limited complexity, it may be easier to carry out MP assessment only once every *n* years (where e.g. *n* is between 2 and 5), while in dynamic industry sectors, or for quickly changing installations, it may be more appropriate to carry out the MP assessment every year.

Another aspect is that operators may choose another verifier every year, while their monitoring plans may remain stable. Operators will appreciate if the same task (i.e. assessment of the MP) does not have to be repeated (and paid) every year, and verifiers will appreciate a reduction in their workload. Therefore, an approach should be explored which does not require a new MP assessment every year. Such an approach is outlined below. Note that **this approach to MP assessment is a recommendation, not a legal requirement**.

Recommended approach to the monitoring plan's assessment

When a verifier accepts the assignment to verify an installation's CBAM data for the first time, it has to decide whether the MP assessment should be included in the verification exercise or treated as a separate assignment. This will also depend on whether an assessment report ([79]) from another verifier is already available. These two options may be described as follows:

Option A: Inclusion of MP assessment in annual verification

In this case, the assessment of the MP for compliance with the Methodology Act is fully included in the steps outlined for verification in chapter 4 of this document. Consequently, the MP assessment is integrated in the verification team composition and calculation of the time demand, during the risk analysis, the process analysis, the site visit, etc. As will be mentioned below, most of the steps of this process have to be performed also if the MP assessment is considered a separate process. However, with a full integration of both processes, there will be synergies with the verification, e.g. when using the site visit for both purposes, and when assessing the appropriateness of the data flow and control activities. Thus, in particular for the first assessment of the MP, this may be the most

[79] If that other verifier has included the MP assessment in the general verification process, there may still be a part of the verification report that separately confirms the result of the MP assessment.

efficient approach. Nevertheless, it also has a drawback with regard to timing: since verification is a backward looking assurance process, significant parts thereof are carried out only *after* the reporting period. The MP, however, should be compliant with the legislation ideally already at the start of the reporting period. While acknowledging that this was not possible during the first reporting period, operators may nevertheless have an interest of getting their MPs assessed as soon as possible. Therefore, verifiers are recommended to consider frontloading the MP assessment before carrying out other parts of the verification.

For reporting the result of the MP assessment, verifiers may include the findings simply in the commenting section of the verification report. It is recommended to include some specific statement that clarifies to the user of the report that the assessment of the MP was carried out, and that – if applicable – it was found as being in compliance with the Methodology Act and the CBAM Regulation. Like for verification in general, material and non-material cases of non-conformity and non-compliance must be listed in the verification report, and recommendations for improvement may be added. The statement as well as these findings can then be used by any other verifier in the following year, who can then decide at the pre-contract stage whether a further assessment of the MP will be required.

Such an integrated approach seems useful for the first verifications of an installation, and for installations which tend to have significant changes every year, i.e. where verifiers in general cannot just rely on the monitoring plan being assessed already.

Option B: MP assessment as separate assignment

This option is more transparent to the operator with regard to the activities carried out and regarding the quotation for the required days invoiced. It is also helpful for installations with very stable technical configuration and monitoring plan. Furthermore, as a kind of "gold standard" for independence and impartiality, the operator may even decide to engage different verifiers for the MP assessment and the annual verification. Such separation of tasks can be envisaged to function as follows:

- The verifier who carries out the MP assessment has to have a separate process in place for carrying out MP assessments (following the requirements for "validation" in accordance with ISO 17029), which serves the purpose of demonstrating competence during accreditation. The requirements are very similar to the process described in chapter 4 of this document, i.e. the process must be systematic, evidence-based, risk-based, accompanied by a site visit, using an independent review, applying appropriate materiality levels and a reasonable level of assurance (reflected in a positive validation statement), etc. This process must be set up in a way that it does not harm the verifier's impartiality, i.e. specifically there must not be any consulting work ([80]) carried out by the verifier.
- The verifier considers the separate requirements for the assessment team and time allocation, separate site visit, separate risk and process analysis, etc. and carries out the MP assessment independently from checking the data collected by the operator.

[80] The verifier may provide recommendations for improvement of the monitoring plan in general, without giving specific advice on how to achieve the improvement.

- The independent performance of the MP assessment provides transparency to the operator regarding costs, and removes pressure from the verifiers to underestimate efforts for normal verification.
- The verifier can then issue a separate MP assessment report, which the operator can use to provide evidence to verifiers in later years, so they can trust that a new MP assessment is not necessary (unless the installation underwent significant changes).

Follow-up by the operator

Independent from the option chosen, operators must follow-up on findings of non-compliance by the verifier. This means that they have to establish a monitoring methodology that is compliant with the CBAM legislation (e.g. by installing the appropriate measurement systems, ensuring analyses etc.), and accordingly update the monitoring plan without undue delay. The operator may agree with the verifier on relevant deadlines for those updates, and whether the verifier will assess the changes made immediately after the improvement or as part of the following verification. The latter choice will depend on the severity of the non-compliance, whether it systematically leads to material misstatements, and on the verifier's expert judgement. In case of a re-assessment of the MP, the verifier should provide an updated or new assessment report as applicable, which again can be used as prove for future verification.

Where an operator has received such assessment report, it should be added to the list of relevant information to be provided to the verifier at the pre-contract stage (see section 4.3).

Once there is an assessment report confirming that the MP is in compliance with the Methodology Act and the CBAM Regulation, the verifier may use it in the same way as a verifier uses the approved MP under the EU ETS. This means that, during routine verification, the verifier will only check whether the MP is up-to-date and whether the monitoring is performed in conformity with the MP. However, if major changes in the installation have occurred, the verifier may request the operator to submit an updated MP to the assessment (validation) process (see section 5.4).

5.3. Example check list

When a verifier assesses a monitoring plan, the verifier must be aware that each installation will be different. Even when comparing two installations using the same basic technology and production processes, the installations will differ in details like the plant layout, instrumentation, used materials and fuels, etc. Furthermore, many of the items listed below will apply only under specific circumstances (like, e.g., PFC emissions monitoring is only relevant for installations producing primary aluminium using electrolysis). Therefore, it is impossible to provide exact checklists for such assessment. Instead, verifiers will have to apply their knowledge of the industry sector, of the CBAM legislation, and expert judgment of the individual installation's situation when preparing for the MP assessment.

In any case, verifiers should keep two main principles in mind during the assessment:

- Is the specific element of the monitoring plan **in line with the legal requirement** (Methodology Act and CBAM Regulation)? For example, is a method used that is not allowed under the Methodology Act? Is a monitoring method listed in the MP

for each variable necessary for calculating SEE (the specific embedded emissions)? Is the required functional unit applied? Etc.

- Does the MP comply with minimum requirements only, or are better methods available? In other words, what **improvements** can be made (a) with means already existing at the installation, and (b) on the medium to long term for achieving overall more accurate data?

A **non-exhaustive, exemplary MP checklist** is provided below, which verifiers may want to use as a starting point for their assessment:

- Installation boundaries
    - Does the monitoring plan specify the boundaries of the installation with regard to the CBAM requirements, i.e. is there a plan of the installation and a flow diagram of the processes carried out specifying which elements (energy and material flows, measurement points, etc.) belong to the installation, and which parts belong e.g. to the production of non-CBAM goods or to other operator's installations? If materials, fuels, heat, electricity are not only received from other installations, but also exported to other installations, are all these flows appropriately taken into account?
    - In case of changes to the installation and/or of the MP: are the changes made consistent with the previous situation and the explanations provided by the operator?
- Is the installation's description contained in the monitoring plan clear and complete, allowing the verifier to understand the functioning of the different production processes, its energy supply system, the material flows, the chemical reactions or physical treatment processes leading to the produced goods, the completeness of precursors required for the value chains within the installation, etc.?
- Installation-level monitoring:
    - Is there a specification for each source stream how it is monitored (how are quantities measured, how are calculation factors (NCV, emission factor, biomass fraction) determined?
    - For all emission sources for which continuous emission measurement systems (CEMS) are used, are these CEMS appropriately specified in the monitoring plan?
    - If applicable, are the measurement systems for PFCs appropriately documented?
    - For materials (including precursors and produced goods) and fuels, are stock piles and tanks appropriately taken into account where necessary?
    - For all material and energy flows, are the *best available data sources* used? (Methodology Act Annex II, section A.3)
    - If biomass is used, is there an appropriate written procedure that describes how the operator ensures that the RED II criteria are complied with, in order to allow "zero-rating" of the biomass' emissions? In particular does the operator envisage to obtain Proofs of Sustainability (PoS) from a RED II certification system recognised by the Commission?

    - Are the sector-specific requirements set out in the Methodology Act, Annex II section B.9 reflected in the monitoring plan, where applicable?
- How is the completeness of produced goods ensured?
    - List of CN codes produced;
    - If necessary, CN code differentiated by indicator for CBAM benchmark to be applied;
- Are CN codes grouped to production processes in accordance with the rules of Article 4 of the methodology act? (Advice to check separately for each production process):
    - Do goods grouped into the same production process belong to the same "aggregated goods category" or where more appropriate, belong into the same group defined by the composition of the good?
    - Are goods under the aggregated goods categories crude steel, iron and steel products, unwrought aluminium and aluminium products respectively, grouped in one production process, if they only differ in size or shape and are produced with the same precursors in types, quantities and proportions?
    - Are goods under the same aggregated goods categories within fertilisers grouped in one production process, if they are produced with the same precursors in types, quantities and proportions or are composed by the same substance, and only differ in concentrations?
    - Is the "bubble approach" only used where no precursors produced in the same process are exported from the process?
    - Are all CN codes assigned to exactly one production process?
- Is there a written procedure to ensure that new products are appropriately assigned to the existing (or new, if necessary) production processes?
- Products: Are there methods clearly described how the activity level (production) of each good is determined? Is the determination done using the appropriate functional unit? If necessary, is there a written procedure for converting tonnes of good into the functional unit?
- Is there a list of all installations (and if relevant, processes within the own installation) from which the installation receives heat and electricity (only if goods are produced for which indirect emissions are relevant)?
- Is there a list of all installations (and if relevant, processes within the own installation) from which the installation receives precursors?
- Is there a written procedure for updating this list regularly?
- Is there a written procedure ensuring that the operator ensures receipt of verification reports from suppliers of heat, electricity and precursors regularly, and in the absence of such verification reports, ensuring that the correct default values are used (taking into account the CN code, the country of origin, the year of production)?
- Where the operator receives a type of precursor from more than one installation, or produced in different years, does the monitoring plan or its written procedures appropriately ensure that either a weighted average of the SEE and SEFA values is calculated for each CN code, or that the specific precursors and their data are

assigned to specific production process? How does the operator ensure to provide evidence for the appropriateness of assigning specific precursors to specific production processes (Article 14 of the Methodology Act)?

- Are calculations documented for values per functional unit to values per tonnes of product and vice versa, if relevant?
- If there is a need for chemical analyses (for calculation factors of fuels and materials, for CEMS, for the composition of precursors or goods produced):
    - Is there an appropriate sampling plan ensuring representative samples?
    - Is the planned number of samples sufficient in accordance with Annex II section B.5.4.2.?
    - Are the analysis standards specified?
    - Is the laboratory foreseen accredited pursuant to ISO/IEC 17025, or is equivalent competence ensured?
- For heat flows, are all relevant parameters measured, including the heat returned (e.g. as condensate) from the process, are heat losses attributed proportionally to all connected production processes, etc.? In case of CHP, are the appropriate reference efficiencies selected from section C of Annex III to the Methodology Act?
- If waste gases are relevant at the installation,
    - Do the waste gases comply with the definition of waste gases in accordance with the Methodology Act Annex I, point (1)(32)?
    - Are they correctly treated in the calculation of the attributed emissions of both the process generating and consuming the waste gases?
    - Where waste gases are imported and/or exported from the installation, are installations from which waste gases are imported and/or installations to which waste gases are exported respectively identified?
    - Where waste gases produced in a production process are consumed in another production process, and emissions attributed to waste gases are deducted from attributed emissions of the production process: is enough evidence provided by the operator regarding its consumption (e.g. combustion for energetic purposes)?
- If CO_2 is transferred for capture and storage/use, are the transferred CO_2 quantities only deducted from the installation's emissions where they comply with the requirements of section B.8 of Annex II to the Methodology Act?
- For data sets where a high risk for data loss has been identified, is there a corroborating data source available, or a procedure describing how data gaps can be filled?
- Control system:
    - Is the operator's risk assessment fit for the purpose? Are all risks identified by the verifier covered?
    - Are there appropriate control measures envisaged for mitigating the identified risks?
    - Are the control measures appropriately documented and integrated in the data flow activities of the monitoring plan?

- Are the following elements appropriately taken into account in the written procedures for the control system?
    - quality assurance of the relevant measurement equipment, ensuring that all relevant measuring equipment is calibrated, adjusted, and checked at regular intervals including prior to use, and checked against measurement standards traceable to international measurement standards, where available, and proportionate to the relevance of the measurement equipment;
    - quality assurance of information technology systems;
    - segregation of duties in the data flow activities and control activities;
    - management of necessary competencies;
    - internal reviews and validation of data;
    - procedures for corrections and corrective action;
    - control of outsourced processes, if applicable;
    - keeping records and documentation including the management of document versions.

In order to keep the checklist above short, it only covers the existence of procedures for certain topics. However, verifiers will also have to assess the appropriateness of those procedures, i.e. are they clearly describing the relevant activities, the responsibilities, the applied data flows (what data sources are specified, who receives and processes the data, where is the original data and the result of calculations stored, etc.)?

For the same reason, the checklist only mentions that the verifier has to check whether instruments, sampling methods, analysis methods, etc. are clearly identified. However, the verifier will also have to assess the appropriateness thereof, e.g. whether the measurement range of an instrument matches the expected data, whether the uncertainty (or "permissible error in use) specified for the instrument is reasonable, whether the instrument is designed for the environment in which it is applied, etc. In the same spirit, not only whether quality assurance measures (calibration, maintenance, etc.) for the measurements is foreseen, but also whether they are reasonably appropriate for the purpose needs to be assessed by the verifier.

5.4. Assessment of monitoring plan updates

As said in section 5.2, a monitoring plan, once it is found compliant with the legislation by the verifier, does not require repeated assessment every year. Verifiers may accept that another verifier (or the own staff) has already assessed the monitoring plans, if this resulted in no negative findings, and if the previous verifier acted as a duly accredited CBAM verifier.

However, industrial installations tend to undergo modifications frequently for various reasons (technical improvements for debottlenecking, improving efficiency, expanding capacity, adjusting the product mix to market demand, adjusting to new raw materials, etc.). Some changes will not require a change of the monitoring plan, other changes will be of minor nature, and only fewer changes will be considered "significant". Point (g) of

Article 3(1) of the Verification Principles Act contains a non-exhaustive list of changes that are considered 'significant', including:

- Starting of new production processes or a production route or closing of production processes or a production route;
- Changes in the use of the "bubble approach" (see sections 4.3 and 4.4 of CBAM guidance document No. 3 "Calculation of embedded emissions");
- Changes in the energy supply of the installation;
- Changes of technical connections between production processes or production routes, such as additional or removed lines for transfer of fuels, materials, measurable heat, waste gases or goods produced;
- Where actual values are used, changes relating to precursors produced at the installation or received from other installations;
- A change of monitoring methodology (calculation-based, measurement-based);
- Changes that the verifier identified during the strategic analysis or risk analysis as requiring significantly different verification approaches than those applied during the previous verification, such as the addition of new fuels or materials, or the addition of new measuring instruments.

Where such significant changes take place, operators must update the MP without undue delay and apply it immediately. To be sure that the updated MP complies with the CBAM legislation, operators are recommended to seek the verifier's assessment of the changes as soon as possible. Otherwise, they risk applying inadmissible monitoring methodologies which could trigger material misstatements. However, operators are not obliged to meet specific deadlines. If their own risk assessment indicates that the MP update is in accordance with the Methodology Act, they may inform the verifier about the MP update during the next regular verification.

For minor MP updates, operators may collect the changes in a changes log and inform the verifier for the purpose of the next upcoming verification. However, even minor changes may lead to non-compliances under some circumstances, which may lead to misstatements in the data. Therefore, operators are recommended to make any monitoring plan changes only carefully, and in particular always strive for more accurate methodologies, for data flows that are less prone to errors, and to reduce the risk of data gaps.

To reduce administrative burden resulting from too frequent changes in the monitoring plan, and to avoid typical problems with monitoring plans, operators are advised to apply the following recommendation:

- Monitoring activities which are not crucial in every detail, and which by their nature tend to be frequently amended as found necessary, may be put into "written procedures", which are mentioned and described briefly in the MP, but the detail of which are not considered part of the assessment of the MP. In particular, many activities require a clear assignment of the persons responsible. To avoid frequent updates, it is prudent to use generic names of the respective post (e.g. "shift master", "environmental plant manager" etc. instead of indicating the name of the person currently filling the position).
- Measurement instruments should be clearly identified, e.g. using the position in the installation's flow chart or process control system. It should be specified by its functional principle (e.g. "ultrasonic flow meter" and measurement range, and if

possible its specified uncertainty). However, it is not necessary to specify the exact type or product name, or even serial number. Thereby, a simple exchange against very similar other measurement instruments ("like-for-like replacements") does not need to trigger a monitoring plan change.

Whenever the verifier assesses an updated monitoring plan (the assessment may be focussed on the changes only, if the verifier's risk analysis allows), the verifier should add a related statement to the verification report for future use, or – if a separate assessment report is used – issue a new or updated assessment report accordingly, indicating the version number/date of the monitoring plan for clear identification during future use.

6. ADDRESSING MISSTATEMENTS, NON-CONFORMITIES AND THEIR MATERIALITY

During the assessment of the MP or the verification of the emissions report, the verifier will check whether the relevant documents (MP, ER) contain "misstatements" and "non-conformities". The verifier must inform the operator on a timely basis if it has identified misstatements or non-conformities and request relevant corrections within a reasonable deadline. **The operator has a general obligation to correct any non-conformities and misstatements, irrespective of the impact ([81]) of the single non-conformity / misstatement.**

6.1. Definitions

Article 1(4) of the Verification Principles Act defines '**non-conformity'** as *"any act or omission of an act by the operator that does not meet the requirements of the monitoring plan or of the monitoring methodology applicable to the specific installation, as laid down in [the Methodology Act]*". This means that non-conformity is a point in which the monitoring plan does not comply with the Methodology Act or the CBAM Regulation itself. For installations' emissions reports, 'non-conformity' also encompasses cases where the emissions report (or the monitoring activities carried out by the operator leading to the emissions report) is not in conformity with the monitoring plan.

Examples of non-conformities include:

- Fuel quantities are determined based on different measurement instruments, or by other methods than those listed in the MP;
- Application of emission factors different than those given in the MP without the needed justification;
- Meters are not maintained or calibrated in line with the requirements in the installation's MP, or used in breach of the producer's specifications;
- The ER reports a fuel which was not listed in the MP;
- A default value for a wrong country of origin has been used;
- Actual data for a precursor were used despite the lack of a verification report from its producer's installation.

If a non-conformity results in an error, misrepresentation or omission in the reported data, it must also be regarded as a misstatement.

The Verification Principles Act defines a '**misstatement'** to mean "*an omission, misrepresentation or error in the operator's reported data, not considering the uncertainty associated with measuring instruments or laboratory analyses*". Misstatements can therefore be of very different nature, ranging from simple typos in transferring data from one file to another, errors in calculation formulae, omissions of data points, mixing up emission factors for different fuels, etc. Misstatements may qualify as material or non-material misstatements.

The Verification Principles Act defines the **materiality level** as "*the quantitative threshold or cut-off point above which the verifier considers misstatements, individually or taken*

[81] See below the concept of 'materiality' for more details.

together, to be material" and the **material misstatement** as "*misstatement that, either individually or when aggregated with other misstatements, exceeds the materiality level or could, based on the expert judgement of the verifier, because of its size and nature, have an impact on the total reported emissions or other relevant information*".

As can be noted, "materiality" includes not only a quantitative (the materiality level), but also a purely qualitative element (whether it is in the opinion of the verifier material). AISO 14065 defines materiality as the "*concept that individual misstatements or the aggregation of misstatements could influence the intended users' decisions*". This means in practice that a verifier may still consider misstatements below the materiality level to be material, even when considered individually. The intended users of a verification report include the authorised CBAM declarant, other operators using the goods as precursor, the national competent authority, the Commission, and the public, as environmental data always has to be considered of public interest. In cases where the legislation does not provide a specific materiality level, the verifier has to define itself what level it would consider acceptable. The choice should be documented in the internal verification documentation.

6.2. Materiality levels

The Verification Principles Act provides a quantitative materiality level, i.e. the quantitative threshold or cut-off point above which the verifier must consider misstatements, individually or taken together, to be material. However, in some situations and as mentioned above, the verifier will also have to consider smaller misstatements or non-conformities to be material, if qualitative considerations make them appear material.

In the case of the operator's emissions report, the Verification Principles Act (Article 5) requires a materiality level to be:

- Regarding the verification of specific embedded emissions (SEE): For every good ([82]) specified by its CN code, 5 % of the total specific embedded emissions per tonne of good ([83]);
- Regarding the verification of specific embedded free allocation (SEFA): For every good: 5 % of the total specific embedded free allocation (per tonne of good)
- For all other parameters, the verifier shall use expert judgement as to whether misstatements or non-conformities, individually or when aggregated with other misstatements or non-conformities, justified by their size and nature, are to be considered material.

Materiality levels are defined for a parameter that is usually itself composed of a number of other parameters. In a complex installation, for example a mistake in the consumption of one out of several fuels may first lead to a mistake in the emissions of a single production process' emissions, but further embedded emissions from precursors (which themselves may contain a mistake) will also be affected by the mistake. Therefore, verifiers will often have to do a **calculation of error propagation** to consider if a misstatement made at an

[82] As a practical simplification, verifiers may consider, for SEE and SEFA, the same materiality level for all goods from a single production process as defined pursuant to Article 4 of the Methodology Act. For more information on aggregating CN codes to production processes, see section 4.3 and 4.4 of CBAM guidance document No. 3 "Calculation of embedded emissions".

[83] As opposed to expressing specific embedded emissions as t CO_2e per functional unit. For electricity produced as CBAM good, the total SEE or SEFA per tonne of good must be read as "per MWh".

early stage in the monitoring process or in the data flow will actually be material in the finally calculated embedded emissions.

6.3. Relationship between materiality and uncertainty

The Methodology Act defines '**uncertainty'** in the same way as the MRR ([84]): It "*means a parameter, associated with the result of the determination of a quantity, that characterises the dispersion of the values that could reasonably be attributed to the particular quantity, including the effects of systematic as well as of random factors, expressed as a percentage, and describes a confidence interval around the mean value comprising 95% of inferred values taking into account any asymmetry of the distribution of values*." Uncertainty is a parameter relating to the quality of measurements which includes both the concepts of 'accuracy' (whether systematic errors (bias) are reduced) and 'precision' (referring to the spread of values resulting from random fluctuations) ([85]).

Uncertainty is an important parameter at the stage of developing a monitoring plan, where it is in the interest of the operator to minimise uncertainty as much as possible (([86]), [87]). Verifiers assessing MPs have to consider if the uncertainty specified by the operator is acceptable for the purpose of the Methodology Act. It does not prescribe minimum uncertainty levels, but requires the selection of data sources to exhibit a lower uncertainty. Thus, if an operator has the choice between two measurement instruments (e.g. the gas meter installed by the natural gas grid operator, or gas meters installed by the operator itself for process control purposes), the operator should choose the instrument with a lower uncertainty ([88]). Furthermore, the Methodology Act provides in some cases indicative ranges for uncertainty ([89]). Where the operator specifies the uncertainty (e.g. as argument for selecting a specific method or instrument), the verifier will review the uncertainty

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84 For more information on uncertainty, please see MRR Guidance Document No. 4 for the EU ETS. It can be downloaded from the MRR guidance section under https://climate.ec.europa.eu/eu-action/carbon-markets/eu-emissions-trading-system-eu-ets/monitoring-reporting-and-verification_en?prefLang=de#documentation

85 The effect of uncertainty is that any measurement carried out with an instrument of sufficient resolution, if repeated several times, will not give only one sharp value, but different values, which show a (normal) distribution around the most likely "true" value. However, if the instrument is not properly calibrated, this most frequently displayed value may deviate from the real value. The actual uncertainty is therefore higher than just the normal distribution of the displayed values.

86 In particular when purchasing fuels, raw materials or precursors, there is a commercial interest for both the supplier and the operator as recipient of the fuel or material to attain the highest possible quality of measurement. Therefore, measuring instruments for commercial transactions are often subject to specific legal requirements (National Legal Metrological Control) in order to limit uncertainty. Another key reason to limit uncertainty as much as possible for the operator is to improve its installation's efficiency.

87 Uncertainty is defined as referring to the total annual value covered by the uncertainty, e.g. total consumption of a fuel which may result from several purchase processes plus stock changes, or taking into account the overall uncertainty of continual fuel consumption monitoring (like using a gas meter).

88 Note that uncertainty is not the only criterion. Other criteria include whether the instrument is fit for the environment and for the required measurement range, and whether it is prone to less frequent failure, etc.

89 Those ranges correspond to lowest and highest "tiers" in the EU ETS and are therefore considered to be proven as realistic in practice.

assessment provided by the operator together with the MP. Thus, the uncertainty levels stated in the MP may be relevant for the verifier's conclusions on the MP.

When it comes to the verification of an operator's emission report, the verifier will check whether the operator has adhered to the (already assessed) monitoring plan. This involves checking whether the measuring equipment has been maintained and calibrated appropriately ([90]). Failing to do so may lead to an increase in the measurement uncertainty and can be considered a non-conformity. Except for such checks, measurement uncertainty plays no further role in the verification of data, as the uncertainty is given by circumstances which cannot be changed ex-post. As said in the definition of "misstatement", *permissible uncertainty* ([91]) does not contribute to the fact that data is misstated. Consequently, during verification of an installation's emissions report, **measurement of uncertainty does not play a role in assessing if a misstatement is material or not**. The uncertainty as laid down in the assessed MP is deemed acceptable and not leading to material issues. The quantitative materiality threshold (i.e. 5% of embedded emissions) and the uncertainty level are independent parameters used for different purposes: uncertainty informs about the quality of measurements, while materiality is a tool for verifiers to plan and perform their activities, and to judge findings.

The only situation where uncertainty needs further consideration during verification is if the verifier detects a deviation from the monitoring plan which increases the uncertainty. If the verifier has already accepted the MP as compliant with the Methodology Act (see section 5), this has to be considered as a non-conformity. In line with the general treatment of non-conformities (see section 4.16), this can result in a misstatement. This happens for example if:

- Measurement equipment does not meet the uncertainty level as given in the (accepted) MP or does not even meet the uncertainty given as the highest ([92]) end of the range in the Methodology Act;
- Measurement instruments are not installed properly or are not functioning correctly, have not been (properly) maintained or calibrated. In such cases, the actual uncertainty of the instrument in use must be assumed to be higher than under ideal conditions which usually form the basis for uncertainty levels given in the MP.

In both cases, the verifier has to decide if the non-conformity leads to a material misstatement. In the absence of a comprehensive uncertainty assessment by the operator, the verifier will apply a qualitative assessment for the misstatement. However, if uncertainty information is available, the verifier can determine the error resulting as the difference between the approved and the actual uncertainty, and determine if that error would meet the quantitative criterion for being a material misstatement.

Example:

For an annual fuel consumption of 3 000 tonnes Heavy Fuel Oil (HFO), the actual uncertainty is 8% instead of 6% as stated in the accepted monitoring plan. The difference

[90] What is "appropriate" is defined either by rules for national legal metrological control, or by the instrument's use specifications.

[91] "Permissible uncertainty" means the uncertainty as assessed and accepted by the verifier (or in the EU ETS: approved by the administering authority).

[92] A high (difficult to achieve) requirement means a low uncertainty, and vice versa.

between 6% and 8% of the annual HFO consumption is 2% or 60 tonnes HFO. This is less than the 5% threshold for materiality which the verifier has set by expert judgement for fuel consumption.

Follow-up to this finding: If the operator has better data to replace the one that establishes the non-conformity/misstatement, the general rule applies that every misstatement detected by the verifier must be corrected. However, if there is no corroborating data source, and as the misstatement has been found to be non-material, the verifier may still issue a positive verification statement, but the verifier must report the non-conformity and misstatement in the verification report. The operator should improve the situation without undue delay, i.e. ensure that the respective measuring instrument is replaced by one that is in conformity with the accepted monitoring plan. This should ensure that the same misstatement does not happen the next reporting year.

6.4. Approach to assessing the materiality of misstatements and non-conformities

Assessing the material effect of misstatements and non-conformities has a quantitative and a qualitative aspect, and both must be considered, as mentioned in sections 6.1 and 6.2. The quantitative aspect depends on the size and nature of the impact, whereas the qualitative aspect is very much determined by factors that can influence the user, in particular the competent authority.

Whenever the verifier determines a different value than the one found in the operator's report (e.g. after detecting a typo or a missing value in a sum of many values), it will compare it with the reported value as follows:

Item	Reported value	Verifier's value	Difference	Material?
Item 1	A	B	A – B = C	C / Z %
Item 2	F	G	F – G = H	H / Z %
Item n	…	…	…	…
Total items	Z = A + F + …	X = B + G + …	Z – X = Y	Y / Z %

Where the difference between the reported value and the verifier's value is negative, this indicates that the original reported value was understated; where the difference is positive, this indicates that the original reported value was overstated. Then, the total difference of reported values and verifier's values for all items is determined by a summation of the individual items. Here, it is important that the verifier does not "add apples and pears", i.e. it needs to ensure that all elements have the same unit, usually emissions (or after error propagation, specific embedded emissions). If, for example, an error is found in a fuel consumption (item 1) and another error in an emission factor (item 2), then both items should be first converted into emissions (or embedded emissions) before adding them up. If item 3 refers e.g. to the free allocation adjustment, this cannot be added to the emissions of the previous summation. However, if many errors, omissions or misrepresentations occur throughout the report and they cannot be added up, they can still be judged regarding the qualitative criterion for materiality.

In case there are several cases of positive and of negative deviations, this may give the impression that the overall sum does not deviate much, i.e. the errors even out each other.

That would then result in an unjustified impression of an overall not materially misstated report, despite the fact that it contains a significant number of errors. In such cases, the verifier should also make a calculation of the sum of absolute deviations (i.e. make all deviations positive), divided by the total sum of reported errors. This percentage will be higher and will give a better understanding of the size of mistakes and the materiality of the total number of misstatements found.

The quantitative aspect and thus the materiality level alone is not the only factor when assessing whether or not a misstatement or non-conformity has a material effect. The key question for assessing the qualitative aspect is whether a misstatement or non-conformity (individually or combined) can influence the decision of the user, like the authorised CBAM declarant or the national competent authority. This will depend on the number, size and nature of misstatements and non-conformities as well as on their particular circumstances of occurrence. It is important to note that misstatements and non-conformities can also have material effect on the reported data even if the materiality level is not exceeded.

Factors that can be relevant in determining whether or not a misstatement or non-conformity has material effect include the following:

- Can the misstatements or non-conformities be corrected?
- Does the operator refuse to correct the misstatement or non-conformity identified ([93])?
- What is the likelihood of the misstatement or non-conformity reoccurring?
- What is the duration of a misstatement or non-conformity?
- Are misstatements or non-conformities the result of an act with or without intent?
- Does the issue concern a non-conformity with the legal requirements with the Methodology Act?

[93] As mentioned earlier in this document, operators have a general obligation to correct any non-conformities and misstatements, irrespective of the impact of the single non-conformity or misstatement.

7. SPECIAL TOPICS FOR CBAM VERIFICATION

7.1. Checking the installation's ID

All installations need to have a unique "installation ID" for ensuring that their goods can be correctly associated with their data in verification reports and emission reports. However, in particular upon first verification, not all installations necessarily already have such ID assigned. There are two options for operators and their installations:

(a) operators make use of registration in the CBAM Registry pursuant to Article 10 of the CBAM Regulation, or

(b) they do not register. This is possible at least for the first reporting period 2026.

In case (a), the operator registers its installations and therefore receives the unique installation ID for further use. Since all formal communication with the verifier (including the transmission of the emissions report) takes place in the Registry in situation (a), the verifier automatically knows the correct installation ID. However, in situation (b), **the verifier has to check the correctness of the operator's ID indicated by the operator in the emissions report**. If the installation is being verified for the first time, the verifier must use the registry, which creates the installation ID.

The installation ID is composed of the country code where the operator is based, the operator ID (validated through official documentation), and a unique sequential number generated by the system for the installation. An example of this format would be: IN-12345678-0001. This identifier must be unique, permanent, immutable and non-reusable under any circumstances. The Operator ID consists of the 2-digit ISO country code and the official registration number of the operator in the appropriate national company register ([94]).

Regarding the appropriate official company registration number, the specific format will depend on the country of the operator. Examples given in the Commission's "CBAM Registration Guide for non-EU Operators (O3CI)" ([95]) are:

- For China: Unified Social Credit (USC) number;
- For India: Corporate Identification Number (CIN) or Limited Liability Partnership Identification Number (LLPIN);
- For the United Kingdom: Company Registration Number (CRN);
- For the United States: Central Index Key (CIK);
- For South Korea: Business registration number (TIN);
- For Turkey: Vergi Kimlik Numarasi;
- For Ukraine: Registration number (EDRPOU);

[94] More information can be found on the Commission's Webpage on CBAM Registry: https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism/cbam-registry-and-reporting_en.

Another source of information for national identifiers can be found here: https://www.ecb.europa.eu/stats/ecb_statistics/anacredit/html/index.en.html in the annex "List of national identifiers".

[95] See Commission's webpage on CBAM Registry.

- For others: Business or trade register number, tax identification number, or Legal Entity Identifier (LEI)

For ensuring the correct use or creation of in installation ID, the process for creating the verification report as described in section 4.15 of this guidance document needs explanation of further steps:

Case 1: **The first installation of a non-registered operator is verified**

1. The operator must complete the Operator ID and leave the Installation ID empty in the emissions report (i.e. in the Excel template provided by the Commission).
2. When engaging with the verifier, the operator must present further information to the verifier in addition to the information listed in section 4.3. This information is similar to what is required for Registration by the Commission, in particular:
    a. A company registration certificate (clearly stating the company registration number/relevant identifier), ideally in original language and English curtesy translation. It is important that the company details are available in a transcription using Latin characters.
    b. A list of all installations producing CBAM goods, with important identifiers such as name, address, UN/LOCODE, coordinates.
3. The verifier shall verify that the Operator ID is correctly placed in the emission report using the official company registration documentation.
4. The verifier shall search the CBAM Registry for matches of the above operator and installation. This has to be done to avoid that e.g. another verifier has already created those installations in the Registry.
5. If no match is found for the Operator ID, the Registry can create the relevant Operator ID and Installation ID. If the search gives a match, the verifier should get confirmation from the operator that the found installation is correct and thereafter use the existing ID, unless a verification report already exists for that installation (if so, see case 2).
6. If the Installation ID has been clarified, the verifier will request the operator to fill this information into the emission report before further verification steps take place.

Case 2: At least one installation of the operator has already been verified before

The process outlined for case 1 is modified:

1. The operator shall complete the Operator ID in the emission report and leave the Installation ID empty in the emission report (i.e. in the Excel template provided by the Commission).
2. If the verifier has verifier an installation of this operator in previous year, the Operator ID is already known, and no further confirmation is necessary.
3. If the operator engages a new verifier, the operator shall provide its company registration certificate, and the verifier shall confirm that the Operator ID included in the emissions report is correct.
4. If the Installation ID is already known to the operator, the operator shall include it in the emission report.

5. The verifier shall search for the installation using relevant information such as installation name, address, coordinates, etc. When performing the search, the verifier needs to be aware of the possibility of typos or different ways to transcribe names into Latin characters, etc.
6. If the installation is found in the CBAM Registry, the verifier shall use the existing Installation ID. If the installation is not found, the verifier shall request a new Installation ID from the CBAM Registry.
7. Where a new Installation ID has been assigned, the operator shall include it in the emissions report before the verification process continues.

7.2. Production year / reporting period

The production year of precursors is highly relevant for the correct calculation of specific embedded emissions and the specific embedded free allocation values of the goods produced. This is because, in case of actual data, a verification report corresponding to the correct production year is required. Moreover, the default values of the precursors depend on the year of their production. Therefore, checking evidence for the relevant production year is a very important task of verifiers.

The applicable rule given in Article 13 of the Methodology Act is the following: "*The default reporting period of a precursor shall be the year of production of the complex good. However, where operators provide the verifier with sufficient evidence to identify the actual time of production, the reporting period shall be the period during which the precursor was produced.*" This means that there is always a default case: The production year of the complex good (i.e. the reporting year for the data to be verified) is assumed to be also the production year of the precursor. This is a very pragmatic approach, as in particular for precursors produced within the same installation, the time span between production and use of precursors is generally short. This will also be true for precursors received from other installations, unless the transport distances are long, or if the operator has significant storage capacities allowing them to purchase large quantities of the precursor in a single shipment and to use them over a longer time. For the treatment of stocks, see section 7.4.

However, if the operator claims to have evidence for a specific different (earlier[96]) production year of a precursor, then that year may be reported and applied. The important question during verification is: what kind of evidence can a verifier accept for deviating from the default assumption? The following evidence could be accepted by the verifier:

- A delivery note (or invoice specifying the delivery date) for the precursor being delivered to the installation, where the delivery took place in an earlier year. The production year can also be assumed to be the previous year if the delivery took place early in the reporting year, where the typical transport time based on the distance to the installation of origin suggests that the precursor was loaded at the producing installation during the previous year.
- Alternatively, a written confirmation of the production year provided by the operator of the installation where the precursor was produced can be accepted.

[96] A precursor cannot be produced later than the complex good itself. Therefore, verifiers have to automatically reject data of precursors being claimed to be produced in later production years.

- Where the precursor is not delivered based on a direct contract between the producer and the receiving installation, i.e. where intermediate traders or warehouse operations are involved, it will be very hard to identify the year of production (as even the installation of origin may not be known). In this case the operator receiving the precursor may request a confirmation from the trader/warehouse operator on the origin of the precursor. Where the trader uses a clear assignment of deliveries, or at least applies a strict FIFO (first-in-first-out) policy for bookkeeping, this may be possible.
- In case of products of steel, a "Steel Mill Certificate" containing the "heat number" (i.e. production batch information) may be acceptable to verifiers, if clearly linked to the precursor (e.g. by a physical marker).
- In case of aluminium products, a "certificate of analysis" or "certificate of weight and analysis" as commonly used in the sector may be acceptable to verifiers, if clearly linked to the precursor (e.g. by a physical marker).
- Other types of physical markers on the product which allows tracing it back to the producer's data may also be acceptable if not easy to manipulate (verifier's judgement).
- It is possible that EU legislation requires a digital product passport (DPP) for certain product groups. This concept includes a physical marker (e.g. a QR code) on the good itself, and traceability to the producer. Should such DPP be introduced in CBAM sectors (e.g. in combination with a "green label"), it can serve as evidence.

If such evidence is not available, the default case applies, i.e. the assumption that the precursor was produced in the reporting period of the complex good.

Verifiers should disregard evidence of a production year that dates back to before 2026. This is because no actual verified emissions could be used before 1 January 2026 (no CBAM verification, no accredited CBAM verifiers, was relevant at the time). Furthermore, there is no applicable default values and mark-ups for years before 2026.

Note also that for precursors produced within the EU or countries or territories exempted from the CBAM (as listed in point 1 of Annex III to the CBAM Regulation), no evidence for a production year is required, as the default value of zero applies to the embedded emissions of such precursors.

7.3. Checking of precursors' data based on other verifiers' reports

For precursors not produced in the same installation, for which the operator wants to use actual data, verifiers will rely on the verification already performed for the installation where the precursor was produced. Therefore, the verifier shall check for such precursors, in accordance with section 2.11.1 of Annex II to the AVR-DA:

- whether the operator provides a verification report from the installation where the precursor was produced, for the production year confirmed (see section 7.2).
- whether the verification report of the precursor installation contains a positive verification statement (for definition, see section 4.15).

- whether the verifier of the precursor installation was duly accredited (i.e. the accreditation was granted by a national accreditation body for the given period, and neither suspended nor withdrawn) at the time of issuing the verification statement, and the accreditation covered all relevant sectoral scopes at the time of issuing the verification statement).
- whether the actual data used by the operator are identical to the values given in the verification report of the precursor installation.

The relevant verification report can be made available outside the CBAM Registry to the verifier of the complex good for the purpose of carrying out the above-mentioned checks. At a later stage, the verification report of the precursor will be made available directly in the CBAM Registry to the verifier of the complex good.

Where the above checks do not provide positive results, the verifier has to request the operator to replace the actual data by the appropriate default values, and check whether the correct value (i.e. correct country and year) has been used. The latter check has to be carried out also in all cases where the operator chose default values already at the beginning of the verification. Details on selecting the correct default value are given in section 4.10 of CBAM guidance No. 3 "Calculation of embedded emissions".

7.4. "Averaging" of precursors, electricity and heat

7.4.1. Precursors

It is common practice that installations use precursors which they do not receive from a single source. For example, a precursor may be produced within the operator's own installation, but own production is not sufficient and a similar material is purchased from another installation. It also happens that the same precursor is received from different countries, with installations not always being known. Furthermore, stockpiles or tanks for liquids are usually big enough so that precursors produced or received in one year can still be used in the year thereafter. Stocks are often not earmarked for their origin, and in case of liquids and gases, mixture in tanks makes it impossible to track physically a single batch delivered. An operator can keep track on precursors in a pragmatic way applying the "FIFO" (first-in-first-out) principle.

For dealing with this situation of similar precursors of various origin, Article 14(2) of the Methodology Act provides the rule that for the embedded emissions the weighted average of all those similar precursors must be used. Also with regard to the same type of precursors received from different production years, such weighted average is to be determined in accordance with Article 14(1). The level of aggregation to be used is the CN code, i.e. "similar precursors" here means all precursors belonging to the same CN code for which the weighted average is to be calculated. However, according to Article 14(3), the operator may deviate from this default weighted average if the operator provides evidence that precursors from specific sources are used in only specific production processes.

The template for the operator's emission report provided by the Commission provides a powerful tool for supporting the operator in calculating these weighted averages. Firstly, it provides automatically the weighted averages of all precursors entered by the operator for each CN code (whereby remaining stocks from the previous years have to be entered as if "received from other sources" in order to allow separate values being entered than for the precursors produced in the installation during the reporting period, for which the

appropriate values are calculated in other parts of the template). In a second step the operator can choose if there are precursors (i.e. CN codes) for which a deviation from that weighted average should be determined. In this case, the operator has to enter the quantity used in each production process separately. The template then again calculates the specific embedded emissions of (groups of) precursors for each of the installation's production processes separately. As a consequence of this calculation, also the average embedded emissions of remaining stocks of each precursor (grouped by CN code) deviates from the default, i.e. the weighted average of the whole installation. Therefore, **the template displays the average embedded emissions of the stocks of each precursor at the end of the reporting period.** The same values are to be entered by the operator in the following year as for a "received" precursor under that CN code.

Taking into account the above, verifiers will have to check how precursors were treated in the calculation for complex goods at least regarding the following points:

- Is the list of precursors used complete?
    - Are all batches delivered during the reporting period listed?
    - Are stocks from previous years taken into account? In 2026, all stocks from previous years have to be treated as if they were produced in 2026 ([97]).
- Do the mass balances for each precursor give proper results? I.e., do the numbers given by the operators comply with the following equation?

  Mass purchased + mass produced + mass of stocks from previous year = = total mass consumed + mass exported + new stocks remaining
- If the non-default approach is used, the term "total mass consumed" must match the sum of the masses consumed in the individual production processes.
- If the non-default approach has been used by the operator, is the evidence given for attributing specific precursors to specific processes satisfactory? Such evidence must cover:
    - Can the different precursors received be distinguished at all? This would require that e.g. nitric acid for different uses would have to be stored in separate tanks, steel sheets would have to be stored in different areas of a warehouse (or even better: have physical identifiers (labels, QR codes etc.) firmly attached), etc.
    - Is the use of these precursors separately tracked? I.e. are there means documented in the monitoring plan, and are these procedures applied in practice, i.e. are consumption data determined separately for individual processes?)
- For each precursor before averaging (the "specific precursor"), either actual or default values must be given by the operator. This has already been discussed in section 7.3.
- For precursors stocked from the previous year(s), the verifier has to check against the installation's verification report / emissions report of the previous year, whether the results for specific embedded emissions and specific embedded allocation for

[97] See Article 13 Methodology Act: "The default reporting period of a precursor shall be the year of production of the complex good.". A default reporting period may be used to calculate actual emissions for precursors produced in previous years.

each precursor by CN code have been used in the reporting period to which the verification applies.

- Finally, also the result of the averaging has to be checked by the verifier, i.e. the specific embedded emissions and the specific embedded free allocation of the "aggregated precursor", and whether the resulting aggregated values have been used as input into the calculation for each production process and each related complex good. This means that the original values for specific precursors must not be used.

7.4.2. Electricity

If the installation produces goods for which indirect emissions have to be determined, electricity is similar to a precursor. Like precursors, it can be received from various sources, including different processes within the installation, from identifiable other installations, or from the grid. The main difference to precursors is that electricity can only be consumed during the same reporting period as during which it is produced. Therefore, no rule is needed for different production periods, and no stocks are to be included in the calculation.

Article 9 of the Methodology Act provides the relevant requirement: The default case is averaging the electricity emission factor according to the weighting of the total quantity of electricity used from each source in the whole installation. Only where the operator provides evidence that electricity from a specific source is used in a specific production process, the relevant emission factor of that electricity is to be applied.

As discussed in section 7.5, additional criteria apply for electricity if the operator wants to use actual values for the emission factor of electricity. This involves smart metering both at the point of the electricity production and electricity consumption. Such smart metering could also be used to provide proof that electricity from a specific source has been used in specific production processes at the installation verified. The verifier would have to check that evidence, if applicable.

7.4.3. Heat

Similar to electricity, measurable heat (i.e. heat using a transfer medium like hot water, steam, etc.) can be received from different sources: from a district heating grid, from specific adjacent installations, or heat generated from different production processes within the installation. It is to be noted that also "cooling" falls within the same category as heat. Again, only the reporting period under verification needs to be considered.

The Methodology Act does not provide specific rules like for precursors or electricity. However, the calculation formula for "attributed emissions" of a production process (Section A.3 of Annex III to the Methodology act) requires for both heat imported to the process and heat exported from the process that specific emission factors be assigned to each of these heat flows. The Commission's template for the emission report therefore contains a tool that allows for a similar default or process-specific averaging of heat from different sources, which works similar as the one for electricity. However, the evidence that the operator can provide for demonstrating that a specific heat source is used in

specific production processes will be different than for electricity. Such evidence to be checked by the verifier may include e.g.:

- Where the installation does not use a single heat network, but separate ones (e.g. at different temperature / pressure levels for steam), the operator can provide separate heat balances for each of these heat networks.
- Where heat is not distributed throughout the complete installation but only from one or few sources to one or few heat consumers, the evidence for differentiating heat can be provided by the relevant flow charts of the installation.

7.5. Special checks on the emissions factor of electricity for indirect emissions

Situations covered

The use of actual values instead of default values for indirect emissions is allowed in two (alternative) situations ([98]):

(a) a "*direct technical link between the installation in which the imported good is produced and the electricity generation source*", or

(b) a "*power purchase agreement with a producer of electricity located in a third country for an amount of electricity that is equivalent to the amount for which the use of a specific value is claimed*".

These two options are explained below:

a. **What can constitute a "direct technical link"?** A direct technical link includes what may be called "onsite production" or "auto-production", i.e. electricity production within the boundaries of the installation producing the CBAM good(s). It also covers a direct connection through a dedicated electricity line between an electricity production installation and the installation producing CBAM goods. This direct connection may be isolated from any other electrical connections, or it may be connected to the public electricity grid or it may connect "multiple installations producing electricity with one or multiple installations producing a" ([99]) CBAM good, which may also be termed "private grid".

b. **What is a 'power purchase agreement' (PPA)?** The CBAM Regulation defines it as "a contract under which a person agrees to purchase electricity directly from an electricity producer" ([100]). The Methodology Act specifies that a PPA is a contract "*concluded directly between an installation producing [CBAM] goods […] and a producer of electricity […] for the physical delivery of electricity. Where the PPA was concluded through an intermediary, the contractual evidence shall demonstrate that only one single contract was concluded between the three contracting parties*" ([101]). Thus, electricity producer and electricity consumer must both be parties to the contract, an intermediary may be an additional party to the contract, and the physical delivery of electricity is the subject matter of the contract.

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98 See Point 6 of Annex IV to the CBAM Regulation.

99 See Point D.4.3 of Annex II to the Methodology Act.

100 See Point 1(f) of Annex IV to the CBAM Regulation.

101 Point D.4.3. of Annex II to the Methodology Act

What information must be provided by the operator (and the installation producing the electricity)?

According to Article 8(5) of the Methodology Act, operators shall indicate in the operator's emissions report that a "direct technical link" or a PPA are used, and shall provide the verifier with the elements of evidence listed in point D.4.3 of Annex II supporting that indication. These are:

a. Evidence for a direct technical link:
   - **Single line diagram** demonstrating the existence of a direct technical link;
   - **Data from a smart metering** system demonstrating production of the amounts of electricity claimed at least on an hourly basis;
   - Data from a smart metering system demonstrating delivery of that electricity at least on an hourly basis;
   - Where the direct technical link connects multiple installations producing electricity with one or multiple installations producing CBAM good(s), an electricity delivery contract, or, where electricity producer and electricity consumer are an identical legal entity, an intra-company off-take agreement. In both cases, the contract/ agreement must specify the corresponding amount of electricity.

b. Evidence for having a PPA in place:
   - contractual evidence demonstrating the **existence of a PPA**;
   - data from a **smart metering system** demonstrating that a given amount of **electricity was produced** by the installation producing electricity and demonstrating the period of time of production;
   - data from a **smart metering system** demonstrating that an equivalent amount of **electricity was delivered**, within the same measurement period which shall not exceed **one hour**, to the installation producing CBAM good(s);
   - written documentation, either from transmission system operators, public authorities or from other sources of relevant public and reliable information, demonstrating a **physical grid connection** between the installation producing electricity and the installation producing CBAM good(s).

Checks to be performed by the verifier

From the above, it follows that the verifier will have to specifically check the following points where an operator claims actual values for indirect emissions:

- Existence of a direct technical link or a PPA:
  - For the technical link, the single line diagram is used;
  - If there is no direct technical link, or if that link connects several installations, the contract of the PPA needs to be checked;
- whether electricity claimed as consumed was produced during the same one-hour period (or shorter time periods), using the smart metering data provided from the producer and the consumer of the electricity;
- Where the CBAM goods producer consumes electricity from different sources (direct technical connection, PPA, grid mix) the verifier has to check the

compliance with the requirements for each connected electricity producer separately. Furthermore, the verifier must assess whether the calculation of the weighted average emission factor of the used electricity sources was correctly calculated (Article 9 of the Methodology Act). Where the operator claims a deviating assignment of electricity sources to specific production processes, the verifier will have to check whether the evidence provided by the operator for that assignment is conclusive.

Confirmation of the actual emissions factor

When an actual value for the emissions factor of the consumed electricity is used, it is used like the specific embedded emissions of a precursor: another verifier has already verified this value based on the installation's direct emissions. This means that the verifier of the installation consuming the electricity relies on another verifier. This situation is covered specifically for verifying the actual values of electricity production in point 2.11.2 of Annex II to the AVR-DA: The verifier shall confirm that the verification report of the installation producing the electricity meets all the following conditions:

(a) the verifier had a valid accreditation certificate for the relevant scope i.e. the scope of accreditation corresponding to the relevant aggregated goods category in addition to scope LII on indirect emissions;

(b) the opinion statement contained in the verification report indicates that the operator's emissions report is verified as satisfactory;

(c) the verification report covers the reporting period during which the electricity was produced, which must be the same year during which the production of the good with indirect emissions took place.

7.6. Special checks to be performed for electricity as a good

For electricity as a good, the specific embedded emissions (i.e. the t CO_2e per MWh) are in fact the same as the emission factor of electricity. That emission factor is:

- Per default, the emission factor of electricity is to be taken from Annex III to the Default Values Act.
- Only where the authorised declarant provides additional information from the operator of the installation producing the electricity, actual data from that installation may be used. The verifier's task in checking this additional information is described below.
- Where a third country or group of third countries proposes the use of *alternative default values* for a given year based on reliable alternative official sources, upon positive assessment by the Commission, the default values laid down in the Default Values Act shall be amended accordingly. Therefore, this situation does not impact verification – the new alternative default value will be provided in the Default Values Act.

Additional information to be checked by the verifier, if actual data are claimed

***Note**: The Commission's proposal ([102]) of 17 December 2025 to amend the CBAM Regulation includes proposed changes on the rules for electricity as CBAM good, with retroactive effect. However, at the time of writing this guidance document, the legislative discussion process is still ongoing. Therefore, this proposal is not reflected in this guidance document.*

For allowing an authorised CBAM declarant to use actual emissions data of a specific electricity-producing installation, all of the criteria (a) to (e) provided in Section 5 of Annex IV to the CBAM Regulation have to be fulfilled. They are as follows:

(a) The amount of electricity for which the use of actual embedded emissions is claimed is covered by a **power purchase agreement (PPA)** between the authorised CBAM declarant and a producer of electricity located in a third country;

(b) The installation producing electricity is **either directly connected to the Union transmission system or** it can be demonstrated that at the time of export there was **no physical network congestion** at any point in the network between the installation and the Union transmission system;

(c) The installation producing electricity **does not emit more than 550 grammes of CO_2** of fossil fuel origin **per kWh** of electricity;

(d) The amount of electricity for which the use of actual embedded emissions is claimed has been **firmly nominated to the allocated interconnection capacity** by all responsible transmission system operators in the country of origin, the country of destination and, if relevant, each country of transit, and the nominated capacity and the production of electricity by the installation refer to the same period of time, which shall not be longer than one hour;

(e) The fulfilment of the above criteria is certified by an accredited verifier, who shall receive at least monthly interim reports demonstrating how those criteria are fulfilled.

Furthermore, the said installation must determine the emission factor of electricity in line with Annex II to the Methodology Regulation (see CBAM guidance document No. 3 "Calculation of embedded emissions", section 4.8.3 or section 4.8.4 in case of CHP), which the verifier already checks as part of the "normal", i.e. not CBAM-specific, verification tasks for GHG emissions.

As clarified in section D.2.4 of Annex II to the Methodology Regulation, the operator will need to collect all the evidence required to justify that the conditions are met. In some cases, the operator will need to contact the transmission system operator (TSO) and the authorised CBAM declarant to obtain the evidence. The following elements of evidence shall be provided to justify the use of actual emissions.

- For **criterion (a)**:

  There must be contractual evidence demonstrating the existence of a power purchase agreement (PPA) concluded directly between the authorised CBAM declarant and a producer of electricity located in a third country for

[102] Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EU) 2023/956 as regards the extension of its scope to downstream goods and anti-circumvention measures, COM/2025/989 final, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52025PC0989.

the physical delivery of electricity. The PPA shall be applicable at the time of electricity import for which actual emissions are claimed and shall cover at least the amount of electricity for which actual emissions are claimed. Where the PPA was concluded through an intermediary, the contractual evidence shall demonstrate that only one single contract was concluded between the three contracting parties.

This information should normally be provided by the operator.

Verification: The verifier should check whether the PPA is signed by the relevant parties (including a check of the EORI number of the declarant, the electricity producer's unique Installation ID in the CBAM Registry), whether it covers the reporting period and quantity of electricity claimed for application of actual embedded emissions data, and whether it can be correlated to other information sources, in particular delivery notes / invoices issued and accepted by the PPA's parties.

The verifier will furthermore check if the "electricity volumes contracted" is included in the PPA, if the figure is consistent, and that double counting is effectively prevented (i.e. whether exclusivity of the parties is part of the contract). Where intermediaries are involved, the verifier checks that only one single contract was concluded among the contracting parties.

- For **criterion (b)**, one of the following:
    - A single line diagram demonstrating the existence of a direct connection between the installation producing electricity and the Union transmission system; or
    - Written documentation, either from the transmission system operator or from another entity with access to relevant information, attesting that at the time of export, determined on an hourly basis, there was no physical network congestion at any point in the network between the installation and the Union transmission system.

      This information should normally be provided by the transmission system operator (TSO).

      Verification: In the first case, the verifier will check the validity of the single line diagram, e.g. by using evidence from the relevant EU or third-country TSO.

      In the second case, the verifier should check whether information is given in the written documentation that – on an hourly basis – NTC (Net Transfer Capacity) at critical nodes is not exceeded due to the electricity import under consideration. Where the documentation is unclear, the verifier would have to contact the relevant TSO for confirming which nodes are critical. Where deemed possible, the verifier should contact the TSO to receive a timestamped congestion report to demonstrate the absence of congestion at the time of export.

      If relevant, similar declarations are also required and to be checked from TSOs of countries of transit.

- For **criterion (c)**:

Data showing that the installation producing electricity does not emit more than 550 grammes of CO_2 of fossil fuel origin per kilowatt-hour of electricity.

This data should normally be provided by the operator.

Verification: No specific additional checks are required. The installation's emissions – if correctly filled – will contain one production process with the single good "electricity" produced. The specific direct embedded emissions of this good should be displayed as t CO_2 / kWh (where kWh is the applicable functional unit). Hence, if SEE_{dir} < 0,000 550 t CO_2 / kWh (or < 0,550 t CO_2/MWh), the criterion is complied with.

Where relevant, the verifier will check if the rules for cogeneration (CHP) are correctly taken into account.

- For **criterion (d)**:
    - Written documentation, either from the person who nominated the relevant capacity at the interconnector or from the relevant transmission system operator, demonstrating that a given quantity of electricity has been nominated in the country of origin, the country of destination and, if relevant, each country of transit, and demonstrating the period of time to which the nomination of capacity refers; and
    - Data from a smart metering system demonstrating that the production of a corresponding amount of electricity by the installation occurred within the same measurement period as the nomination of the capacity. This period shall not exceed one hour.

      The written documentation proving the nomination should normally be provided by the relevant transmission system operators. The data from a smart metering system should normally be provided by the operator.

      Verification: For the first point, the verifier will base the checks mainly on documents, i.e. *confirmation of acceptance* of nomination of transfer capacity by the respective TSOs (including those of countries of transit).

      For the second point, the verifier will check the smart metering information provided by the operator, and confirm that the time of the confirmed nominations at the relevant TSO coincides with the time of electricity production / import claimed.

- For **criterion (e)**:

  Monthly interim reports containing the elements of evidence laid down in this point demonstrating how criteria (a) to (d) as laid down in point 5 of Annex IV to the CBAM Regulation are fulfilled.

  Verification: The verifier will check if the said 12 monthly reports have been provided, and if the information therein is consistent with the information checked for criteria (a) to (d). Where no change of situation occurs on a monthly basis, the verifier may accept reports which only point out the fact of no change instead of repeating the information.

The evidence for these criteria is to be provided to the verifier of the installation producing the electricity for which actual data are to be used. In order to make the evidence (or the verification thereof) accessible to the declarants importing electricity, the installation's emission report must be supplemented by "*Declarant-specific addendums*" as specified in section 1.1.1 of Annex IV to the Methodology Regulation, which must contain:

1. The EORI number of the authorised CBAM declarant to whom the declarant-specific addendum refers;
2. An indication that the criteria for the use of actual values laid down in point 5, first subparagraph, points (a) and (d) of Annex IV to Regulation (EU) 2023/956, as well as, where relevant, laid down in point 5 first subparagraph, point (b) of Annex IV to that Regulation in relation to the lack of physical network congestion, are met, and a confirmation that the related elements of evidence laid down in point D.2.4 of Annex II to the Methodology Act were submitted to the verifier;
3. The quantity of electricity imported by that authorised CBAM declarant from the relevant installation for which the criteria laid down in point 5 of Annex IV to Regulation (EU) 2023/956 are met.

Consequently, verifiers will have to duly check all of the listed elements for criteria (a) to (e).

According to section 2.4(b)(5), the Annex to the Verification Principles Act, which specifies the minimal content of the verification report, the verification report must, for electricity imported to the EU as CBAM good, include:

(a) a confirmation that, for each authorised CBAM declarant for which the operator has provided a declarant-specific addendum to the operator's emissions report, and for the quantity of electricity mentioned therein, the criteria laid down in Section 5 of Annex IV to Regulation (EU) 2023/956 are met;

(b) a summary of the elements of evidence confirming that each of the criteria laid down in Section 5 of Annex IV to Regulation (EU) 2023/956 is met.

When preparing the verification report, the verifier will have to assess for each individual declarant-specific addendum whether the information provided by the operator is complete, accurate, and supported by sufficient and appropriate evidence provided by the operator (including the monthly interim reports demonstrating how those criteria are fulfilled). Where sufficient and appropriate evidence has been obtained, the verifier shall provide, in the verification report, a separate confirmation for each declarant-specific addendum.

7.7. Other CBAM-specific topics for verification

Throughout the verification process, but especially during the process analysis (see section 4.7) the CBAM verifier does not only have to check data corresponding to emissions of the installation like in most other carbon pricing systems in the industrial sector, but also has to check the correct attribution of the emissions to the goods produced. Therefore, verifiers must be familiar with the **system of CN codes**, on which e.g. the following checks may depend. The verifier must consider the following elements:

- Are the goods and interim products (i.e. the precursors for complex goods produced) assigned to the correct CN codes?
- Are the goods produced attributed to production processes without gaps or double counting?
- Are there non-CBAM goods included by mistake in the boundaries of production processes, i.e. are emissions only attributed to CBAM goods?
- Were new goods added to the installation's product range during the reporting period , and were they assigned to the suitable production process?

In this context, verifiers also need to understand how to define the **activity level** of a production process, i.e. the mass of goods produced, or expressed in other functional units. Here it is important that:

- Only goods in conformity with specifications for sale are included, or for use in other processes, while off-spec goods, scrap, waste etc. are not counted;
- Only goods included in the CBAM / in this production process according to the CN code are accounted for;
- Packaging material is excluded. Note, however, that *emissions* caused by a packaging process, e.g. for shrinking foils, have to be included in the embedded emissions ([103]).
- The verifier's tasks furthermore include the confirmation that goods included in the emissions report have been produced within the reporting period, i.e. within the calendar year. However, since it is usually difficult to determine all necessary data (stocks of fuels, raw materials, precursors, goods produced) exactly at midnight of 31 December, verifiers may accept minor deviations of up to one or two working days from this reporting period, under the following conditions:
    - The operator defines a firm cut-off date (e.g. 30 December 18:00 local time);
    - All relevant parameters (i.e. not only emissions, but also production data and stocks) are measured as closely as technically reasonable at this point in time;
    - The cut-off date and time is clearly documented and will be consistently applied for defining the start of the subsequent reporting period.

The verifier will also have to check the correct reporting of "**sector-specific parameters**" as given in Section 2 of Annex IV to the Methodology Act, i.e. the alloy grade of steels, the clinker content of cement, the nitrogen content of (mixed) fertiliser, etc. For checking these parameters, the verifier may e.g. compare the operator's emissions report against the requirements in purchase orders of the operator's clients.

Other CBAM-specific topics were also covered in other parts of this document or other CBAM guidance documents, in particular:

- Installation boundaries and production process boundaries (section 5.3);

[103] The general rule is that every emission source that is necessary for making the good saleable needs to be considered to be within the CBAM installation boundaries.

- Appropriate definition of production processes (grouping of CN codes, where applicable; section 4.3 of CBAM guidance document No. 3 “Calculation of embedded emissions”);
- Completeness and “averaging” of data on precursors, heat and electricity (section 7.4;
- Reliance on other verifiers’ assessments (section 7.3);
- Correct use of functional units (section 2.2.2);
- Correct selection of default values (CBAM guidance document No. 3, section 4.10);
- Correct selection of the applicable CBAM benchmark (section 2.4.2);
- Correct selection and application of the production year for precursors.

8. REQUIREMENTS FOR VERIFIERS

While the previous chapters dealt with the activities of a verifier during the verification of an installation's data, Chapter 8 provides guidance on the requirements that a verification body must fulfil in order to obtain accreditation. These requirements are enshrined in Section 1 of Annex II to the AVR-DA. Further applicable requirements are also contained in EN ISO 17029 for conformity assessment bodies (verifiers) in general, and in EN ISO 14065 for verifiers of environmental information in general. The CBAM-specific aspects are provided in the AVR-DA and the Verification Principles Act. Where these acts provide specific requirements, they overrule the more general rules of those ISO standards.

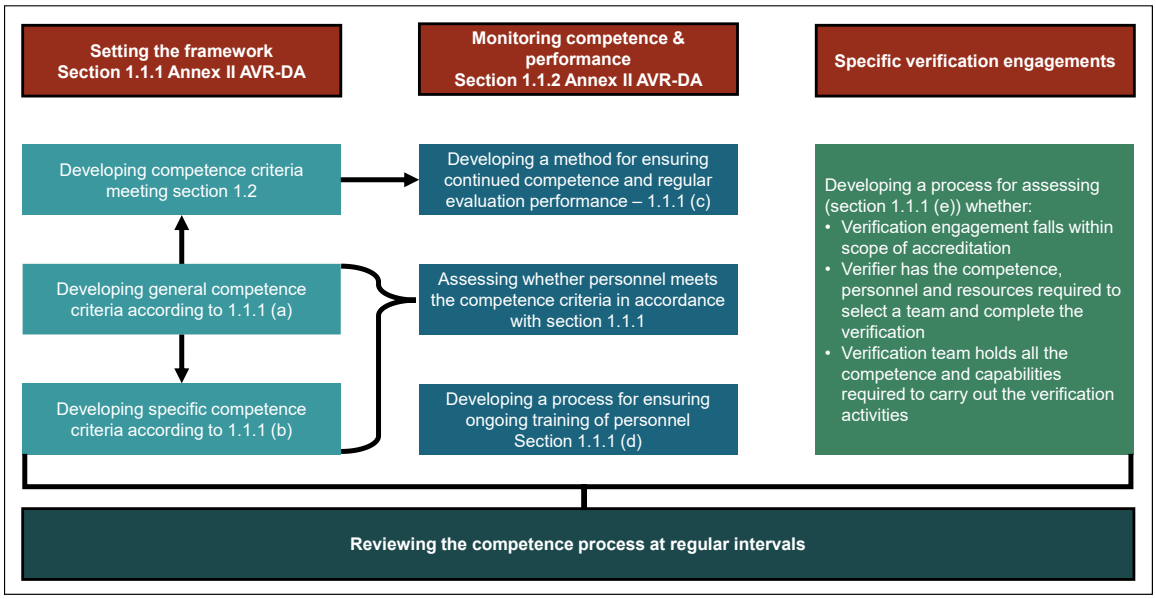
Note the terminology: "Verifiers" are always legal persons (companies), while the individuals forming the verification team are referred to as "verification personnel", "auditors", "lead auditors", "technical experts", etc.

8.1. Continued competence process

The verifier must establish, document, implement and maintain a competence process to ensure that all verification personnel is competent for the tasks that are allocated to them. "Personnel" means not only the "CBAM auditor" or "CBAM lead auditor" but also the technical experts, independent reviewers, supporting staff that help prepare the verification: basically, anyone who is involved in verification activities.

The competence process consists of several elements as shown in Figure 6. The verifier must also have a system for recording the activities performed in the competence process as well as the results of the assessments in the competence process for all personnel undertaking verification activities.

Figure 6 : Elements of the competence process that verifiers have to implement



8.1.1. Setting the framework

The first element of the competence framework to be established by the verifier relates to the aim that the verifier wants to reach, i.e. competence criteria to be met by its personnel:

- General competence criteria for all personnel undertaking verification activities (e.g. sales quotation staff, planners, CBAM auditors, lead auditors, independent reviewers, technical experts etc.);
- Based on these general competence criteria, specific competence criteria for each role within the verification body involved in verification activities. In particular, this applies to CBAM auditors, CBAM lead auditors, independent reviewers and technical experts. When developing these specific competence criteria, the verifier takes into account specific technical and organisational issues including countries and the scope of accreditation in which the verifier operates.

For the competence of the whole team performing a verification, the AVR-DA does not contain detailed requirements (Section 1.2. of Annex II only specifies "*For each verification engagement, the verifier shall assemble a verification team composed of one CBAM lead auditor and a suitable number of CBAM auditors capable of performing the verification activities referred to in Section 2*"). Therefore, a verification team consists at least of a CBAM lead auditor who may be accompanied by further CBAM auditors. Their competence requirements are found in Section 1.2 of Annex II to the AVR-DA. Furthermore, each verification needs an independent reviewer who is not member of the verification team, and whose competence criteria are defined in section 1.3 of Annex II. For cases where further technical experts are required as members of the verification team, their competence requirements are given in Section 1.4 of Annex II to the AVR-DA. More information on these roles and their requirements is laid out in Annex II and Annex III of this guidance.

8.1.2. Evaluating and monitoring the competence and performance

The verifier has to establish and document procedures for ensuring continued competence which includes regular evaluating of the performance of staff involved in the verification as well as a process for ensuring ongoing training. As part of this competence process, the verifier regularly assesses the competence of each personnel undertaking verification activities against the general and specific competence criteria established as discussed in section 8.1.1. The verifier uses a combination of methods to assess that competence (e.g. tests, mentoring, observation and evaluation).

The verifier will determine the appropriate means for monitoring. For the CBAM auditors and CBAM lead auditors, this must be done by a sufficiently competent evaluator who monitors the competence and performance of these auditors during the verification and assesses whether the competence criteria developed in the competence process have been met. This includes accompanying them to the site of the operator. A competent evaluator can be a person working at the verifier. This person must be sufficiently competent to be able to make this evaluation.

If a member of the personnel fails to demonstrate that the competence criteria for a specific task allocated to him or her have not been fully met, the verifier shall identify and organise

additional training or supervised work experience. The individuals must be monitored until they demonstrate to the satisfaction of the verifier that they meet the competence criteria.

8.1.3. Assessment of competence for a specific verification engagement

For specific verification engagements, the verifier must check the competence of personnel and resources available during the pre-contract stage (see section 4.2). The verifier selects the team that meets all the competence requirements to carry out verification activities for a specific installation. An appropriate process for this purpose has to be developed, documented, implemented and maintained by the verifier to enable and complement this competence assessment.

8.2. Impartiality and independence

A pre-condition for accreditation is that the verifier is able to act impartially and independent from its clients. Therefore, verifiers must confirm during the pre-contract stage that they are independent from the client and that no situation compromising their impartiality exists, such as conflicts of interest. For the purpose of accreditation, the verifier must establish and document appropriate processes to ensure impartiality and independence. Risks to impartiality are sources of potential risks that may compromise or may reasonably be expected to compromise a verifier's ability to make unbiased decisions. Examples are given in Table 8.

Table 8: Potential risks to a verifier's impartiality and independence

Type of potential risk	Clarification
Source of revenue	Risks related to the operator paying for the verification of the operator's report.
Self-interest	Risks from a person or body acting in his/her/its own interest, for example financial self-interest.
Self-review	Risks that a person or body reviews their own work. Providing verification activities for a client to whom the verifier provided consultancy would be such a self-review risk. Also the lack of an independent review, or carrying it out in a very superficial way would be a lack of control measures.
Familiarity (or trust)	Risks from a person or body being too familiar with the operator or installation; trusting the judgment or opinion of another person instead of seeking verification evidence is a familiarity risk.
Intimidation	Risks that a person or body is being coerced openly or secretly or the perception that such a situation arises, implies a risk to be addressed or reported to a supervisor.

The AVR-DA in section 1.7 of Annex II contains specific provisions on the impartiality and independence of a verifier and its personnel undertaking verification activities (see Table 9).

Table 9: Requirements for verifiers and any part of the same legal entity, regarding their impartiality and independence

AVR-DA requirement	Explanation and examples
The verifier and any part of the same legal entity shall not be an operator or owner of an operator.	This means that the parent company of a verifier or a department of the same company to which the verifier belongs must not be an operator or own an operator. This is also the case if the department of the same legal entity to which the verifier belongs has no actual relations with the verifier. Any part of the same legal entity as the verifier must in all cases not be an operator or owner of an operator.
The verifier and any part of the same legal entity shall not be owned by an operator.	The departments and entities described above must neither be owned by an operator. If the operator has for example an interest of 30% in a verifier, legally the verifier would not be owned by the operator. However, this is a relationship with the operator that harbours an unacceptable risk to the impartiality of the verifier and is not allowed.
The verifier shall not have dealings with the operator that could affect its independence and impartiality.	What constitutes at least a conflict of interest in the relations between the verifier and the operator is regulated in section 1.7.3 of Annex II to the AVR-DA. A conflict of interest arises at least if: • The relationship between the verifier and the operator is based on common ownership, common governance, common management or personnel, shared resources, common finances and common contracts or marketing; or • The operator received consultancy or technical assistance on monitoring and reporting from an organisation that has relations with the verifier and that threatens the impartiality of the verifier. In particular the verifier must not have supported the development of the monitoring plan or the emission report.

The abovementioned elements are not exhaustive. This means that other risks can also lead to an unacceptable risk to impartiality. This could happen e.g. if a member of the verification team has shares in the operator that is being verified by that team, or a team member has worked in the operator before, or the CBAM lead auditor has previously worked for a consultancy company that implemented the monitoring system in the installation that is subject to verification.

The verifier must not use personnel or contracted persons such as technical experts in the verification of an operator's report that involves an actual or potential conflict of interest. EN ISO 14065 requires the verifier to instruct personnel and contracted persons that they must reveal any situation to the verifier that may pose a risk to the verifier's impartiality. The verifier uses that information to assess the risks to impartiality and what appropriate action it should take (e.g. excluding team members from a specific verification engagement).

In addition, the verifier must ensure that the activities of personnel or organisations (e.g. external organisations to which the verifier has outsourced verification activities, organisations that have relations with the verifier such as common ownership or common resources) do not affect the confidentiality, objectivity, independence and impartiality of the verifier. The verifier shall therefore implement certain safeguards that mitigate the risks to impartiality. Such measures include:

- Rotation of staff in verification engagements;

- Internal auditing and internal requirements that consultancy or other activities performed by the verifier does not infringe the requirements in the AVR-DA;
- Emphasising in the training of personnel, guidance and instructions the importance of impartiality, specific training programmes for newly hired staff;
- Making sure that new staff with a history of consultancy on monitoring and reporting aspects, are not involved in verification engagement until an appropriate time, at least two years, has passed;
- Assessing the impartiality of all competent personnel (including contracted persons) that will be selected for a verification team, determining their prior relationship and contacts with the operator and making sure that e.g. its personnel or contracted personnel are excluded if they have provided any consultancy advice to the operator within a clearly defined time period (at least two years);
- Clear separation of responsibilities between those parts of the business that offer advisory services and those that offer assurance services;
- Clear processes and policies to ensure no personnel is used that poses an unacceptable risk to impartiality.

Verifiers have to monitor the impartiality risks and assess whether these safeguard measures effectively mitigate and address the risks. Most of the abovementioned safeguard measures are applied in combination. During surveillance, the national accreditation body will assess the impartiality of the verifier's personnel and the safeguard measures taken.

Best practices to safeguard the impartiality and independence of the verifier include setting up an independent committee, an impartiality monitoring function by an independent person or by assigning this impartiality safeguarding function to non-executive directors. This committee monitors and reviews the impartiality of the verifiers and staff on a regular basis.

More information on impartiality and independence for EU ETS verifiers can be found in the Commission's guidance document "Good practice guidance on application of EN ISO 14065: impartiality and independence" ([104]).

8.3. Rotation of CBAM lead auditors

Familiarity risks, but also other risks such as self-review risks and intimidation risks, can arise if verifiers carry out verification of the same installation for several years. As part of the normal impartiality procedures and measures outlined in section 8.2, verifiers shall take measures to reduce impartiality risks when verifying the same installation as in the previous year.

One additional measure is the mandatory rotation of the CBAM lead auditor. Section 1.7.6 of Annex II to the AVR-DA requires a rotation of the CBAM lead auditor if that lead auditor has undertaken verification for the same installation for a period of five consecutive years. After those five consecutive years of verification, the CBAM lead auditor will have

[104] This can be received from the AVR guidance section under https://climate.ec.europa.eu/eu-action/carbon-markets/eu-emissions-trading-system-eu-ets/monitoring-reporting-and-verification_en?prefLang=de#documentation

to take a three consecutive year break from providing verification services to that same installation.

The five-year period will start for example in 2027 on the verification of the 2026 emissions report. In this case, rotation will have to take place after the verification of the 2030 emissions report, 2030 being the 5th consecutive year of verification. The verification (in 2032) of the 2031 emissions report will have to be carried out by another lead auditor. The lead auditor that was carrying out verification of the 2026 to 2030 emissions reports could resume verification directly after the 3-year break, i.e. from verification (in 2035) of the 2034 emissions report.

Verifiers can decide to rotate lead auditors more frequently or change the lead auditor because of other reasons (e.g. the lead auditor is leaving the verification company or is on sick leave). Impartiality concerns within the verifier may also require the verifier to rotate lead auditors. If the lead auditor has not verified the same installation's report for five consecutive years and rotation was carried out before those five years, Section 1.7.6 of Annex II to the AVR-DA is not applicable. However, that does not mean that no break period applies. If the verifier rotates more frequently or impartiality concerns require a rotation before those five years, the break period during which the lead auditor cannot carry out verification for the same installation will be defined by the verifier itself, tailored to the applicable impartiality risks. As described in section 8.2 this will be done as part of the normal impartiality procedures of the verifier which are required by EN ISO 14065. The NAB will assess these internal rotation procedures and monitor the impartiality of the verifier and its staff.

In organisations with multiple lead auditors that are competent to verify in the CBAM sectors, rotation of lead auditors will be easier to arrange for. Ideally, verifiers select lead auditors who have not been involved in the verification or independent review of the same installation. However, this may not always be possible. A few issues need to be considered by the verifier:

- Where verifiers are small and have two lead auditors in their organisation, the lead auditors can rotate among themselves. In those cases, the lead auditor can for example be rotated with an independent reviewer even if that reviewer has been doing the independent review of that same installation for five consecutive years. The verifier does, however, need to ensure no impartiality risks arise and measures are taken to reduce familiarity risks.
- A lead auditor cannot be rotated with a CBAM auditor unless that CBAM auditor has become a lead auditor and meets the relevant competence requirements.

In some cases, rotation of other staff such as auditors may also be required because of impartiality risks. In those cases, internal procedures set-up by the verifier determine how and when rotation is carried out. This is very much dependent on concrete circumstances and tailored to the applicable impartiality risks (see section 8.2).

Please note that rotation is not the only mechanism to mitigate familiarity risks. Verifiers must implement several safeguards to ensure continued impartiality of the verifier and its personnel.

When lead auditors rotate, the new lead auditor may be less familiar with the installation and will need more time to understand the operator's processes and risks. High quality internal verification documentation will facilitate this process and ensure that the risk that a new lead auditor may overlook misstatements or non-conformities is mitigated. The

internal verification documentation must contain sufficient detail and provide a clear track record of issues found, justifications as well as complete strategic, risk analysis and other activities carried out and decisions taken. Such documentation should include also information on how the accounting process in the installation works and provide information on the quality of the data flow information. Annex I of this document provides more information on the content of internal verification documentation.

8.4. Outsourcing

If a verifier finds (during the pre-contract stage, or during verification) that it does not cover all competence requirements for a specific engagement, or if its own staff lacks the capacity for the engagement, a verifier may contract a third party (i.e. a company) to carry out certain activities for the verifier. This is called outsourcing. The relevant standard (ISO 14065 in connection with ISO 17029) requires the following:

- The verifier always bears full responsibility for the entire verification report.
- The verifier shall have a procedure or process for outsourcing verification activities to other organisations.
- The verifier shall obtain independent evidence that the outsourced body demonstrates conformity with the applicable ISO standards with regard to competence, impartiality and confidentiality rules, as well as the applicable CBAM methodology and verification rules.
- There is a legally enforceable contract between the accredited CBAM verifier and the outsourced body.
- The operator has to agree to outsourcing the activities to the outsourced body.

Furthermore, section 1.7.4 of Annex II to the AVR-DA specifies that the verifier must not outsource the independent review or the issuance of the verification reports. This is because these steps are so critical for the overall verification that the verifier cannot entrust them to somebody outside its own organisation.

The verifier must therefore retain full responsibility with the verification process, including with regards to ensuring that compliance with the relevant impartiality and independence criteria is ensured and that the documentation and competence requirements, as well as all requirements applicable under CBAM Regulation, AVR-DA and Verification Principles Act, are met.

The national accreditation body will check, as part of its annual surveillance activity, that the verifier has applied all procedures relating to the outsourced activities. This may include activities conducted directly in the premises of the outsourced body.

Note that contracting an individual person, e.g. a technical expert to join the verification team is not considered outsourcing, provided the contract ensures that the hired person falls entirely under the verifier’s management system.

8.5. Other issues

In order to obtain and maintain accreditation, the verifier has to cover additional topics in its procedures and documentation. Table 10 summarizes where to find information on these topics in this document.

Table 10: Where to find guidance on other requirements for verifiers according to the AVR-DA

AVR-DA requirement Section in Annex II)	Guidance provided in this document
Competence of verification team	Annex II
Section 1.2: Competence of CBAM lead auditor and CBAM auditor	Annex III
Section 1.3: Competence of independent reviewer	Annex III
Section 1.4: Competence of technical experts	Annex III
Section 1.5: Required procedures of verifiers	Annex IV
Section 2.16: Internal verification documentation	Annex I

9. ACCREDITATION AND ACCREDITATION BODIES

Many elements of the AVR-DA and the AVR for the EU ETS are very similar. This is the case for the process of accreditation, the requirements on accreditation bodies, the provisions on peer evaluation between NABs and the mutual recognition of verifiers between Member States, and the applicable international standards for accreditation ([105]), which follow the requirements of Regulation (EC) No. 765/2008 (the EU framework for accreditation). One notable difference is the possibility for a CBAM verifier to be established in a third country. This guidance document summarises the main elements of the accreditation process.

Chapters II and III of the AVR-DA contain requirements on the accreditation of verifiers by the NAB and their surveillance activities after accreditation. Verifiers have to be accredited by the time they issue a verification report. Other parts of their work (e.g. risk analysis, process analysis, etc.) may be carried out already while the accreditation process is still ongoing. This is even a requirement, as the NAB needs to participate in a "witness audit", i.e. observing the actual work carried out by the verifier in order to prove competence in this area.

9.1. Objectives of accreditation

The objectives of accreditation are that the NAB assesses whether the verifier and its personnel undertaking the verification activities:

- have the competence to carry out assessments of MPs and verification;
- are performing the verification in line with the AVR-DA;
- meet the requirements in Annex II to the AVR-DA which covers competence, impartiality, procedures, documentation and further requirements stated in EN ISO 14065.

The NAB is not only required to assess these elements during the initial accreditation process but also during surveillance, reassessment and extraordinary assessments.

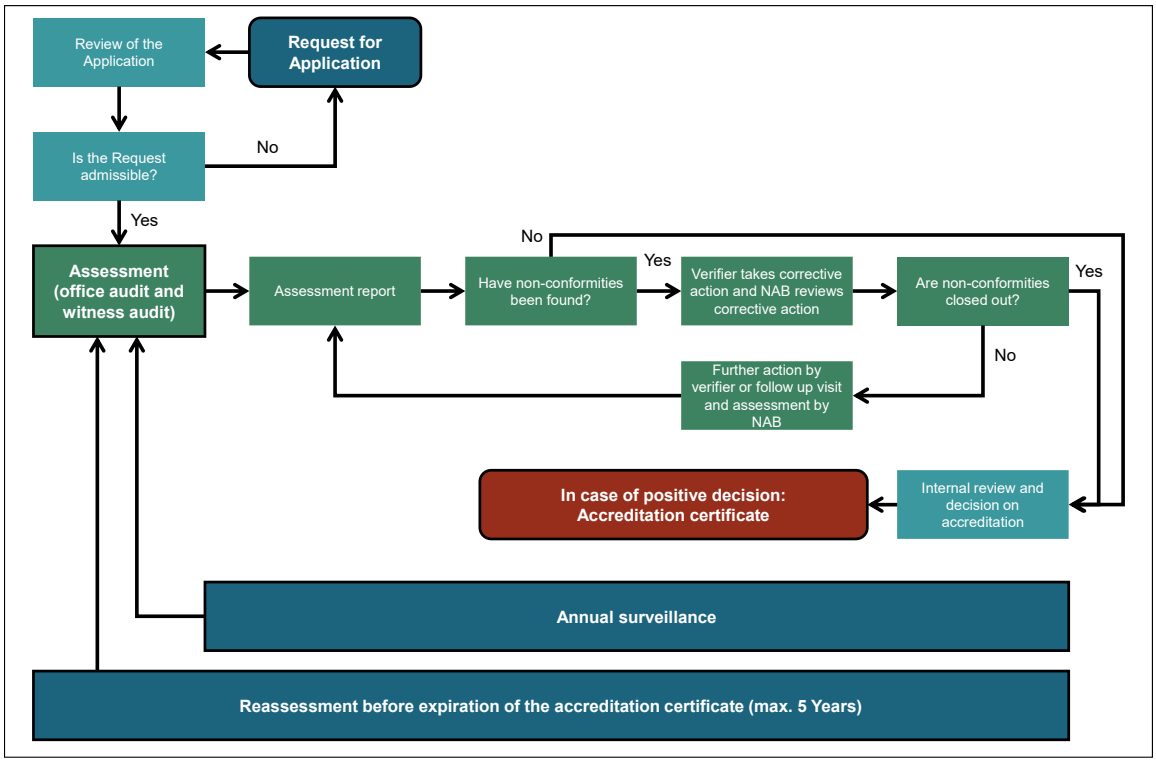
9.2. Accreditation process

9.2.1. General process

The basic accreditation process consists of several steps that are interconnected and interdependent. Figure 7 shows the sequence and relations between the most important ones of these steps.

[105] In particular EN ISO/IEC 17029:2019 "Conformity assessment – General principles and requirements for validation and verification bodies" and EN ISO/IEC 14065 "General principles and requirements for bodies validating and verifying environmental information"

Figure 7: Basic overview of the accreditation process



The typical accreditation process works as follows:

- The verifier-to-be sets up its internal processes and written procedures in order to fulfil the requirements of the AVR-DA, the Verification Principles Act, and the CBAM Regulation and its other implementing acts ([106]). Further requirements may also follow from the accreditation framework (Regulation (EC) No. 765/2008) and applicable international standards, in particular ISO 17029, ISO 14065, ISO 14064-3 and ISO 14066. Annex IV of this document gives an indicative list of required procedures.
- The verifier has to establish a competence process (section 8.1) that is capable to ensure that the verifier has sufficient staff trained for the purpose of carrying out verification of installations' emission reports.
- The verifier will then file a formal application for accreditation in accordance with Article 3 of the AVR-DA at the national accreditation body (NAB) ([107]). For selecting a NAB, the following guidance can be given:
    - If the verifier is established in an EU Member State, the NAB of that Member State must be selected. If that NAB does not offer accreditation for CBAM, the NAB will inform the verifier which other NAB in the EU should be approached.
    - If the verifier is not established in an EU Member State, it is free to select any NAB located in the EU which offers this accreditation service, because accreditations are mutually recognised by all other Member States.

[106] Please see list in Annex V of this document. Of particular importance are the Methodology Act and the Free Allocation Adjustment Act.

[107] In accordance with Regulation (EC) No 765/2008, there is only one NAB per Member State.

However, NABs are not obliged to offer services to non-EU companies. The European Cooperation for Accreditation (EA) and the Commission (DG TAXUD) provide information on the NABs that accept third-country applications ([108]). Third-country applicants should only apply for CBAM accreditation with a single EU NAB and not send multiple applications, as this would otherwise substantially increase the workload for NABs. NABs exchange information on the applications received to eliminate multiple applications and dedicate their resources to single applicants.

- In its application, the verifier shall state the accreditation scopes ([109]) for which the accreditation is sought. The AVR-DA provides for different scopes of accreditation as listed in its Annex I. Those scopes are also correlated to the groups of activities that are applied in EU ETS verification. Therefore, CBAM verifiers do not have to be competent in all industrial sectors to which the CBAM Regulation applies. Instead, verifiers can choose to specialise only in certain sectors.
- The NAB will review the completeness of the application, and if relevant, request the verifier to submit additional information.
- The NAB will carry out a detailed assessment (Article 5 of the AVR-DA) of the verifier's competence, independence and impartiality. This process usually includes a document review, an on-site "office audit" (i.e. assessment activities at the premises of the verifier, e.g. for checking its quality management system and verification procedures) and at least one "witness audit", i.e. observing the actual verification activities of the verifier including during a site visit at an installation.
- The NAB will issue an assessment report. If relevant, it lists all findings and non-conformities determined during the assessment. The verifier is then given a reasonable timespan for taking corrective action, after which the verifier will report on the corrections made, and the NAB will decide whether further assessment is needed. If so, the verifier will be informed accordingly.
- After all non-conformities have been resolved, the NAB can issue the accreditation certificate, which may be valid for a maximum of five years (Article 51 AVR-DA). The accredited verifier must then register in the CBAM Registry (see section 10.2).

After the conclusion of the accreditation process and the issuance of the accreditation certificate, the competence and actual performance of the verifier is monitored through annual surveillance by the NAB. Before the accreditation certificate expires, a reassessment of the verifier is carried out.

Verifiers-to-be should submit their request for accreditation sufficiently early to enable the NAB to complete the whole process in time for organising the witness audit at the time of the site visit at the first operator's installation. This means that the verifier can enter into a verification contract with an operator before the accreditation certificate has been issued, and carry out some of the preliminary steps constitutive of the verification. Upon the granting of the accreditation, the verifier will be able to register in the CBAM Registry and to issue the verification report corresponding to the installation. In some cases, the NAB may organise the witness assessment within a specific period *after* the granting of

[108] See https://european-accreditation.org/wp-content/uploads/2026/03/EA-NABs-EU-CBAM.pdf; or https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism/cbam-verification_en.

[109] The extension of scope to other sectors is possible in a separate (simpler) process.

accreditation. An accreditation process for new verifiers normally takes 6 to 12 months, depending very much on the degree of the verifier's preparation to be assessed and on:

- whether the verifier is already accredited for other GHG MRV systems, notably the EU ETS or systems that apply similar harmonised standards (see section 9.2.4);
- the quality of the verifier's procedures and management system;
- the extent to which the verifier already has proper documentation and procedures in place;
- the resources and workload of the NAB.

9.2.2. Accreditation for electricity as a good

The actual emissions embedded in imported electricity are relevant for the import into the EU of electricity as a good (CN code 2716 00 00 – Electrical energy). For verifiers, this means that accreditation for activity group LI 'Electricity imported into the customs territory of the Union' is necessary for the verification of installations producing electricity and exporting it to the EU.

Competence for this activity group is necessary to ensure that the verifier can verify the application of the 5 conditions listed in section 5 of Annex IV to the CBAM Regulation (see section 7.6).

However, activity group LI is not the only accreditation scope relevant for the verification of an installation which produces electricity and sells it to other installations without exporting it to the EU. In such a case, the verifier may carry out the verification provided that they are accredited for any of the activity groups I to VIII, or LI. All these activity groups require the competence to understand combustion and electricity production processes for the determination of direct emissions ([110]).

In the case where the installation produces electricity and uses to produce a CBAM good e.g. ammonia – but does not export the electricity into the EU – then the verifier would only need to be accredited for activity groups II and LI (indirect emissions).

9.2.3. Accreditation for indirect emissions

Indirect emissions are relevant for all goods that are listed in Annex I *but not in Annex II* to the CBAM Regulation (see section 2.1.1). As a result, for the activity groups listed below, the verifier must have knowledge of indirect emissions:

- Activity group I;
- Activity group II (for the production of ammonia);
- Activity group III;
- Activity group IV;

[110] In the case of activity group LI, the competence to determine the direct emissions of an electricity-generation plant is necessary for the assessment of condition c) of section 5 of Annex IV to the CBAM Regulation.

- Activity group V (for the production of agglomerated iron ores).

As a result, when granting CBAM accreditation for these activity groups, national accreditation bodies need to assess the verifiers' competence regarding the activity group LII 'Indirect emissions'.

For verifiers, this means that accreditation for either activity group I, II, III, IV and V must be done in parallel to activity group LII. A verifier cannot obtain the competence to verify emissions for e.g. cement under activity group I without having the competence to verify indirect emissions under activity group LII).

Furthermore, verification bodies cannot be accredited solely for activity group LII as a single, self-standing scope of accreditation, but only in combination with categories I, II, III, IV, or V.

9.2.4. Process for verifiers already accredited e.g. under the EU ETS

In principle, the accreditation process can be simplified if the verifier provides "evidence of proven competence" in applying ISO 17029 and/or ISO 14065, which is demonstrated in particular by an existing accreditation, be it from an EU national accreditation body or a third-country accreditation body. Therefore, evidence for such accreditation should be provided by the verifier when applying for a CBAM accreditation and it must be taken into account by the NAB.

A specific provision applies to verifiers who are accredited specifically for the EU ETS under Implementing Regulation (EU) 2018/2067, which is the accreditation and verification regulation (AVR) for the EU ETS. Article 4 of the AVR-DA clarifies that these EU ETS verifiers do not have to apply for a fully new accreditation for CBAM purposes, but that their accreditation is considered an "extension of scope" of their existing accreditation to ISO 17029/14065 under the AVR. In the correspondence table for EU ETS and CBAM scopes (see Table 11), the third column specifies which EU ETS accreditation scopes can be taken into account for simplifying the accreditation process for the listed CBAM scopes.

Table 11: CBAM accreditation scopes and EU ETS scopes pursuant to Annex I to the AVR-DA.

CBAM activity group No.	Scope of accreditation	Activity groups pursuant to the AVR (EU ETS)
	Aggregated goods category	
I	Calcined clay Cement clinker Cement Aluminous cement	1a, 1b, 6, 98
II	Hydrogen Ammonia	1a, 1b, 8, 98
III	Nitric acid	1a, 1b, 9, 98

CBAM activity group No.	Scope of accreditation	Activity groups pursuant to the AVR (EU ETS)
IV	Urea Mixed fertilisers	1a, 1b, 98
V	Sintered ore Pig iron DRI (direct reduced iron) Crude steel	1a, 1b, 3, 98
VI	Ferro alloys (FeMn, FeCr, FeNi)	1a, 1b, 4, 98
VII	Unwrought aluminium	1a, 1b, 4, 5, 98
VIII	Iron or steel products Aluminium products	1a, 1b, 4, 98
	Other activities	
L	Carbon capture, utilisation and storage (CCUS)	10, 11
LI	Electricity imported into the customs territory of the Union	n/a
LII	Indirect emissions	n/a

When an EU ETS verifier applies for an extension of scope of their accreditation to the CBAM, national accreditation bodies and verifiers should keep in mind that certain topics are unique to the CBAM and that EU ETS verifiers will have to obtain additional competences and develop relevant procedures to be able to perform CBAM verification. Examples of such CBAM-specific activities that are not covered by an EU ETS accreditation include:

- Assessing monitoring plans:
  - Confirming installation's boundaries;
  - Confirming boundaries of production processes;
  - Confirming the appropriateness of monitoring approaches, confirming uncertainty assessments;
  - Comparing monitoring plan details to legal requirements;
  - Confirmation of data sources as being the "best available" ones;
- Checking of indirect emissions: Checking criteria for actual values, i.e. whether a PPA or a direct technical link exists:
  - Assessing smart meter data;
  - Assessing single line diagrams;
  - Assessing the PPA;
- Checking for electricity as a good: Checking criteria for actual values:
  - Assessing the PPA;
  - Assessing single line diagrams;
  - Assessing information on interconnector capacity allocation, congestion, etc.

- Checking evidence for the installation of origin and production year of precursors:
    - This requires competences for assessing material flows based on orders, delivery notes or invoices including stock estimates, in connection with assessment of verification reports from other installations.
- Reliance on other verifiers:
    - Checking the validity of a verification report (whether accreditation was valid at time of verification and for the appropriate industry sector).

9.3. Monitoring of the verifier after accreditation

The NAB must monitor its accredited verifiers to ensure that the verifier continues to be competent and meet the requirements of the AVR-DA. Monitoring verifiers involves annual surveillance and reassessment, and where relevant, extraordinary assessment.

9.3.1. Surveillance

The NAB is required to carry out annual surveillance of accredited verifiers. During surveillance, the following activities will be carried out:

- A (physical or virtual) visit to the premises of the verifier to check a representative sample of the internal verification documentation, the implementation of the quality management system and the procedures and processes the verifier is required to establish and implement;
- A witness audit to assess the competence and actual performance of a representative number of staff involved in verification. This assessment could also be spread representatively across the verifier's CBAM accreditation scopes.

Other surveillance activities carried out during these visits can consist in enquiries from the NAB relating to various aspects of verification, including requests to the verifier to provide documents and records (e.g. verification reports, complaints records, management review records). The requests may include updates and changes to the management system mentioned in Section 1.5.2 of Annex II to the AVR-DA, the competence process or other procedures and processes.

The same procedures as outlined in section 9.2.1(Figure 7) are applicable. Usually, an assessment during the surveillance phase will be less extensive than the assessment during the initial accreditation, since the procedures, processes and management system have already been checked by the NAB. Article 14 of the AVR-DA, relating to surveillance activities, also specifies that:

- the first surveillance is to be carried out within 12 months of the accreditation;
- Audits may cover also the premises of organisations to which the verifier has outsourced certain activities.

9.3.2. Reassessment

A reassessment of the verifier must be carried out before the expiry of the accreditation certificate. For the reassessment, the NAB follows the same steps as in the initial accreditation process to check whether the accreditation can be renewed. This evaluation is therefore more comprehensive than surveillance. The same documents and information have to be submitted by the verifier as for the first accreditation. The NAB will take into account the fact that the verifier has gained additional knowledge and experience in the previous years as demonstrated by the verifier's records on the competence and performance. Thus the NAB takes into account the history of prior assessments of the competence of performance of the verifier.

9.3.3. Extraordinary assessment

The NAB may conduct an extraordinary assessment of the verifier at any time to ensure that the verifier continues to meet the requirements in the AVR-DA. The focus of such assessments will primarily be on resolving a specific issue for which the extraordinary assessment has been initiated. Reasons for carrying out an extraordinary assessment may include:

- Investigation of complaints about the verifier;
- Investigation of appeals related to the verifier;
- Significant changes in the verifier's organisation or management system;
- Follow-up on corrective actions;
- Follow-up on activities used to lift a suspension;
- Information obtained from public media, e.g. newspapers, television;
- Other reasons, like information received from national competent authorities.

An extraordinary assessment does not necessarily involve a full witness audit and assessment at the premises of the verifier. It depends on the reasons for which the extraordinary assessment was initiated, the action needed and what non-conformity issue or other issue it concerns.

9.4. Administrative measures

Article 9 of the AVR-DA specifies three types of administrative measures that can be imposed by the NAB if the verifier fails to meet the requirements of the AVR-DA:

- **Reduction of scope** of the accreditation: This means that the verifier can offer verification services to fewer industry sectors.
- **Suspension of the accreditation**: The accreditation is temporarily invalidated. This means that the verifier maintains its accreditation but is not allowed to carry out verification during the time it is suspended. Once the suspension is terminated, full verification activities can be resumed. Reasons for suspension or reduction of scope are (Article 9(3) of the AVR-DA):

- serious breach of the requirements of the AVR-DA, the Verification Principles Act or the CBAM Regulation;
- persistently and repeatedly failing to meet the requirements of these Regulations;
- breach of any other specific terms and conditions laid down by the national accreditation body.

- **Withdrawal of the accreditation**: The accreditation is cancelled in full which means the verifier loses its accreditation and cannot carry out any verification activities under the CBAM. Following Article 9(4) of the AVR-DA this measure is imposed by the NAB if:
  - the verifier has failed to remedy the shortcomings that constituted the grounds for a decision to suspend the accreditation;
  - a member of the management of the verifier or a verifier's staff involved in verification activities under the CBAM has been found guilty of fraud;
  - the verifier has intentionally provided false information or has intentionally concealed information.

In other cases than those mentioned above, the NAB may also impose administrative measures where the verifier does not meet the requirements of the AVR-DA. This is likely to depend on the type, size and nature of the infringement, reoccurrence of a particular infringement and whether more than one infringement has been found. Furthermore, the verifier may itself request that the NAB suspends or withdraws its accreditation or reduces its scope.

The administrative measures take effect when the decision to impose the measures is notified to the verifier. The measures also apply when that decision is appealed. The administrative measures do not affect verification reports which were issued prior to their application. The effects of administrative measures can only be terminated if the appeal has reversed the decision to impose administrative measures.

To ensure a proper and fair application of the administrative measures, the NAB is required to establish, document, implement and maintain procedures for the application of administrative measures. Procedures for the resolution of appeals will be regulated by the Members States. This is usually done in national law when establishing the organisation and structure of the NAB.

10. INFORMATION EXCHANGE

Due to the different roles and responsibilities of the Commission, the national competent authorities (NCA) and the national accreditation bodies (NAB), but also the verifiers, some coordination and information exchange between these stakeholders is required. This is regulated by Articles 17 to 22 of the AVR-DA, and Article 19 of the CBAM Regulation for the review of the CBAM declaration containing verification reports.

Member States whose NAB provides CBAM accreditation are required to establish an effective information exchange and cooperation between their NAB and the competent authority. Examples of effective cooperation may consist in meetings and written correspondence between the NAB and the NCA, providing regular exchange of information on experience with verifiers and deficiencies encountered during reviews of CBAM declarations and verified emission reports or the witnessing of verifiers by the NAB. This information exchange takes place outside the CBAM Registry, however the NCA may later include this information in the CBAM Registry for the benefit of the Commission and of the other NABs. Some of these interactions take place through templates to be made available on the website of the Commission.

In some MS, the NCA or NAB also meets with their verifiers to explain new requirements in the legislation and discuss problems relating to the interpretation of monitoring or reporting requirements.

10.1. Cooperation and information exchange

The AVR-DA lays down structured requirements to share information at appropriate points in time to support not only the NAB but also the NCA in carrying out their compliance ensuring tasks and overseeing the quality of verification. It concerns the following requirements:

1. **Notification from the verifier to the NAB** (Article 22 of the AVR-DA): Before, or at the latest on 15 November of each year, every verifier has to notify information to the NAB that has accredited them. The information to be notified relates to the planned activities (verifications, site visits, verification teams) of the verifier, which the NAB needs for setting up its work programme and for preparing its management report. The information sent by the verifier is indicative and may be subject to change, since e.g. dates of site visits may change and need to be updated in that case. Where changes occur in the information, the verifier must notify these to the NAB within a timeframe agreed with that NAB.

2. **NAB's work programme**: The NAB uses the notified information of the verifiers to prepare a work programme which describes the planned activities in relation to the accreditation activities (e.g. planned assessments, planned witness audits). In accordance with Article 19(1) of the AVR-DA, by 31 December of each year, the NAB that has accredited the verifier must submit the work programme to the NCA of the same Member State. If there are changes in the information of the work programme, the NAB has to submit an updated work programme by 31 January of the following year.

3. **NAB's management report**: By 31 July of each year, the NAB has to provide feedback in a management report on what activities have been carried out in the

preceding 12 months. The management report is sent to the NCA of the NAB's Member State. It contains information on new verifiers / new accreditations, changes in scope, results of surveillance, reassessments and extraordinary assessments, complaints filed against verifiers and the actions taken by the NAB.

4. **Information exchange between competent authorities and the Commission** (Article 20 of the AVR-DA):

   a. The NCA which receives the NAB's work programme and management report shares these with the other NCAs and the Commission without undue delay via the CBAM Registry. This ensures that all NCAs have the same level of knowledge about verifiers when performing reviews of CBAM declarations pursuant to Article 19 of the CBAM Regulation.

   b. Where a NCA or the Commission performs a review of a verification's results during a review of a CBAM declaration, it informs the Commission and other NCAs of the initiation and the results of such review concerning the work carried out by the verifier.

5. **Specific Information from NCA to NAB**: The NCA of the Member State where the NAB is established must provide certain information to the NAB. In particular, information relevant for the NAB's surveillance tasks should be communicated regularly, at least annually, to the NAB, for example:

   - Relevant results from reviews of verification reports carried out during the review of CBAM declarations, including results received from other NCAs or the Commission under point 4. This relates in particular to non-compliance with the AVR-DA, the Verification Principles Act or the CBAM Regulation ([111]).
   - Complaints received concerning the verifier.

   This information enables the NAB to take action on a particular verifier if the NCA has identified issues related to that verifier during its activities. Issues reported by the NCA should be treated by the NAB as complaints against the verifier, in accordance with Article 16 of the AVR-DA. In such case, the NAB must decide on the validity of the complaint, ensure that the verifier concerned is given the opportunity to submit its observations, take appropriate action to address the complaint and record the complaint. Appropriate action could for example involve starting an extraordinary assessment, imposing administrative measures or taking other measures to ensure that the verifier resolves the non-conformities. The NAB must respond to the NCA that has exchanged the information with the NAB within three months of the date of the NAB's receipt of the information. In those cases, the NAB has to inform the NCA of the action taken and, where relevant, the administrative measures applied.

   To support the NAB in their surveillance activities and other accreditation activities, it is important to exchange the information on a timely basis. It is recommended that the

[111] Other relevant observations may include: issues spotted by the NCA or the Commission during the review of verification reports or of internal verification documentation (provided upon request) that clearly shows that the verifier has insufficient knowledge of or expertise in the installation's activities within the scope of accreditation; negligence in identifying material misstatements; findings that the verifier has been involved in consultancy for operator, in particular in setting up the installation's monitoring plan and nevertheless is carrying out the verification for the installation.

NCAs submit the information by 30 September of each year unless it concerns information that requires immediate action by the NAB.

6. **Immediate information exchange on administrative measures**: The NAB that has accredited the verifier must immediately notify the NCA in its Member State about:
   - Any decision to grant or renew a verifier's accreditation or to extend its scope;
   - Any imposed administrative measures on the verifier (suspension, withdrawal or reduction in scope of the accreditation);
   - Any revocation of the decision to suspend an accreditation.

   The NAB should share relevant information: e.g. type of administrative measures imposed and the date when the administrative measure was imposed or lifted. The NCA that receives this information will then share the information in the CBAM Registry with the other NCAs and the Commission.

To support the various exchanges of information, the Commission is expected to provide relevant templates.

10.2. Database of accredited CBAM verifiers

For operators it is crucial to be able to find a CBAM verifier that would have the required accreditation scope to verify their installation. Verifiers relying on verification reports from other verifiers (in particular regarding actual data on precursors or for electricity used regarding indirect emissions) must also be able to confirm whether those other verifiers were duly accredited at the time they issued the verification report. Similarly, NCAs and the Commission will perform checks during the review of CBAM declarations. While each national accreditation body must provide public information on their website on the CBAM verifiers which they have accredited, a central database of verifiers would support all these tasks.

The CBAM Registry is set up to perform the functions of such central CBAM verifiers database. Within two months of receiving their accreditation, verifiers must submit an application for registration in the CBAM Registry to the NCA in the Member State where the NAB is established. Pursuant to Article 10a(2) of the CBAM Registry Act, the verifier has to provide the following information upon registration:

- the name, and unique accreditation identification of the verifier;
- any scope of accreditation relevant for CBAM;
- the country of establishment of the verifier;
- the effective date of accreditation and expiry date of the accreditation certificate relevant for CBAM;
- any information on administrative measures imposed on the verifier relevant for CBAM;
- copy of the accreditation certificate relevant for CBAM.

The verifier can only perform actual verification tasks i.e. generating a verification report after they have been registered in the CBAM Registry. To ensure the

authenticity of verification reports and to facilitate the submission of the CBAM declaration, it is not possible for the verifier to issue a verification report without access to the CBAM Registry. Therefore, the registration is an essential element of the verification system for the CBAM (see also about “electronic transmission” in section 4.15).

Verifiers must update their registration information in case of changes, notably to their accreditation information (e.g. change in scope, or administrative measures). Furthermore, as mentioned in section 10.1 on information exchange, the NCA will ensure that the registration information is kept up-to-date, notably via regular exchanges with the national accreditation body. A verifier without an active accreditation will lose their ability to generate a verification report.

The CBAM Registry is not available to the general public, nor to operators that have not yet registered. Therefore, the Commission will also publish on a regular basis information on accredited CBAM verifiers on their public website.

ANNEX I - INTERNAL VERIFICATION DOCUMENTATION

The internal verification documentation of the verifier must provide the full audit trail as performed by the verifier in order to prove that only evidence-based decisions have led to the verification opinion. It furthermore forms the basis for the checks carried out by the NAB to assess whether the verifier stands up to its competence requirements and implements all required procedures in practice. Therefore, the internal verification documentation should at least cover the following elements:

- Results of the evaluation of risks to undertake the verification during the pre-contract stage and the evaluation itself;
- The time allocation as well as any revisions in the time allocation and reasons for such a revision;
- The contract with the operator and any other relevant information used to prepare the verification;
- Information on the verification team that has performed the verification and how this team was assembled:
    - names of the CBAM lead auditor, any CBAM auditors and other relevant team members;
    - competence of the team to cover the scope of accreditation in which the goods produced in the installation are covered;
    - roles and responsibility of each verification team member;
    - time spent on verification activities by each team member.
- Conclusions on the independence and impartiality checks and clearance of the independence of reviewers to start the verification;
- Scope of the verification. The scope should in principle be consistent with the verification activities that have been indicated in the verification plan, unless changes have occurred during the verification process;
- The identification of the criteria against which the emissions report was verified, so as to understand the basis for the verifier's verification conclusion;
- Conclusions on follow-up of points/recommendations from previous audits;
- The operator's information that the verifier has used to cross-check data and carry out other verification activities;
- The installation's emissions report;
- The installation's monitoring plan;
- The documentation of the assessment of the monitoring plan, either from the actual verification, or from a previous year (may be from a different verifier), provided that no significant changes to the MP occurred since that assessment;
- The conclusions of the strategic analysis, risk analysis and process analysis and these analyses in full;
- The verification plan, any revisions and updates of that plan and reasons for amending the plan, additional activities to be carried out and other conclusions related to the verification plan and process analysis;

- The verification activities undertaken and results of checks made on the control activities, procedures and data. The activities described in the internal verification documentation should in principle be in line with the verification plan unless changes have occurred during the verification process;
- Relevant evidence gathered during the verification;
- Information on which activities were performed on site and which activities were performed off-site;
- If a site visit has been waived, reasons for waiving the site visit, a description of how the data was checked and how the verification was carried out without the site visit, and evidence that all conditions for waiving the site visit have been met;
- If a virtual site visit was carried out because of force majeure or for other reasons, the description of the force majeure situation or any other justification for carrying out virtual site visits, as well as the assessment of risks, any evidence that all conditions for carrying out virtual site visits have been met, how the virtual site visit was carried out; what technologies were used and whether there were complications during the virtual site visit; activities carried out during the virtual site visits and dates on which these activities took place; experts and team members involved in virtual site visit; information on whether a physical site visit was carried out after the virtual site visit and the reasons for carrying out this physical site visit.
- Changes that have occurred during the verification process;
- Information and evidence on samples taken and what sampling method was used;
- Reasons for increasing or decreasing the sampling size and resolution of all issues identified which required further investigation and their eventual outcome, as well as evidence on the rationale for the conclusions reached on the emissions report;
- Conclusions on data quality and materiality with regard to the approval of the installation or aircraft operator's data in the emissions report. This includes the materiality threshold that has been applied and a justification for judgments made concerning the quantitative and qualitative assessment of whether misstatements, non-conformities or non-compliance have material impact on the reported data;
- Non-conformities, misstatements and non-compliance that have been identified by the verifier, and a description on how these have been resolved. If these misstatements, non-conformities and non-compliance issues are closed during the verification, this should be marked as such;
- Justifications for the verification opinion made by the verifier;
- Where appropriate, a description of any significant, inherent limitation associated with the verification of the emissions report against the criteria. It should be clear whether there is a limitation of scope in the verification, whether there were circumstances or whether a restriction was imposed that prevented the verifier from obtaining evidence required to reduce the verification risk to a reasonable level;
- The conclusions on the verification of the emissions report;
- Results of the independent review and the name of the independent reviewer.

ANNEX II – VERIFICATION TEAMS

Verifiers must ensure for each verification engagement (i.e. for each installation to be verified) that the verification team holds all the competence and personnel required to carry out verification activities for the specific installation. The verification team consists at least of a CBAM lead auditor and, where the verifier's conclusions during the pre-contract stage and the strategic analysis require it, a suitable number of CBAM auditors and technical experts. Team members should not only possess competence requirements that are specific to them but also the following general requirements (Table 12).

Table 12: General requirements for verification teams

Requirement	Explanation
Each team member shall have a clear understanding of their individual role in the verification process	Each team member must understand that they: • remain impartial to the activity verified, free from bias, and avoid any actual or perceived conflict of interest; • maintain their objectivity throughout the verification; • demonstrate fair behaviour through trust, honesty, working with diligence and responsibility, observing the law, maintaining confidentiality etc.; • reflect truthfully and accurately the verification activities and findings; • exercise due professional care and judgment; • are able to draw meaningful and accurate conclusions, give opinions and make interpretations based on observation, knowledge, experience, literature and other sources of information.
At least one team member shall be able to communicate in the language necessary to perform the verification	The team should be able to share and distribute relevant information through written communications (e.g. reports, notes, letters etc.). Verbal communications should be conducted in an appropriate language and in a professional manner. The information should also be presented, in a format that is well understood by all parties. Therefore, the team should, for example, be able to: • explain what documentation an operator has to provide to the team to allow for the necessary input to the verification process; • explain the verification process to the operator; • interview relevant personnel at the installation in a manner so that they understand the required output and the team can gather the necessary evidence for verification purposes; • explain identified misstatements and non-conformities to the operator and the requirement to correct those; • explain what the findings from the verification process mean and what their consequences are; • write a verification report based on an analysis of findings from the verification activities and use terms and language appropriate for verification statements. Not all team members necessarily have to speak the language required for the verification in the country in which the team carries out the verification. (see section 4.15) However, the team must have at least one person who is able to communicate and write in that language. An interpreter can be hired to provide that competence. In those cases, the team must be able to communicate effectively while using the interpreter. The risk for hiring an interpreter is a verification risk that the verifier accepts based on the risk

Requirement	Explanation
	analysis. The verifier remains responsible for the quality of the translation and that the translation is according to standards and properly certified.
At least one person in the team must have the technical competence and understanding required	The understanding required includes for example: • How to perform strategic analysis, risk analysis, develop verification plans and perform the process analysis including data sampling and verification; • Technical aspects of the respective installation, production processes and routes, metering technologies used, emissions data processing, control systems, etc., as provided in the installation's monitoring plan; • Legal requirements of the CBAM, in particular the Methodology Act, the Free allocation Adjustment Act, the AVR-DA and the Verification Principles Act. More examples on technical competence are given in Table 13.
Where the verifier carries out the verification of data regarding electricity imported as a CBAM good, at least one person needs to have this competence	Where the verifier carries out the verification of data regarding electricity imported into the customs territory of the Union, the technical competence and understanding required to assess the evidence required to demonstrate the fulfilment of criteria laid down in Section 5, first paragraph, points (a) to (d) of Annex IV to the CBAM Regulation as discussed in section 7.6 of this guidance.
Where the verifier carries out the verification of data regarding indirect emissions of goods, at least one person needs to have this competence	Where the verifier carries out the verification of data regarding goods that are not listed in Annex II to the CBAM Regulation (i.e. goods for which indirect emissions are to be reported), the technical competence and understanding required to assess the evidence required to demonstrate the fulfilment of the criteria laid down in Section 6 of Annex IV to the CBAM Regulation, as discussed in section 7.5 of this guidance.

Where the verification team consists only of one person, that person must cover all the competences listed in Table 12 and must be a CBAM lead auditor. Note that the independent reviewer must be a person who is not part of the verification team.

As the verifier has to check the application of the monitoring methodology and to carry out plausibility checks of the data involved, the team as a whole needs to understand the specifics of the installation. Otherwise, the verifier will not be able to assess the material correctness of the data and the correct implementation of the monitoring plan. Table 13 provides an indication of which technical competence and understanding should apply for the team as a whole to assess the specific technical monitoring and reporting aspects in the context of the CBAM.

Table 13: Examples of technical expertise and competence required for the CBAM

Elements of technical expertise and competence	Examples of knowledge and skills related to technical competence
Assessing aspects of the monitoring plan	Being able to assess and understand: • how the monitoring plan is implemented in the installation; • how to check the emission report against the approved monitoring plan;

Elements of technical expertise and competence	Examples of knowledge and skills related to technical competence
	• how to analyse information and data to confirm whether the monitoring plan is still appropriate and is being implemented.
Specific GHG activity and technology	Being able to: • identify and understand which key operations impact the operator's GHG emissions; • understand the actual operational processes being used within the installation; • assess the installation's boundaries. This will enable the team to assess what activities and production processes are related to CBAM goods, and so to identify the monitoring boundaries. And having: • general knowledge of the technologies applicable to the industry sector in which the team operates; • generic knowledge of GHG and global warming potentials.
Relevant GHG sources	Being able to understand and have the knowledge of: • the operator's activities, equipment and relevant processes, emission sources and source streams; • assessing the completeness of source streams and emission sources, of heat flows and other energy and material flows between production processes; • production inputs and outputs relevant to GHG emissions, including electricity, where indirect emissions are relevant, and precursors.
Quantification, monitoring and reporting including relevant technical and sector issues	Being able to understand, and knowledge of, techniques relevant for monitoring and reporting which requires skills such as the ability to: • assess the selection, use and maintenance of measurement and calibration devices; • determine the extent of testing needed to check the completeness, accuracy and reliability of information used in the analysis; • identify corroborating information that supports the material correctness of the reported data; • conclude whether to accept or reject the information or whether to modify the testing; • identify the purpose of computations and what methodology is required. Having knowledge and understanding of CBAM specific monitoring issues such as: • where a standard calculation-based methodology is used to determine the GHG emissions: e.g. the method for determining activity data; the origin and application of calculation factors; the appropriate units used to express the activity data and calculation factors; • where a mass balance methodology is used: the inputs and outputs of the mass balance and the methodology used to determine the inputs and outputs; • where a measurement-based methodology is used: the system and elements used for continuous measurement, the standards applied, the measurement points and measuring frequencies, the calibration procedures, the parameters used for determining the GHG emissions, the sampling rates, the requirements for determining missing data, data

Elements of technical expertise and competence	Examples of knowledge and skills related to technical competence
	management and storage, and the method used to check the results of continuous measurement; • how to determine or estimate the uncertainty of measurements, and how to select data sources as "best available"; • knowledge of the relevant standards: e.g. calibration standards, measurement standards, management system standards and their use; • assessing compliance with requirements on biomass for zero-rating its emissions; • application of the monitoring and reporting principles laid down in Section A.2 of Annex II to the Methodology Act ([112]); • assessing data gaps, the conservativeness of the approach to complete the data gap and measures to avoid double counting of GHG emissions; • the techniques for chemical analysis, sampling and sample preparation, including the application of a sampling plan and chain of custody.
Knowledge related to rules for attributing emissions to goods	Being able to understand and have the knowledge of: • handling of data with regard to functional units as well as per tonne of good; • methods and rules applying to the assignment goods using CN codes to production processes; • determining whether a "bubble approach" may be used, whether a multifunctional process must be used, etc.; • determining consistent activity levels of processes including multifunctional processes; • taking into account direct emissions, heat flows, waste gas flows and electricity flows to determine attributed emissions of a production process; • attribution rules for emissions in cogeneration (CHP) processes.
Knowledge related to rules for including precursor data in the specific embedded emissions	Being able to understand and have the knowledge of: • the most important value chains for complex goods under CBAM scope; • how to determine the completeness of precursors used in production processes; • How to determine the appropriate default values (based on country of origin, production year), applying geographical exemptions, etc. • rules to determine weighted averages of precursor data or other attributions in accordance with Article 14 of the Methodology Act; • How to select appropriate default values (specific embedded emissions, specific free allocation adjustment) for precursors based on production years, country of origin and composition data.
Knowledge related to the calculation of specific free allocation adjustments	Being able to understand, and knowledge of: • basic concepts of EU ETS free allocation rules and benchmarks; • selecting appropriate CBAM benchmarks from the Free Allocation Adjustment Act based on production route or composition data;

[112] Completeness, consistency and comparability, accuracy, integrity of the methodology, transparency and continuous improvement.

Elements of technical expertise and competence	Examples of knowledge and skills related to technical competence
	• calculation of the free allocation adjustment based on these benchmarks, taking into account precursors in this calculation.
Knowledge on the use of default values or actual data	Being able to understand, and knowledge of, the conditions under which actual data may be used (see section 7.3 of this guidance).
Knowledge related to the operator's organisation and quality assurance	Being able to understand, and knowledge of: • operator's specific data flow and risk assessment; • operator's specific control activities in relation to data flow; • overall organisation with respect to monitoring and reporting, as well as the control environment in which the operator's accounting system operates; • procedures mentioned in the Methodology Act; e.g. procedures for data flow activities and control activities; and for managing the responsibilities for monitoring and reporting within an installation.
Knowledge related to verification agreements	• understanding contracts or other agreements with the operator to manage conflicts that could impact the verification (e.g. time allocation in contracts with the operator).

Roles of the verification team members

All the verification is carried out under the responsibility and direction of the CBAM lead auditor. He or she must therefore have the respective skills and competences (see Annex III). The CBAM auditor, if assigned to the team, must carry out verification activities under the supervision and responsibility of the CBAM lead auditor.

If the CBAM auditor or lead auditor or independent reviewer need support on a specific subject matter, a technical expert may be called in to provide detailed knowledge and expertise on that subject matter. This could concern all types of issues such as technical sector specific knowledge, IT expertise, language needs, technical expertise on specific standards or calibration equipment etc. The technical expert undertakes the activities for which his or her support is needed, under the direction and full responsibility of the CBAM lead auditor of the verification team in which the technical expert is operating or the independent reviewer if the technical expert is providing support to the independent reviewer. The primary function of the technical expert is to provide information to the verification team.

ANNEX III – COMPETENCE OF DIFFERENT TEAM MEMBERS

CBAM auditors have to meet specific competence requirements. Table 14 lists and describes these requirements with concrete examples **CBAM lead auditors** must have the same competences as CBAM auditors, and in addition demonstrated competence to lead a verification team and to be responsible for carrying out the CBAM verification activities in accordance with the AVR-DA.

This means that CBAM lead auditors are in general more senior and experienced staff with more authority than normal auditors, which must also be evident from the verification body's organisational structure. The lead auditor must be empowered to sign verification statements on behalf of the verifier. In accordance with the AVR-DA, the lead auditor must furthermore have demonstrated ability to communicate effectively in English.

Table 14: Competence requirements for CBAM auditors

Article 39(2) of the AVR-DA	Explanation and examples of competence

Knowledge of the specific legislation, relevant standards and relevant guidance	This involves knowledge of (non-exhaustive list):
	• Accreditation, verification activities and monitoring and calculation of embedded emissions, and free allocation adjustment for the CBAM; in particular the following (see Annex V for legislation details):
	  • The CBAM Regulation;
	  • The Methodology Act;
	  • The AVR-DA;
	  • The Verification Principles Act;
	  • The Free Allocation Adjustment Act;
	• Relevant standards: this includes for example: ISO 17029; ISO 14064-3, ISO 14065 and ISO 14066;
	• The Commission's guidance documents for the CBAM, in particular this document and the guidance documents for operators of installations producing CBAM goods ([113]).

Knowledge and experience of data and information auditing	• Knowledge of data and information auditing methodologies, the application of the materiality level and assessing the materiality of misstatements, which include, for example, the ability to:
	  • Assess the risks involved in carrying out verification including assessment of conflict of interests;
	  • Carry out a strategic analysis;
	  • Determine the time needed for a verification and to assess when additional time is necessary to complete the verification;
	  • Carry out verification activities with reasonable level of assurance;
	  • Check the initial effectiveness of control activities as an input to strategic and risk analysis;

[113] For details exceeding this guidance, the EU ETS legislation (in particular AVR and MRR) and the guidance material developed by the Commission to support their interpretation in a harmonised manner can also be consulted, to the extent that these are applicable to the CBAM *mutatis mutandis.*

Article 39(2) of the AVR-DA	Explanation and examples of competence
	• Determine the extent of substantive data testing in the process analysis; • Notice whether the verification plan needs updating because of findings and to communicate that to the CBAM lead auditor. The lead auditor decides on the revision of the verification plan and revises it; • Determine corrective action and its impact on the data and information assessment; • Make decisions on the data and information reported based on findings from the data and information assessment; • Collate appropriate evidence and information to support decisions; • Identify situations and factors that may affect the materiality of misstatements (including typical and atypical operating conditions); • Analyse the material impact of misstatements and non-conformities on the reported data; • Identify risks that could result in material misstatements and decide on the need to gather additional evidence or to extend the depth and detail of verification activities; • Use information obtained from a variety of sources and form conclusions based on that analysis; • Use the materiality level in the verification process; • Evaluate the sufficiency and significance of the evidence and analysis; • Identify inconsistencies, unexpected circumstances and findings by carrying out for example analytical procedures; • Evaluate the overall adequacy of documentation. • Knowledge and experience of analysing inherent and control risks ([114]). • Knowledge and experience of sampling techniques which includes, for example, the ability to: • Manage complex data collection and recording interfaces; • Deal with data manipulation processes and their challenges; • Identify actual data system problems and failures, and take appropriate action (i.e. increasing the sampling size in the data sampling plan and reporting potential non-conformities and misstatements); • Use audit processes to identify information, statements and facts that contradict the data in the emission report; • Challenge assumptions and statements in the emission report. • Knowledge and experience in assessing data and information systems, data flows, control activities and procedures which includes, for example, the ability to: • Understand statistics, financial and economic accounting tools and practices; • Assess computer information system environments; • Assess the GHG information system to determine whether the operator has identified, collected, analysed and reported on the data in a way that is

[114] Note that the risk analysis itself has to be carried out by the lead auditor, who will make all the decisions resulting from the risk assessment.

Article 39(2) of the AVR-DA	Explanation and examples of competence
	necessary to compile an accurate emissions report; and has taken corrective action to address misstatements and non-conformities; • Use appropriate methods for obtaining or developing the information needed: e.g. document review, observation, cross checking with external sources, interviews, inspection of whether the control activities are functioning; • Integrate information from various sources comparing information from internal and external sources; • Evaluate data, errors in data, data sources, applicable processes and data management systems; • Evaluate the functioning of control activities and correct implementation of procedures for control activities (e.g. how the operator manages IT systems and new technologies); • Remain alert to the possibility of false information; • Understand the implications of misstatements and non-conformities and recommended improvements in robustness and controls.
The ability to perform the verification of an emissions report for the CBAM	This includes, for example, the ability to: • Carry out data verification and analytical procedures, e.g. comparing projected emissions with actual results, making logical inferences; • Retrieve relevant information and apply knowledge in a manner appropriate for the verification activities; • Understand the meaning, translation and interpretation of information; • Think critically and analyse multiple inputs; • Distinguish between facts and inferences, and exercise professional scepticism; • Carry out independent research and challenge assumptions and evidence asserted by the operator; • Strike a balance between attention to detail and a high level assessment of the anticipated outcome during the verification process; • Manage detail, particularly at the level of ensuring that required checks are performed, e.g. checking between the emission report and the approved monitoring plan; • Evaluate the information, data and assumptions and make professional judgments; • Apply verification methods in expected and unanticipated situation; • Communicate the verification process and the results with the operator; • Be aware that the verification plan needs to support the nature, timing and extent of the verification. The actual responsibility for ensuring this is the case lies with the CBAM lead auditor and he/she should have full knowledge and experience on that; • Ensure that the internal verification documentation contains sufficient information to support the verification report and meets the requirements of the AVR-DA; • Draft verification reports according to the requirements.
Knowledge of and experience in the sector-specific	The CBAM auditor must have the necessary knowledge and experience of sector specific technical monitoring and reporting issues related to CBAM sector for which the accreditation has been granted. This includes in particular the

Article 39(2) of the AVR-DA	Explanation and examples of competence
technical monitoring and reporting aspects that are relevant for the scope of activities in question.	competences listed in Table 13. However, not each CBAM auditor must have *all* competences listed in that table, but the verification team as a whole. Nevertheless, all CBAM auditors should have some basic understanding of all those topics.

In addition to the aforementioned requirements of the CBAM auditor, the **CBAM lead auditor** must have demonstrated competence to lead a verification team and to be responsible for carrying out the verification activities, and to undertake the roles assigned to a CBAM lead auditor. This means that the CBAM lead auditor must for example have sufficient skills to:

- Assign team members based on an analysis of the competence needed to carry out specific tasks during the verification for a particular operator;
- Understand the rigour of verification activities needed for obtaining reasonable assurance;
- Be able to communicate on the progress, concerns and findings to the client;
- Challenge findings from team members and manage the team;
- Manage the verification process and manage the drafting of the verification report;
- Be able to function as a team leader to ensure that the verification is performed in accordance with the AVR-DA.

Competence of technical experts

The technical expert must have:

- The competence and expertise required to effectively support the CBAM auditor or lead auditor or independent reviewer on the subject matter for which his knowledge and expertise is requested;
- Sufficient understanding of CBAM specific legislation and guidance, data and information auditing and the activities needed to carry out assigned tasks. The technical expert does not have to possess full competence on all these issues but he should understand it sufficiently to be able to support the CBAM (lead) auditor during the verification.

Competence of independent reviewers

The independent reviewer must meet the competence requirements of a CBAM lead auditor. Furthermore, the independent reviewer must have the necessary competence to:

- Analyse the information provided to confirm the completeness and integrity of the information;
- Challenge missing or contradictory information;
- Check data trails to be able to assess whether the internal verification documentation is complete and provides sufficient information to support the draft verification report.

An independent reviewer must have appropriate authority to objectively review the draft verification report and internal verification documentation and reject them as unsound if necessary. What constitutes sufficient and appropriate competence, experience and authority depends on the circumstances of the verification engagement.

In the communications between the independent reviewer and the CBAM lead auditor, care should be taken that the reviewer's objectivity is maintained. If this objectivity is compromised or the authority of the independent reviewer is threatened, another independent reviewer must be appointed.

ANNEX IV – PROCEDURES

As a requirement for accreditation, verifiers must establish, document, maintain and implement procedures covering their activities including their management system. This requirement comes from the international standards to be applied for GHG verification (ISO 17029 in combination with ISO 14065). Section 1.5.1 of Annex II to the AVR-DA requires compliance with EN ISO/IEC 17029:2019 Conformity Assessment – General principles and requirements for validation and verification bodies.

Quality management system

Section 1.5.2 of Annex II to the AVR-DA requires that verifiers establish, document, implement and maintain a quality management system to ensure consistent development, implementation, improvement and review of the procedures and processes in accordance with ISO 17029. According to the standard, the quality management system shall include the following:

- policies and responsibilities;
- management review;
- internal audits;
- corrective action;
- actions to address risk and opportunities and to take preventive action;
- control of documented information.

Additional procedures

Section 1.5.3 of Annex to the AVR-DA requires furthermore that verifiers establish the following procedures, processes and arrangements:

(a) "a process and policy for communication with the operator and other relevant parties;

(b) adequate arrangements to safeguard the confidentiality of information obtained;

(c) a process for dealing with appeals;

(d) a process for dealing with complaints (including an indicative timescale);

(e) a process for issuing a revised verification report where an error in the verification report or the operator's emissions report has been identified after the verifier has submitted the verification report to the operator;

(f) a procedure or process for outsourcing verification activities to other organisations;

(g) a procedure or process to ensure the verifier takes full responsibility for verification activities performed by contracted individuals;

(h) processes ensuring the proper functioning of the quality management system as referred to in Section 1.5.2 [of the AVR-DA], including the processes:

(1) for the review of the management system, which is to take place at least once a year, not exceeding 15 months between management reviews;

(2) for conducting internal audits at least once a year, not exceeding 15 months between internal audits."

ANNEX V – LIST OF RELEVANT CBAM LEGISLATION

CBAM Regulation: Regulation (EU) 2023/956 of the European Parliament and of the Council of 10 May 2023 establishing a carbon border adjustment mechanism; consolidated version: http://data.europa.eu/eli/reg/2023/956/2025-10-20

Methodology Act (i.e. monitoring and reporting rules explained in this document): Commission Implementing Regulation (EU) 2025/2547 of 10 December 2025 laying down rules for the application of Regulation (EU) 2023/956 of the European Parliament and the Council as regards the methods for the calculation of emissions embedded in goods; http://data.europa.eu/eli/reg_impl/2025/2547/oj

Default values Act: Commission Implementing Regulation (EU) 2025/2621 of 16 December 2025 laying down rules for the application of Regulation (EU) 2023/956 of the European Parliament and the Council as regards the establishment of default values; http://data.europa.eu/eli/reg_impl/2025/2621/oj

Verification Principles Act: Commission Implementing Regulation (EU) 2025/2546 of 10 December 2025 on the application of the principles for verification of declared embedded emissions pursuant to Regulation (EU) 2023/956 of the European Parliament and of the Council; http://data.europa.eu/eli/reg_impl/2025/2546/oj

Accreditation & Verification Requirements Delegated Act (AVR-DA): Commission Delegated Regulation (EU) 2025/2551 of 20 November 2025 supplementing Regulation (EU) 2023/956 of the European Parliament and of the Council by specifying the conditions for granting accreditation to verifiers, for the control and oversight of accredited verifiers, for the withdrawal of accreditation and for mutual recognition and peer evaluation of accreditation bodies; http://data.europa.eu/eli/reg_del/2025/2551/oj

Free Allocation Adjustment Act: Commission Implementing Regulation (EU) 2025/2620 of 16 December 2025 laying down rules for the application of Regulation (EU) 2023/956 of the European Parliament and of the Council as regards the calculation of the free allocation adjustment to the number of CBAM certificates to be surrendered; http://data.europa.eu/eli/reg_impl/2025/2620/oj

Authorisation of Declarants: Commission Implementing Regulation (EU) 2025/486 of 17 March 2025 laying down rules for the application of Regulation (EU) 2023/956 of the European Parliament and of the Council as regards the conditions and procedures related to the status of authorised CBAM declarant; http://data.europa.eu/eli/reg_impl/2025/486/2025-12-25

CBAM Registry Act: Commission Implementing Regulation (EU) 2024/3210 of 18 December 2024 laying down rules for the application of Regulation (EU) 2023/956 of the European Parliament and of the Council as regards the CBAM registry; http://data.europa.eu/eli/reg_impl/2024/3210/2026-01-01

Certificates price: Commission Implementing Regulation (EU) 2025/2548 of 10 December 2025 laying down rules for the application of Regulation (EU) 2023/956 of the European Parliament and of the Council as regards the calculation and publication of the price of CBAM certificates; http://data.europa.eu/eli/reg_impl/2025/2548/oj

Information by customs authorities: Commission Implementing Regulation (EU) 2025/2619 of 16 December 2025 laying down rules for the application of Regulation (EU)

2023/956 of the European Parliament and of the Council as regards the information communicated by customs authorities; http://data.europa.eu/eli/reg_impl/2025/2619/oj

Clarification of geographical scope: Commission Implementing Regulation (EU) 2025/2210 of 31 October 2025 laying down rules for the application of Regulation (EU) 2023/956 of the European Parliament and of the Council as regards goods and processed products brought to the continental shelf or the exclusive economic zone of Member States; http://data.europa.eu/eli/reg_impl/2025/2210/oj

Other EU Legislation cited in the Methodology Act:

EU ETS Directive: Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC, http://data.europa.eu/eli/dir/2003/87/2024-03-01

MRR (EU ETS monitoring and Reporting Regulation): Commission Implementing Regulation (EU) 2018/2066 of 19 December 2018 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council; http://data.europa.eu/eli/reg_impl/2018/2066/2025-05-27.

AVR (EU ETS Accreditation and Verification Regulation): Commission Implementing Regulation (EU) 2018/2067 of 19 December 2018 on the verification of data and on the accreditation of verifiers pursuant to Directive 2003/87/EC of the European Parliament and of the Council; http://data.europa.eu/eli/reg_impl/2018/2067/2025-06-22

RED II (recast Renewable Energy Directive): Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources, http://data.europa.eu/eli/dir/2018/2001/2024-07-16

Definition of CN codes: Council Regulation (EEC) No 2658/87 of 23 July 1987 on the tariff and statistical nomenclature and on the Common Customs Tariff; http://data.europa.eu/eli/reg/1987/2658/2026-01-01. This list is regularly updated. When consulting this website, please make sure to check whether it indicates “in force”, or whether a more recent version exists.

ANNEX VI – ACRONYMS

Abbreviation	Full term
AL	Activity Level
AVR	Accreditation and Verification Regulation (for the EU ETS)
AVR-DA	Accreditation and Verification Regulation - Delegated Act (for the CBAM)
BAT	Best Available Techniques
BF	Biomass Fraction
BM	Benchmark
BREFs	Best Available Techniques Reference documents
CA	Competent Authority
CBAM	Carbon Border Adjustment Mechanism, the
CCS	Carbon Capture and Storage
CCU(S)	Carbon Capture and Utilisation (and Storage)
CEMS	Continuous Emission Measurement Systems
CFP	Carbon footprint of products
CHP	Combined Heat and Power (Cogeneration)
CN	Combined nomenclature
CO2	Carbon dioxide
CO2e	Carbon dioxide equivalents (using 100-year GWP values)
CSCF	Cross-Sectoral Correction Factor (for EU ETS free allocation)
DPP	Digital Product Passport
DRI	Direct Reduced Iron
EA	European cooperation for Accreditation
EAF	Electric Arc Furnace
EEA	European Economic Area (EU-27, Iceland, Norway, Liechtenstein)
EF	Emission Factor
EFTA	European Free Trade Area
EGD I	Explanatory guidance document I (for the AVR / EU ETS)
EORI	Economic Operator Registration and Identification
ETS	Emissions Trading System
EU	European Union
EU ETS	EU Emissions Trading System
EUA	EU Allowances (used in the EU ETS)
EUR	Euro (currency)

Abbreviation	Full term
FAR	Free Allocation Rules for the EU ETS
FIFO	First-In-First-Out (principle)
GD	Guidance Document
GHG	Greenhouse Gas
GWP	Global Warming Potential
HS	Harmonised System (for international trade)
ISO	International Organisation for Standardisation
KGN	Key Guidance Note (a series of guidance for the AVR / EU ETS)
MP	Monitoring plan
MRR	Monitoring and Reporting Regulation for the EU ETS
MRV	Monitoring, Reporting and Verification
MS	Member State(s)
MWh	Megawatt-hour
N	Nitrogen (as fertiliser nutrient)
NAB	National Accreditation Body
NCA	National Competent Authority
NCV	Net Calorific Value
PFC	Perfluoro-carbon
PoS	Proof of Sustainability
PPA	Power Purchase Agreement
RED II	Renewable Energy Directive, re-cast
SEE	Specific embedded emissions
SEFA	Specific embedded free allocation
t	(metric) tonne
TARIC	Integrated Tariff of the European Union database
TJ	Terajoules
TSO	Transmission System Operator
UCC	Union Custom Code
UNFCCC	United Nations Framework Convention on Climate Change
UN/LOCODE	United Nations Code for Trade and Transport Location
WTO	World Trade Organization