



THE EU'S PROPOSED CARBON BORDER ADJUSTMENT MECHANISM (CBAM) AND ITS IMPLICATIONS FOR ASIA

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EXECUTIVE SUMMARY

To achieve a climate-neutral European Union (EU) by 2050 in line with the Paris Agreement, the EU needs to more ambitiously reduce greenhouse gas (GHG) emissions in the coming decade and update its climate and energy policy framework. The recently adopted European Climate Law sets a new EU target for 2030 of reducing GHG emissions by at least 55 percent compared to 1990 levels. To deliver this, the European Commission has proposed a "Fit for 55" package containing, among other initiatives, legislative proposals for a revision of the EU Emissions Trading System (EU ETS), with a more stringent emissions cap and including a new Carbon Border Adjustment Mechanism (CBAM).

The CBAM addresses a key concern with implementing a more ambitious climate policy, namely, how to protect domestic industry's global competitiveness and prevent "carbon leakage," or the transfer of production to jurisdictions with less ambitious climate policies that would lead to an increase in total emissions. Free allocation to emissions- and trade-intensive sectors has generally been adopted in ETSs to address this concern. However, the CBAM is emerging as an important alternative approach and is also being considered in

other jurisdictions worldwide.¹

The EU's proposed CBAM will put a carbon price on imports of a targeted selection of goods with the aims of 1) ensuring that ambitious climate action in the EU does not lead to carbon leakage, and 2) encouraging partner countries to implement similar carbon-pricing policies. There would be a gradual phaseout of free allocation for installations in the EU ETS producing goods covered by the CBAM, with replacement by auctioning. The value of the allowances that would otherwise have been allocated for free to industry sectors covered by the CBAM will be added to the EU's Innovation Fund to support investment in advanced GHG mitigation technologies for ETS sectors.

This policy, even at its proposal stage, has created a significant impact worldwide in supporting the uptake of carbon-pricing policies and in encouraging consideration of similar carbon border adjustment policies. This issue paper investigates the details of the EU's proposed CBAM and its specific implications for companies and governments in Asia. Key recommendations follow.

For companies producing and importing covered goods into the EU:

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This issue paper investigates the details of the EU's proposed CBAM and its specific implications for companies and governments in Asia.

- Prepare for CBAM-related data disclosure of covered goods and precursor materials from 2023, and consider using the option of reporting actual carbon emissions data rather than being subject to potentially disadvantageous default values. This will require adopting best practices in monitoring, reporting and verification (MRV) systems, consistent with the stringency of the EU ETS MRV system, with more specific requirements to be confirmed later in the EU CBAM's implementing acts.
- Assess and minimize the amount of embedded carbon emissions in covered goods and precursor materials. Producers of covered goods should maximize energy efficiency, transition to clean energy, and mitigate GHG emissions, taking advantage of any available financial support. Such measures will be required in any case to comply with national GHG emissions reduction targets and policies, but the EU's proposed CBAM could drive greater urgency in such efforts.

For governments:

- Implement an ambitious and effective carbon-pricing policy to realize carbon costs for producing goods covered by the EU's proposed CBAM that are similar to those under the EU ETS, through an ETS and/or a carbon tax. An ETS will require a stringent cap in line with the pathway

to achieve net zero GHG emissions by 2050, as well as minimal free allocation (e.g. through sufficiently tight GHG emissions intensity benchmarks) and increasing levels of auctioning.² To support such a policy it would be advantageous to help finance investments in GHG mitigation technology by the producers of these goods, for example through an ETS auction revenue recycling system.

- Implement an MRV system for GHG emissions from production of covered goods and precursor materials in line with best international practice and consistent with the stringency of the EU MRV system, adopting the specific EU CBAM MRV system once it is available to facilitate reporting of actual emissions data to calculate embedded emissions.
- Seek cooperation and agreement with the EU in various areas to reduce CBAM impacts and embrace the potential opportunities. These areas relate to the design and implementation of MRV systems for embedded emissions and other specific elements of CBAM, development of ambitious and effective carbon-pricing systems, and support for industrial sector net zero transition.
- Consider full linking of a country's national ETS with the EU ETS to gain exemption from the EU's CBAM.

The EU's proposed CBAM is one of many policy measures in the EU's Fit for 55 package, to enable the EU to reduce GHG emissions by 55 percent by 2030 compared to 1990, in line with net-zero by 2050.

1. INTRODUCTION

The European Union (EU) has been implementing an ambitious climate policy for the past two decades. A notable milestone was reached when the European Commission adopted the “Fit for 55” package³ in 2021, consisting of 15 legislative proposals and associated impact assessments that should enable the European Union to reach the target of 55 percent reduction of greenhouse gas (GHG) emissions by 2030 compared to 1990. This target is to align with the EU's longer-term target of net zero GHG emissions by 2050, as set out in the European Climate Law.⁴

The EU Emissions Trading System (EU ETS)⁵ has been a cornerstone of EU climate policy since its start in 2005. It currently covers about 40 percent of the EU's GHG emissions. As a cap and trade system, it imposes a limit (or cap) on the number of emissions allowances, which then creates a price for GHG emissions based on market fundamentals of supply (from free allocation and auctioning) and demand for allowances (from verified emissions). Participants in the system will seek to pass on the costs of reducing emissions and buying allowances to their customers. However, some sectors face competition from producers outside the EU that do not have equivalent carbon costs and, therefore, may have a competitive advantage. The consequence is that production may increasingly take place outside the EU, leading to increases in GHG emissions. This phenomenon has become known as “carbon leakage.”

The current approach that seeks to prevent carbon leakage is free allocation of allowances (based on benchmarks) and in some cases financial support against the impact of “indirect carbon costs”;⁶ however, a Carbon Border Adjustment Mechanism (CBAM) has gained increasing support from policymakers over recent years.

The EU's proposed CBAM is included as one of the policy measures in the Fit for 55 package, in conjunction with proposed revisions to the EU ETS that would significantly strengthen the carbon price signal and increase the potential risk of carbon leakage, as a consequence of significant tightening in the emissions cap up to 2030.⁷

The CBAM is expected to have a unique exposure to Asian countries. Despite being relatively distant from the EU and having no electricity exports to the EU, these countries contributed more than 20 percent of the value of the EU's imports of CBAM-covered products for the period 2015-2019.⁸ Furthermore, when compared to other jurisdictions, CBAM exposure per unit of product for Asia countries is higher in general, due to their higher carbon intensities. For example, the carbon intensity of aluminum production in China and India, is estimated to be more than twice that of the EU, and more than 50 percent higher than that of the US.⁹ The potential exposure to CBAM is expected to increase in time as the scope of goods covered by the EU's proposed CBAM expands and as other key export markets for Asian goods, especially the US, are also considering similar measures. However, a potential advantage is that more and more Asian countries have planned or begun to develop ETSs in recent years,¹⁰ which may help mitigate the CBAM's impact if, as will be discussed in later sections, these emerging ETSs can deliver comparable carbon costs to the EU.

This paper discusses the proposal brought forward by the European Commission¹¹ and assesses its specific implications for companies and governments in Asia.

While the key implications can already be anticipated, it is important to note that this legislation is not yet final. It is currently

The aim of the CBAM is to put imported goods associated with significant GHG emissions onto a level playing field of having to pay a carbon price just like goods made in the EU.

progressing through the EU policymaking system. Furthermore, the current proposal defines a framework for the CBAM's functionality, but many technical details will be developed at a later stage as "implementing acts," as listed in Annex II. This paper tries to avoid speculation about these technical



Integrated steelworks in Korea - the steel sector is Korea's largest industrial GHG-emitting sector (Aflo Co. Ltd. /Alamy Stock Photo)

details; nevertheless, it goes beyond the proposal by outlining how such details could be developed by drawing on similar elements in the EU ETS, for example, regarding the monitoring, reporting, and verification (MRV) system. Given the focus on implications for Asian countries, this paper does not discuss special provisions of the CBAM proposal with regard to electricity imports.

2. THE SCOPE OF THE CBAM

2.1 Products covered

As the CBAM is intended to be a measure against carbon leakage and thereby to support the EU's climate policy and achievement of its climate targets, all the products to be covered must be on the EU ETS's "Carbon Leakage List."¹² In order to limit administrative burden, the scope is currently restricted to a few sectors that represent a large share of the emissions of the EU ETS at risk of carbon leakage. Furthermore, it is limited to basic materials and basic products, going

down the value chain only as far as needed. According to the European Commission's proposal, the following sectors and products will be covered:

- Electricity
- Cement and cement clinker
- Iron and steel
- Aluminum
- Fertilizers

More detailed definitions of the covered products in each sector are given in Annex I of the commission's proposal (see Annex I of this paper) and defined in line with CN¹³ codes. This system was chosen because it is well known to importers and authorities.

This list of covered products can be expanded as needed, for example, if it turns out that the CBAM is circumvented by importing similar but non-covered products or when more experience with the system has been gained and as free allocation as a carbon leakage instrument in the EU is phased out in more sectors. It is also possible that the list will be extended to cover more complex products down the value chain.

2.2 Countries affected

The aim of the CBAM is to put imported goods onto a level playing field of having to pay a carbon price just like products manufactured under the EU ETS. To avoid discriminating among countries, the CBAM should be equally applied to imports from all countries outside the EU. The only exemption from the CBAM is for goods from countries that either apply the EU ETS or have an ETS fully linked with the EU ETS.¹⁴ At this stage, this includes Norway, Iceland, and Liechtenstein, which apply the EU ETS, and Switzerland, whose

To establish an equal situation for imports as under the EU ETS, the carbon price already paid in its own jurisdiction will be deducted from the CBAM obligation.

ETS is fully linked to the EU ETS. Producers in these countries, therefore, face the same carbon price as that in the EU.



Aerial view of Shanghai Yangshan deepwater port (Getty Images)

To establish an equal situation for imports as under the EU ETS, a carbon price already paid in its own jurisdiction will be deducted from the **CBAM obligation**—to purchase a certain number of certificates matching the embedded emissions associated with that product at a price matching then-current EU ETS allowance prices. However, calculating the CBAM obligation could require significant administrative resources to obtain the necessary data. Therefore, the proposal allows for international agreements between the EU and third countries to cooperate on carbon pricing. Different types of agreements seem possible, for example, on aligning the MRV systems of the EU ETS and other carbon-pricing systems, or for the development of default values to be applied for embedded emissions, or carbon prices paid concerning individual regions or countries. This could considerably reduce the complexity of calculating the CBAM obligation for imports. The most desirable possibility, however, would be to reach sufficient convergence of the non-EU carbon-pricing system with the EU ETS such that a full linking of emissions trading systems would be possible in the future.

3. HOW WILL THE COMPLIANCE CYCLE WORK?

3.1 Transitional period before the CBAM fully operates

Before the CBAM comes into full operation, a transition period will allow experience to be gained in practical implementation issues, preparations to be completed, and its scope to be reviewed. In particular, data will be collected to determine the default values of embedded emissions for each product type under the CBAM scope, required to determine the CBAM obligation to be paid by importers.¹⁵

This transitional period is proposed to last for three years from 2023 to 2025. During this period, no **CBAM certificates** have to be purchased or surrendered, and the CBAM will be a “reporting only” scheme. **Declarants** will have to report the **embedded emissions** corresponding to their imports on a quarterly basis.¹⁶ Both direct and indirect emissions will have to be reported, as well as any carbon price paid in the country of origin of the goods imported. During this period, customs authorities will have to inform declarants of their CBAM obligations, including the need to become a registered declarant, and will also exchange relevant information with **competent authorities**.

Everything discussed below (starting from section 3.2) applies to the phase of full implementation of the CBAM, that is, from 2026 onward.

3.2 Overview (full CBAM implementation)

For the CBAM to work, several actors across many jurisdictions have to contribute and play their respective roles. In the EU, the central actor is the **competent authority** in

Customs authorities will allow imports of goods falling within the scope of the CBAM only if the declarant has already obtained an authorization from the competent authority.

each EU Member State that administers and supervises the “authorized declarants.” The latter are responsible for fulfilling the CBAM obligation by reporting the embedded emissions of imported goods and by surrendering the correct number of CBAM certificates. The authorized declarant, furthermore, has to make the usual customs declaration upon import of a good into the EU plus attach further information related to the CBAM. The calculation of the correct number of CBAM certificates to be surrendered requires that the authorized declarant knows the origin of the imported goods. If the operator of the installation where the good was produced provides actual data on its emissions, those emissions data can be used by the authorized declarant. Otherwise, default values are to be used. The **European Commission** is responsible for determining default values and providing a database into which operators can enter their emissions for use by authorized declarants. Finally, **verifiers** play a critical role at two points of the process. For one, the annual **CBAM declarations** of authorized declarants have to be verified. For the other, the embedded emissions data of operators outside the EU also need verification. For both tasks, verifiers have to obtain accreditation from an EU Member State’s accreditation body, which also performs surveillance activities on verifiers.

The text in section 3.4 explains the process in more detail.

3.3 Roles

The authorized declarant: This is the (natural or legal) person who lodges the customs declaration for import of goods into EU Member States. If the imported good falls within the scope of the proposed **CBAM Regulation**, the following criteria need to be complied with:

- The declarant must be established in an EU Member State.¹⁷
- The declarant has to apply to the competent authority of the Member State where it is established for an authorization to perform imports under the CBAM before the first such import. This application has to contain an estimation of the monetary value of the goods expected to be imported during the calendar year, and information necessary to demonstrate the financial capacity of the declarant to comply with the expected CBAM obligation.¹⁸ The competent authority will then register the declarant and make it thereby an “authorized declarant.”¹⁹
- Customs authorities will allow imports of goods falling within the scope of the CBAM only if the declarant has already received an authorization. This prevents such goods from being imported without a person responsible for complying with the CBAM; that is, the CBAM cannot be circumvented by just ignoring the obligation.

The verifier: Like in the EU ETS, emissions data have to be verified by a competent, independent (third-party) verifier. Verifiers are private companies that have to be contracted and paid by the authorized declarant, if the verification concerns the annual CBAM declaration, or by the operator of the installation where the goods are produced, if the verification concerns the embedded emissions of the goods produced. To ensure their competence, objectivity, and independence, verifiers have to be accredited by an EU Member State’s accreditation body.²⁰ Two aspects should be noted:

Operators of installations outside the EU should have an interest in reporting their actual emissions data because their exports to the EU should benefit from a competitive advantage, compared to the use of the EU's default values.

- The accreditation must be based on Regulation (EC) No 765/2008, which is the EU's generic framework for accreditation for all kinds of conformity assessment.²¹
- The draft CBAM Regulation also clarifies that those who are accredited as EU ETS verifiers, that is, pursuant to Commission Implementing Regulation (EU) 2018/2067 (the EU ETS Accreditation and Verification Regulation, the AVR), automatically meet the requirements for CBAM verifiers.²²

The competent authority: It can be assumed that some Member States will use their finance or trade ministries, economy/industry ministries, environment/climate ministries, or an environment or customs agency. It is also possible that they will set up a new dedicated CBAM agency or empower the authority in charge of the EU ETS to also regulate the CBAM in their territory. Importers will have to find out their Member State's respective competent authority as soon as the implementation of the CBAM starts.

Customs authorities: These authorities will have a new control task to perform, but otherwise no changes in their institution or working methods are expected.

The European Commission: The European Commission not only develops legislation; it also ensures that the legislation is appropriately implemented. In the case of the CBAM, the proposal assigns a coordinating role to the commission to ensure uniform application of the CBAM across the EU. The commission has to develop many legal rules on technical and implementation details of the

CBAM, in particular, default values for the calculation of the CBAM obligation for each imported product. The latter requires robust data collection. The proposal, therefore, foresees that the commission will set up and operate a database for collecting emissions data from installations.

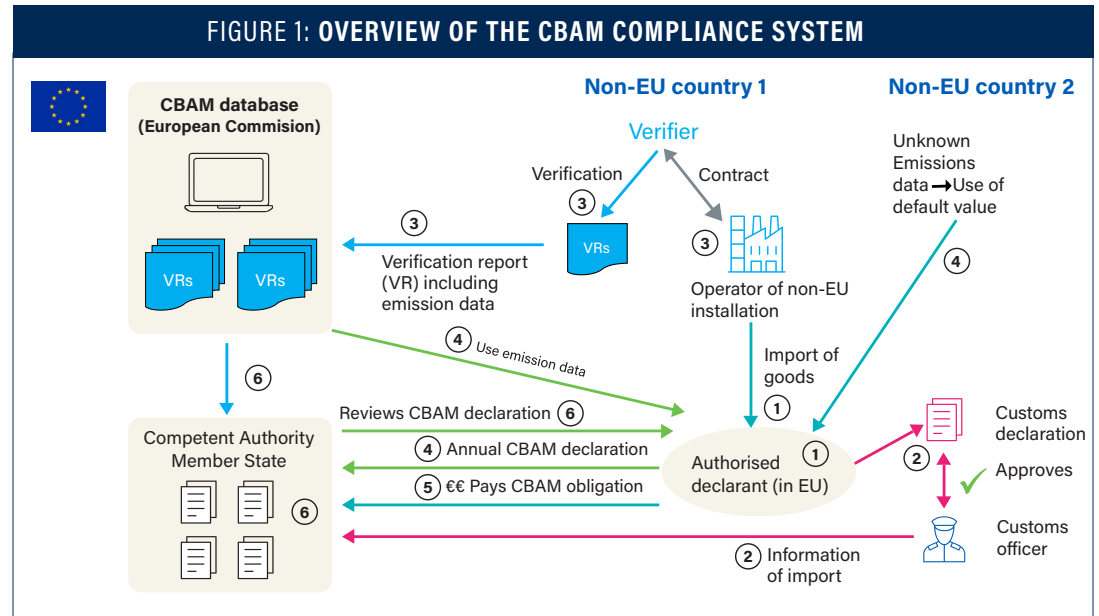
Operators of installations outside the EU:

If operators want to export their products to the EU, the CBAM imposes no obligation on operators, only on importers. However, operators may produce their goods in a more GHG-efficient manner than implied by the CBAM's default values for embedded emissions, or they may have already paid a carbon price on GHG emissions associated with their production process. In such cases, the operator will have a justified interest in telling the competent authorities and the EU importers about these facts, because their products will benefit from a competitive advantage if the default values are not applied to their products.

If operators want to make use of the option to report actual emissions data from their own monitoring, reporting, and verification (MRV) system, which might be based on the MRV system of a relevant carbon-pricing system in their own jurisdiction, they need to comply with the following:

- The operator has to request a registration in the European Commission's database, which will be valid for five years.
- The operator has to determine embedded emissions of the goods it produces, if they fall within the scope of the CBAM, and ensure the emissions data are verified by an accredited verifier.

Figure 1 summarizes all the relevant data flows and activities in the proposed CBAM during the full implementation phase.



Source: Environment Agency Austria (Umweltbundesamt)

- The operator has to keep a copy of the verification report and the underlying data for at least four years after the verification. The information must be sufficiently transparent and detailed for a competent authority to review CBAM declarations that use the operator's data.

Since the aim of this process is that the importers (the authorized declarants) can use the operator's emissions data, the CBAM Regulation foresees that the operators can disclose the above information to their authorized declarants.²³

3.4 Activities and deadlines

Figure 1 summarizes all the relevant data flows and activities in the proposed CBAM during the full implementation phase:

1. When an import into the EU is physically taking place, the authorized declarant must have already obtained the authorization from the competent authority.²⁴

2. The red arrows in the figure explain the first data flow that takes place together with the import:

- a. The authorized declarant files the usual customs declaration. For the purpose of the CBAM, this might be updated if needed.
- b. The customs authority performs the usual checks upon import. If the imported good's CN code falls within the scope of the CBAM, the authority will check if the declarant is an authorized declarant. If this is not the case, the import will not be allowed.
- c. The customs authority will then report the declarant's identification number as well as the types and quantity of the imported goods to the competent authority in the Member State where the declarant is authorized, that is, the authority to whom the authorized declarant will have to submit the annual CBAM declaration.²⁵

Once per year, by May 31, the authorized declarant must submit to the competent authority a CBAM declaration, which can be compared to an annual imported emission report.

3. For calculating the CBAM obligation, that is, the number of CBAM certificates to be surrendered, the embedded emissions per tonne of product need to be known. In many cases, the authorized declarant will not have that information available, and a default value will have to be used for the embedded emissions of each imported product. Alternatively, if an operator of an installation wants to provide actual data of its specific installation where the good is produced, the following will apply (blue arrows in Figure 1):
 - a. The operator requests registration in the European Commission's database.
 - b. The operator has monitored the relevant emissions data over the previous calendar year, based on a relevant international standard, a national monitoring protocol, rules used in the EU ETS, and so on.²⁶
 - c. The operator has to contract a verifier that has a valid accreditation by a national accreditation body of an EU Member State.
 - d. The verifier carries out the verification in accordance with the implementing acts for the CBAM, which provide technical details on verification according to applicable international standards.
 - e. If the verifier is satisfied after the audit that the operator's emissions data are correct and in compliance with the requirements of the CBAM, the verifier provides a positive verification opinion statement and a verification report in compliance with the CBAM Regulation and its implementing acts.

- f. The operator makes the verification report available via the commission's database.

4. Once per year, by May 31, the authorized declarant must submit to the competent authority a "CBAM declaration" (light green arrows in Figure 1), which can be compared to an "annual imported emission report"; that is, it identifies the number of certificates that must be surrendered²⁷ for compliance with the CBAM, also termed the "CBAM obligation."

The calculation of the CBAM obligation is done by the following steps:

- a. For each product type²⁸ p , the CBAM obligation $CO_b p$ is (expressed as number of certificates):

$$CO_b p = (EE_p - FA_p) \cdot M_p - CP_p$$

Where

EE_p – Embedded emissions per tonne for product p (either the actual embedded emissions reported by the installation where it was produced or the EU's default value).²⁹

FA_p – Free allocation equivalent for product p in the EU. This would be equivalent to the EU ETS benchmark for the same product multiplied by a correction factor for the percentage of free allocation granted for that product in the EU ETS during the phaseout period for free allocation.³⁰ The correction factor is 100 percent until 2025; then it decreases in 10 percent intervals until it reaches zero in 2035.³¹

M_p – Mass of product p imported.

CP_p – Correction for the carbon price

The amount of free allocation in a jurisdiction's ETS should be minimized to get the best deduction from the CBAM obligation.

already paid for the same quantity of product p in the jurisdiction where p was produced, if applicable and known. Since the formula above calculates COB_p as number of certificates, this carbon price must be converted into an appropriate number of CBAM certificates. Considering that the carbon price in the jurisdiction of the product's origin will be different and that the carbon pricing might have a system of free allocation in place, CP_p ³² might be calculated using a formula like the following:

$$CP_p = (E - FA) \cdot P_{origin} / P_{CBAM}$$

Where

E – Emissions under the carbon pricing system

FA – Free allocation under the carbon pricing system

P_{origin} – Price of a tonne CO_2e in the country of origin of p

P_{CBAM} – Price of one CBAM certificate

However, the exact details for how to calculate this term are not yet known, for example, which CBAM certificate price to use for this correction. These details will be defined in implementing acts by the commission.

- b. The total CBAM obligation of the authorized declarant is then calculated as the sum of all the COB_p calculated above.
5. By the same deadline (May 31), the authorized declarant must surrender the number of CBAM certificates resulting from the calculation. The authorized declarant should ensure throughout the year that a sufficient

number of certificates available are on hand and not have to buy them just before submitting the CBAM declaration because the declarant is required to have certificates on its Registry account that – by the end of each quarter – are equivalent to at least 80% of the estimated embedded emissions of the imported goods.³³

6. The competent authority finally reviews the CBAM declarations by comparing them against the data aggregated from the information received from the customs authorities (step 2.c above) regarding type and mass of imported goods, and against the default values for embedded emissions applicable for each product type. Where the CBAM declaration states that the emissions of a specific registered operator are used, the competent authority might also review the plausibility of the emissions report of that operator stored in the commission's database.³⁴ If the review shows that the declarant has surrendered too few allowances, the declarant must surrender the additional ones and pay the related fine. If the review shows that too many certificates have been surrendered, the authority will reimburse the declarant for the excess certificates.

If the authorized declarant has not submitted any CBAM declaration by the deadline, or if it was not positively verified, the competent authority will estimate the number of certificates to be surrendered based on available information and inform the authorized declarant thereof.

3.5 Certificate price and the certificate life cycle

To make the CBAM obligation comparable to

MRV is relevant at two points in the CBAM system: the authorized declarant must provide an annual CBAM declaration and operators of installations outside the EU may provide their embedded emissions data.

the costs faced by an operator under the EU ETS, the price of a CBAM certificate should be as similar to the allowance price in the EU ETS as possible. Therefore, the European Commission will publish the price to be used in the CBAM weekly, based on the average auctioning price of the previous week.

The certificates exist only in electronic form (like the EU ETS allowances). Therefore, to purchase CBAM certificates, the authorized declarant must have an account opened in the Registry of its Member State. Certificates are sold by the competent authority, and the sales price is stored in the Registry, too, in case the authorized declarant wants to sell them back to the authority, or if the review of its CBAM declaration shows that certificates have been surrendered in excess.³⁵

The competent authority will cancel by June 30 every year any CBAM certificates remaining in Registry accounts valid for the previous year. Hence, banking of certificates is not foreseen, and authorized declarants should keep track of their certificate needs carefully throughout the year.

4. MRV REQUIREMENTS

At this point in time, little is known of the CBAM's MRV requirements on the embedded emissions of products. Implementing acts have to be adopted by the European Commission once the CBAM Regulation itself has come into force. However, the requirements can be reasonably anticipated, based on practical considerations and experience from the current MRV requirements in the EU ETS. As has been described in section 3, MRV is relevant at two points in the CBAM system: the authorized declarant must provide an annual CBAM declaration, which will be the topic for section 4.1, and operators of installations outside the EU may provide

their embedded emissions data, as discussed in section 4.2. Section 4.3 completes this chapter with some remarks on verification.

4.1 MRV from authorized declarant's perspective

If an authorized declarant wants to prepare for the CBAM, it could set up a monitoring plan and related control procedures, just as an operator or aircraft operator has to do under the current EU ETS. In practice, a declarant will have to handle a (potentially) long list of imports carried out each year. The most appropriate way to handle the CBAM might be to install a mechanism (automatically in the bookkeeping software) that generates a list of all imported goods that fall under the CBAM. For each such import, the declarant will require the embedded emissions. Therefore, the declarant should immediately add information on the origin of the imported good to the database.

For preparing the annual CBAM declaration (and for purchasing the required certificates), the declarant needs information on the embedded emissions of each good and of any carbon price already paid in the jurisdiction of origin of the goods. For this purpose, the declarant can, for example, make the disclosure of that information a dedicated clause in the purchase contract. Alternatively, it can ask the relevant operators to grant access to emissions data in the European Commission's database. If no specific information is available, the relevant default value published by the commission can be used. Overall, a relatively simple spreadsheet will be sufficient to prepare the CBAM declaration, provided the list of imports is always kept up-to-date.

Since the authorized declarant only uses emissions data generated elsewhere, the

The embedded emissions reflect a simplified product carbon footprint.

main task is to ensure the completeness of the imports list and of the other relevant factors for the calculation described in section 3.4. Such lists are also relatively simple to verify.

4.2 MRV for operators producing goods to be imported into the EU

Monitoring emissions of an industrial installation is a more demanding task. Although the concrete rules are not yet known, it is quite possible that the starting point will be the rules known from the EU ETS. Not only is the CBAM's aim to make the system as comparable to the EU ETS as possible but also the EU ETS's MRV rules can be considered best practice in this field, including a building block system that allows the operator to choose a method that best fits its actual installation's configuration, thereby implementing the principle of cost effectiveness. The EU ETS's system ensures that the principles of every reliable GHG inventory should respect the following:

- Completeness
- Accuracy
- Consistency over time
- Credibility based on transparency

In principle, emissions monitoring means:

- Using a calculation-based approach, based on the metering of the amounts of fuels and materials consumed, and determining the emissions factors of all those fuels and materials, or
- Using continuous monitoring at each stack, measuring the flue gas flow and the GHG concentration in the gas.

In the EU ETS, most operators use the calculation methodology. More information

can be found on the European Commission's website,³⁶ where a large number of guidance documents and example templates explain the rules.

However, monitoring an installation's emissions is only part of the story. Whenever an installation produces several products, the emissions must also be appropriately attributed to the individual products. For this purpose, the EU ETS rules for free allocation introduce the concepts of "sub-installations" (the system boundaries for the product benchmarks) and "attributed emissions." Again, a discussion of those rules would exceed the possibilities of this paper. Reference, therefore, is made again to the commission's website.³⁷

Beyond those two sets of EU ETS rules, additional rules will be needed to calculate the embedded emissions of products. The basic concept in the CBAM Regulation includes the embedded emissions of precursor materials; that is, the embedded emissions reflect a very simplified product carbon footprint. For example, the embedded emissions of a hot-rolled steel sheet should include the emissions occurring during the production of coke and sinter/pellets used to produce the pig iron, as well as emissions from basic steelmaking and hot rolling. Therefore, the operator reporting for the CBAM will also have to monitor and report the quantities of coke and sinter used in its steelmaking process and will have to determine the embedded emissions of these precursor materials. Also, the indirect emissions embedded in the electricity consumed will need to be monitored. Note that the emissions from heat consumed are already included in the EU ETS rules (usually considered to be direct emissions). Finally, the operator will have to report to the com-

CBAM is not intended as a trade barrier, but as a measure against carbon leakage, and even more as an incentive for other jurisdictions to adopt effective GHG abatement policies.

mission's CBAM database information on any carbon price already paid within its own jurisdiction. This may include the carbon price per tonne of CO₂e paid, and the amount of free allocation or any other financial support received per tonne of the product relevant for the CBAM.

4.3 Verification

As mentioned earlier, both the authorized declarant's annual CBAM declaration as well as the registered operator's annual emission data have to be verified by a verifier accredited under EU legislation. For both types of verification, only some general principles are given in the proposal for the CBAM Regulation. Most importantly, verification will need to be thorough to meet the required "reasonable assurance" approach. Site visits will be mandatory, although the commission's implementing acts may provide some criteria for conditions for waivers.³⁸ Otherwise, the basic principles of the EU ETS Accreditation and Verification Regulation will likely be followed, because that Regulation follows in principle the international verification standards of the ISO 14064 and ISO 14065 series.

5. WHAT WILL CBAM MEAN FOR ASIAN JURISDICTIONS?

European policymakers have repeatedly explained that the CBAM is intended as a purely environmental measure. It is not intended as a trade barrier, but as a measure against carbon leakage, and even more as an incentive for other jurisdictions to adopt effective GHG abatement policies. This intent is also clear in the CBAM proposal, which reduces the CBAM obligation on imports of goods in line with their preexisting carbon costs. The European Commission also engages in projects with third countries to support the development of carbon-pricing

systems. The goal is a full linking of emissions trading systems, in which case the country's imports are exempt from the CBAM.

Despite the development of some emerging ETSs, Asian countries have significant CBAM-covered industrial product exports and relatively high carbon intensities, posing challenges in mitigating CBAM's influence. The specific implications for companies and governments in Asia are considered in the following sections.

5.1 Companies

The main requirements of the CBAM fall on companies rather than countries, including the following:

1. Companies carrying out imports into the EU: These companies must report embedded emissions and surrender CBAM certificates equivalent to the embedded emissions. Since this obligation has to be met by authorized declarants within the EU, Asian companies will request either a European service provider or the company that receives the goods in the EU to act as that authorized declarant. Alternatively, the Asian company may have a European branch in an EU country that can perform the relevant compliance tasks.
2. Operators of installations producing such products: These operators have the option to report their actual emissions, which may give them an advantage when selling to the EU, provided their emissions are lower than the CBAM's default values for embedded emissions.

To maintain and enhance their competitive-

To maintain and enhance their competitiveness, companies exporting covered goods to the EU should minimize their CBAM obligations by reducing embedded emissions and preparing for CBAM-related data disclosure.

ness, companies importing covered goods into the EU should minimize their CBAM obligations through reviewing their supply chain; determining the potential impact of the CBAM on their business, including assessing the amount of embedded emissions in their imported products; and implementing actions to reduce the costs of compliance with the CBAM by reducing embedded emissions of the supply chain. They should also prepare for CBAM-related data disclosure, for which obligations start in the transition period, and consider using the option of reporting actual emissions data. This will require working closely with suppliers, including producers of precursor materials for goods covered by CBAM.

Operators of installations producing products and precursor materials covered by the CBAM should avoid having disadvantageous default values applied to their exports by implementing best practice MRV systems³⁹ to enable actual emissions to be used in determining the CBAM obligation,⁴⁰ and by minimizing the amount of embedded carbon emissions of their products through maximizing energy efficiency, transitioning to clean energy, and mitigating GHG emissions. Such actions will be required to achieve national net zero GHG emissions targets, perform well under policies such as ETSs, and achieve a long-term competitive advantage. Furthermore, the benefits of going above and beyond in compliance will be multiplied as other jurisdictions seek to adopt similar CBAM policies.

The relevant countries may provide financial support and incentives for such low-carbon action. For example, where a country has an ETS, a key potential source can include auction revenue.

5.2 Government

Governments outside the EU can help reduce the CBAM obligations of importers of goods produced in their country by imposing carbon costs on the production of those goods, with the obligation reducing to zero if the carbon costs become equivalent to those under the EU ETS for the same goods.⁴¹

Such carbon costs can result from an ETS and/or a carbon tax. There are many examples of such carbon pricing policies under implementation or development in Asia, covering most of the major economies, with ETS development being a particularly dynamic and quickly evolving area.

For an ETS, key elements to consider for reducing the CBAM obligation include the following:

- **Cap setting:** To support a carbon price similar to that of the EU ETS, an ambitious cap, in line with the pathway to achieve net zero by 2050, must be implemented. This may be achieved through alignment of the cap with the country's 2030 nationally determined contribution (NDC), provided it was sufficiently ambitious.
- **Free allocation:** The amount of free allocation should be minimized by (a) adopting ambitious GHG emissions intensity benchmarks that equate to best practice⁴² and (b) introducing and gradually increasing auctioning for sectors producing goods covered by the CBAM.⁴³

To support installations in such an ETS it would be advantageous to help finance investments in GHG mitigation technology through an ETS auction revenue recycling system. This

This type of policy will increase considerably the competitive disadvantages of high GHG emissions intensity production, thus reinforcing and potentially accelerating the clean energy and net-zero transition.

would require increasing levels of auctioning, with potentially full auctioning possible for the power sector if carbon costs can be passed through in electricity prices.

To facilitate the reporting of actual emissions data to calculate embedded emissions of products exported to the EU, countries should apply an MRV system in line with best international practice and consistent with the stringency of the EU MRV system, adopting the specific EU CBAM MRV system once it is available. Such a system may already exist or be under development if the country has implemented or is planning to implement an ETS.

These actions would also help facilitate linking with the EU ETS, and hence exemption from the CBAM.⁴⁴

More generally, governments should seek cooperation and agreement with the EU in various areas to reduce CBAM impacts and embrace the potential opportunities. These relate to the design and implementation of MRV systems for embedded emissions and other specific elements of CBAM, development of ambitious and effective carbon-pricing systems, and support for industrial sector net zero transition.

6. CONCLUSIONS

The EU's proposed Carbon Border Adjustment Mechanism (CBAM) will introduce reporting requirements of embedded carbon emissions for importers of a number of key industrial goods starting in 2023, followed by potentially significant financial costs of CBAM certificates starting in 2026, when full implementation begins.

The objective of imposing these costs is ensuring that ambitious climate action in the EU, in

line with achieving net zero GHG emissions by 2050, particularly through an increasingly stringent EU ETS, does not result in carbon leakage or the transfer of production to jurisdictions with less ambitious climate policies that would lead to an increase in total emissions. As such, a key objective of the proposed CBAM is to encourage other jurisdictions to adopt similar ambitious carbon-pricing policies and, in doing so, support the achievement of the Paris Agreement's climate goals.

This type of policy will increase considerably the costs and competitive disadvantages associated with high GHG emissions intensity production, not only in its initial implementation but also as the scope of covered goods may expand and as more jurisdictions globally may adopt it, thus reinforcing and potentially accelerating the clean energy and net zero transition.

In response, actions should be taken at the company level to minimize the potential costs of the EU's proposed CBAM and thus maintain and enhance competitiveness, and at the national level to support their producers, as well as support the achievement of the Paris Agreement's climate goals.

For companies producing and importing covered goods into the EU, the following advice can be given:

- Prepare for CBAM-related data disclosure of covered goods and precursor materials through the supply chain from the transition period, proposed to start in 2023, and strongly consider using the option of reporting actual carbon emissions data rather than the potentially disadvantageous default values. This will require adopting best practice

Governments should implement ambitious carbon pricing policies that achieve carbon costs for producing goods covered by the EU's CBAM that are similar to those under the EU ETS.

in MRV systems, consistent with the stringency of the EU ETS MRV system, with more specific requirements to be confirmed later in the CBAM's implementing acts.

- Assess and minimize the amount of embedded carbon emissions in covered goods and precursor materials across the supply chain. In particular, producers of covered goods should maximize energy efficiency, transition to clean energy, and mitigate GHG emissions, taking advantage of any available financial support. Such measures will be required in any case to comply with national GHG emissions reduction targets and policies, but the EU's proposed CBAM could drive greater urgency in net zero transition efforts.

For governments, conclusions include:

- Implement an ambitious and effective carbon pricing policy to realize carbon costs for producing goods covered by the EU's proposed CBAM that are similar to those under the EU ETS, through an ETS and/or a carbon tax. An ETS will require an ambitious cap in line with the pathway to achieve net zero GHG emissions by 2050, and corresponding 2030 targets, as well as minimal free allocation (e.g. through ambitious GHG emissions intensity benchmarks) and increasing

levels of auctioning.⁴⁵ It would be advantageous to help finance investments in GHG mitigation technology, for example, through an ETS auction revenue recycling system,⁴⁶ and through use of the value of allowances that would otherwise be allocated for free to these sectors.

- Implement an MRV system for GHG emissions from production of covered goods and precursor materials in line with best international practice and consistent with the stringency of the EU MRV system, adopting the specific EU CBAM MRV system once it is available to facilitate the reporting of actual emissions data to calculate embedded emissions. This should in any case be a key element of an ETS, as described above.
- Seek cooperation and agreement with the EU in various areas to reduce CBAM impacts and embrace the potential opportunities. These areas relate to the design and implementation of MRV systems for embedded emissions and other specific elements of CBAM, development of ambitious and effective carbon-pricing systems, and support for industrial sector net zero transition.
- Consider full linking of a country's national ETS with the EU ETS to gain exemption from the EU's CBAM.

ANNEX I

CBAM COVERED GOODS ACCORDING TO ANNEX I OF THE EUROPEAN COMMISSION PROPOSAL

The proposed CBAM Regulation in its Annex I defines the scope of the CBAM as follows:

1. For the purpose of the identification of goods, this Regulation shall apply to goods listed in the

following sectors currently falling under the combined nomenclature ('CN') codes listed below, and shall be those of Council Regulation (EEC) No 2658/87.

2. For the purposes of this Regulation, the greenhouse gases relating to goods falling in the sectors listed below, shall be those listed below for each type of goods.

CEMENT	
CN CODE	GREENHOUSE GAS
2523 10 00 – Cement clinkers	Carbon dioxide
2523 10 00 – Cement clinkers 2523 21 00 – White Portland cement, whether or not artificially coloured	Carbon dioxide
2523 29 00 – Other Portland cement	Carbon dioxide
2523 90 00 – Other hydraulic cements	Carbon dioxide

ELECTRICITY	
CN CODE	GREENHOUSE GAS
2716 00 00 – Electrical energy	Carbon dioxide

FERTILISERS	
CN CODE	GREENHOUSE GAS
2808 00 00 – Nitric acid; sulphonitric acids	Carbon dioxide and nitrous oxide
2814 – Ammonia, anhydrous or in aqueous solution	Carbon dioxide
2834 21 00 – Nitrates of potassium	Carbon dioxide and nitrous oxide
3102 – Mineral or chemical fertilisers, nitrogenous	Carbon dioxide and nitrous oxide
3105 – Mineral or chemical fertilisers containing two or three of the fertilising elements nitrogen, phosphorus and potassium; other fertilisers; goods of this chapter in tablets or similar forms or in packages of a gross weight not exceeding 10 kg - Except: 3105 60 00 – Mineral or chemical fertilisers containing the two fertilising elements phosphorus and potassium	Carbon dioxide and nitrous oxide

IRON AND STEEL	
CN CODE	GREENHOUSE GAS
72 – Iron and steel Except: 7202 – Ferro-alloys, 7204 – Ferrous waste and scrap; remelting scrap ingots and steel	Carbon dioxide
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	Carbon dioxide
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	Carbon dioxide
7303 00 – Tubes, pipes and hollow profiles, of cast iron	Carbon dioxide
7304 – Tubes, pipes and hollow profiles, seamless, of iron (other than cast iron) or steel	Carbon dioxide
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	Carbon dioxide
7306 – Other tubes, pipes and hollow profiles (for example, open seam or welded, riveted or similarly closed), of iron or steel	Carbon dioxide
7307 – Tube or pipe fittings (for example, couplings, elbows, sleeves), of iron or steel	Carbon dioxide
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	Carbon dioxide
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	Carbon dioxide
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	Carbon dioxide
7311 – Containers for compressed or liquefied gas, of iron or steel	Carbon dioxide

ALUMINIUM	
CN CODE	GREENHOUSE GAS
7601 – Unwrought aluminium	Carbon dioxide and perfluorocarbons
7603 – Aluminium powders and flakes	Carbon dioxide and perfluorocarbons
7604 – Aluminium bars, rods and profiles	Carbon dioxide and perfluorocarbons
7605 – Aluminium wire	Carbon dioxide and perfluorocarbons
7606 – Aluminium plates, sheets and strip, of a thickness exceeding 0,2 mm	Carbon dioxide and perfluorocarbons
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	Carbon dioxide and perfluorocarbons
7608 – Aluminium tubes and pipes	Carbon dioxide and perfluorocarbons
7609 00 00 – Aluminium tube or pipe fittings (for example, couplings, elbows, sleeves)	Carbon dioxide and perfluorocarbons

ANNEX II

IMPLEMENTING LEGISLATION REQUIRED AND REVIEW CLAUSES

As mentioned throughout this paper, the current European Commission proposal for a CBAM needs to be supplemented by several “implementing acts” (IA) and “delegated acts” (DA). Furthermore, some technical details will be finalized only after the transitional period (see section 3.1), when a legislative review of the CBAM Regulation is expected. The following list summarizes the topics for which technical details still need to be defined:

- Following a review after the transitional period:
 - Whether indirect emissions (i.e., emissions from electricity consumed) should be included
 - Whether additional goods should be included in the CBAM
 - Whether additional goods should be included in the CBAM⁷
 - Whether emissions from transport services should be included
 - Whether to extend the scope to products down the value chain
- Details to be laid down in implementing/delegated acts:
 - Format of applications and procedure for authorization of declarants
 - Format and procedure for submitting the CBAM declaration
 - Arrangements for surrendering CBAM certificates
 - Detailed rules regarding the calculation method for embedded emissions, including system boundaries of production processes, emissions factors, and so on
 - Verification rules
 - Methodology for calculating the reduction of the number of CBAM certificates to be surrendered due to a carbon price already paid (including rules for currency exchange rates, etc.), and for how to provide proof of the carbon price paid
 - Methodology for reducing the CBAM obligation due to free allocation in the EU ETS
 - Methodology of determining the actual CBAM certificate price, and modalities to publish the price
 - Which information is to be exchanged between customs authority and competent authority, and modalities for that information exchange
 - MRV requirements for the transitional period
 - Default values for embedded emissions and other calculation values
 - Rules for accreditation and surveillance of verifiers
 - Including similar products in the CBAM scope to avoid circumvention

ENDNOTES

- ¹ Including the United States, Canada, and the United Kingdom.
- ² Combined with suitable carbon leakage mitigation measures.
- ³ “Delivering the European Green Deal,” European Commission, July 14, 2021, https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en
- ⁴ Regulation (EU) 2021/1119 of the European Parliament and of the Council of June 30, 2021, establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999. (“European Climate Law”), <http://data.europa.eu/eli/reg/2021/1119/oj>
- ⁵ Legal basis is the “EU ETS Directive,” Directive 2003/87/EC, consolidated version: <http://data.europa.eu/eli/dir/2003/87/2021-01-01>
- ⁶ Carbon costs contained in the price of electricity, i.e., the carbon costs of the “indirect emissions” embedded in electricity consumption.
- ⁷ With a proposed reduction in the cap of 61% by 2030 compared to 2005 levels, in comparison with 43% previously.
- ⁸ “Which countries are most exposed to the EU’s proposed carbon tariffs?” Chatham House, August 20, 2021, <https://resourcetrade.earth/publications/which-countries-are-most-exposed-to-the-eus-proposed-carbon-tariffs>.
- ⁹ “Aluminum Climate Impact-An International Benchmarking of Energy and CO₂ Intensities,” Global Efficiency, Intelligence, 2021, <https://static1.squarespace.com/static/5877e86f9de4bb8bce72105c/t/624d11ab5a37a4341fd85a6e/1649217981897/Aluminum+benchmarking+report-+Feb2022+rev2.pdf>.
- ¹⁰ [ETS Implementation in East and Southeast Asia Interactive Map](https://asiasociety.org/policy-institute/building-chinese-carbon-market-and-its-regional-connections), Asia Society Policy Institute, accessed October 24, 2022, <https://asiasociety.org/policy-institute/building-chinese-carbon-market-and-its-regional-connections>.
- ¹¹ “Carbon Border Adjustment Mechanism,” European Commission, July 14, 2021, https://ec.europa.eu/taxation_customs/green-taxation-o/carbon-border-adjustment-mechanism_en and “Proposal for A Regulation of the European Parliament and of the Council Establishing A Carbon Border Adjustment Mechanism,” European Commission, July 14, 2021, <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:52021PC0564>
- ¹² Commission Delegated Decision (EU) 2019/708 contains the list of industry sectors deemed at significant risk of carbon leakage according to criteria contained in the EU ETS Directive, see http://data.europa.eu/eli/dec_del/2019/708/oj
- ¹³ Combined Nomenclature, which is the European statistical classification system compatible with the United Nation’s HS (Harmonized System) used in international trade.
- ¹⁴ Including a full linking agreement between the EU ETS and the other carbon-pricing system.
- ¹⁵ These are to be based on the average emissions intensity of each exporting country for each good under the scope of the proposed CBAM regulation, except electricity. When reliable data for the exporting country cannot be applied for a type of good, the default values will be based on the average emissions intensity of the 10% worst performing EU installations for that type of good. Further details will be specified in secondary legislation for the CBAM.
- ¹⁶ In full implementation: annually.
- ¹⁷ That means that any non EU company that intends to sell goods to clients situated in the EU customs territory needs to agree with the EU client that the latter is responsible for the import declaration, or it has to contract an EU importer for providing services to comply with the CBAM Regulation.
- ¹⁸ If the declarant has not been established for the two years before the application (i.e., if the financial capacity cannot be sufficiently demonstrated), the competent authority may require a bank guarantee by the declarant.
- ¹⁹ The European Commission may adopt implementing acts (i.e., more detailed legislation) on further details of this authorization procedure.
- ²⁰ The proposed Regulation does not specify based on which international standard the accreditation should be carried out. The commission is empowered to adopt an implementing act later, which may contain further details.
- ²¹ This automatically guarantees that any verifier having such accreditation will be allowed to operate in all EU Member States. It also guarantees that all national accreditation bodies apply similar procedures and requirements in the accreditation process. And not least, the use of accreditation ensures that there is regular surveillance on verifiers, ensuring their competence, impartiality, and independence from their clients. In case of misconduct, the verifier’s accreditation can be suspended or withdrawn.
- ²² However, at this stage it is not yet known whether for that purpose the AVR will be amended accordingly by adding specific requirements for CBAM verification or by specifying separate accreditation scopes for that purpose.
- ²³ Although it is not explicitly stated in the legal text of the proposed Regulation, it can be assumed that this involves storing the operator’s data in the commission’s database, since it is regulated in the same article of the Regulation.
- ²⁴ Without authorization, the declarant is not an “authorized declarant.”
- ²⁵ By this report, the customs authorities provide the data basis that the competent authorities require for reviewing and approving the annual CBAM declarations.
- ²⁶ Which MRV rules will be acceptable under the CBAM will be defined in implementing acts by the European Commission at a later stage. Those rules may require that the installation uses a monitoring plan that is checked for compliance with these MRV rules, e.g., by the verifier. The implementing act might also contain provisions for accepting data from robust MRV systems that are in place for carbon pricing in the operator’s jurisdiction, provided that the CBAM’s data quality requirements are met in such cases.

²⁷ “Surrender” means to give the certificates to the competent authority (which, in fact, is a transfer from the declarant’s account to a special account in the Registry, from which the certificates are then finally cancelled).

²⁸ For simplification, all products with the same embedded emissions per tonne product can be considered one product.

²⁹ One possibility to calculate the embedded emissions of a product p is the following formula, which takes into account the embedded emissions of precursor materials in a recursive approach:

$$EE_p = EM_p + IE_p + \sum_{i=1}^n MC_i \cdot (EM_i + IE_i)$$

where

EM_p – (direct) emissions of the production process for p

IE_p – Indirect emissions of the production process for p

i – Index for precursor materials

MC_i – Mass consumed of precursor material i

$EM_i + IE_i$ – Direct + indirect emissions of production process for i

Note that in the case of the commission proposal, $IE=0$; i.e., no indirect emissions will be used (this is subject to a planned review).

³⁰ This provision is found in the commission’s Fit for 55 proposal for the amendment of the EU ETS Directive.

³¹ Subject to monitoring provisions yet to be adopted in implementing acts, the same rules for taking into account value chains and emissions of precursor materials will have to be applied to the FA_p values based on EU ETS benchmarks, and to default values for embedded emissions. “Same rules” here means that the free allocation granted (and possibly some compensation for indirect emissions, if applicable) to the production process of precursor materials should be taken into account in a similar “recursive” approach as given for embedded emissions in footnote 26.

³² Theoretically, CP_p can be negative according to the formula given. While the proposed Regulation is quiet on this point, it can be assumed that implementing acts will clarify that in such cases CP_p will be considered zero.

³³ This seems to be a measure against fraudulent behavior such as liquidating the company of the authorized declarant just before the CBAM declaration is due.

³⁴ The proposed Regulation allows the authority to carry out that review for four years following the CBAM declaration, which means that if an error is detected one year, the competent authority will aim at having the same mistake corrected for the earlier years, too.

³⁵ If, after the surrender by May 31 based on the CBAM declaration, the declarant wants to sell the remaining certificates to the authority, it must file a request for repurchase to the authority by June 30 of that year. Authorities will repurchase the certificates only up to one-third of the total amount purchased by the declarant the previous year, at the exact same price as they were sold. CBAM certificates cannot be traded among authorized declarants or third parties, and their price is determined strictly by the EU ETS allowance price.

³⁶ https://ec.europa.eu/clima/eu-action/eu-emissions-trading-system-eu-ets/monitoring-reporting-and-verification-eu-ets-emissions_en. The best entry points for a reader new to the topic are the “Quick guides” found on that page and Guidance document No.1, https://ec.europa.eu/clima/system/files/2018-07/gd1_guidance_installations_en.pdf

³⁷ https://ec.europa.eu/clima/eu-action/eu-emissions-trading-system-eu-ets/free-allocation_en. The best entry point regarding MRV rules is Guidance document No. 5, https://ec.europa.eu/clima/system/files/2019-02/p4_gd5_mr_guidance_en.pdf

³⁸ For example, in the EU ETS the site visit may be waived if all the relevant data can be accessed remotely, and if an initial verification (in a previous year) included a site visit.

³⁹ And adopt the CBAM MRV requirements once they are available.

⁴⁰ For example, under the EU ETS \$118 billion of auction revenue was generated between 2013 and 2021, of which more than 50% has been generated in 2020 and 2021 due to the higher carbon prices and large share of auctioning (approximately 57% of total allowances).

⁴¹ Although there would still be administrative costs including MRV unless the country became exempt from the CBAM due to full ETS linking with the EU ETS.

⁴² For example, average of top 10% installations in the EU, or 90% of weighted average of all installations in California.

⁴³ Associated with appropriate carbon leakage mitigation measures, if necessary, such as a CBAM for imports of selected goods to the country and adding the value of allowances that would otherwise be allocated for free to industry sectors covered by CBAM to a fund to support investment in GHG mitigation technology.

⁴⁴ If the country’s goal is a full linking of its ETS with the EU ETS, the country’s ETS must be as comparable as possible to the EU ETS in its technical details. Such details include absolute (ex ante defined) emissions cap; similarity in scope (at least for the goods covered by the CBAM) of activities, sectors, GHGs, and installation boundary definitions; similar treatment of electricity, i.e., the carbon costs of electricity production should be passed on to the consumer or the indirect emissions from electricity would have to be covered by the ETS at the point of electricity consumption in industrial installations; and similarity in MRV rules and free allocation principles would be an advantage, with a robust and credible MRV system, strong third-party verification, and strong enforcement, effectively preventing fraudulent behavior.

⁴⁵ Combined with suitable carbon leakage mitigation measures.

⁴⁶ Ideally supported by full auctioning for the power sector.