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EU CBAM: WELL INTENDED IS NOT NECESSARILY WELL DONE

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The devil is in the details: The EU carbon border adjustment mechanism (CBAM) will not only become more expensive than anticipated but will likely fail to restore a level playing field for industries heavily exposed to carbon pricing, first because it is an invitation for greenwashing. For setting the "tariff" of the CBAM, a company can use an individual assessment of its emissions instead of the default emission intensities provided by the EU. This is in particular problematic with indirect emission (e.g. electricity): Many foreign companies will find ways to completely attribute their use of green electricity – even if only a small share of their overall consumption of electricity – to the goods exported to the EU. This can easily be done if so called "power purchase agreements" (PPAs) are in place. The result is then merely the reallocation of existing renewable electricity to products imported into the EU, using the remaining brown electricity to produce goods for non-EU markets. Within the EU, producers don't have the option to use this set-up to evade carbon pricing obligations for products they sell outside of the EU, unless they relocate their production for non-EU customers outside of the EU.

In addition, the focus on keeping the free allocation of certificates in place while trying to secure WTO compliance undermines the possibility for reimbursing the carbon levies of exports, ultimately shifting the competitiveness and carbon leakage issues just one step down in the value chain. Ideally, the EU CBAM would not only need to provide a level playing field for products sold on the EU market, but also for EU-based producers selling their products on non-EU markets. This would be possible with a focus on levying a carbon price only on products locally sold in the EU combined with a much broader product base, which includes important complex downstream products beyond the currently covered basic goods.[1] Such an approach would give domestic producers the right to reclaim the carbon levies when exporting a product. It is well advisable for future revisions and a broadening of the EU CBAM product base to explore the options provided by the possibility of pricing carbon at the product level but determining the related emissions and collecting levies further upstream. This, for example, is the way the "national German emission trading system on fossil combustion for heat and transport" works, collecting the fees at the wholesale level while aiming at downstream emissions.

[1] The EU CBAM states in this respect: *"Whilst the ultimate objective of the CBAM is a broad product coverage, it would be prudent to start with a selected number of sectors with relatively homogeneous products where there is a risk of carbon leakage."*

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Much of the concerns regarding the WTO compliance stem from the free allocation of EU emission certificates.[2] Depending on the sector, more or less of the EU emission trading system (EU ETS) certificates are allocated free of charge according to best-in-class benchmarks. This free allocation is supposed to be phased out during a ten-year period following the start of the regular CBAM in 2026.[3] It remains to be seen if the WTO deems the suggested reduction of EU CBAM levies in proportion to the share of free allocations a fair practice. The focus on keeping the free allocation of certificates, however, has two drawbacks: It limits the flexibility of reforming the EU ETS towards a level playing field. And it excludes carbon levy reimbursements for exports as the WTO would regard such a combination as an unfair trade practice. The consequence: the competitiveness and carbon leakage issues is shifted just one step down in the value chain: if higher carbon related costs are passed on, e.g. from steel makers to EU car manufacturers, the car manufacturers in turn might choose to relocate part of their production outside the EU in order to gain access to cheaper steel for their non-EU automobile customers.

In its current form, the EU CBAM also lacks common actions to support the industries included. The European Commission acknowledges the risks of carbon leakage in their assessment. However, the expected loss of employment of just over 1% in CBAM sectors – and only a minimal loss of employment in downstream sectors – might be a little too optimistic. Also, the downstream losses are very unevenly distributed between sectors. Some sectors, such as construction, even gain in the EC assessment. The main losers are other non-ferrous metals with -0.9% output loss, the transport equipment sector with -0.4% (including the car manufacturers mentioned before), crops with -0.3% and chemicals as well as other equipment and consumption goods with around -0.2% in 2030.

A certain way to limit the negative impact could be to ensure that the European "green" versions of basic goods covered by the EU CBAM are cost-competitive "at the source" (i.e. without free allocation of certificates or reimbursements of carbon levies) compared to their foreign brown counter-parts in non-EU markets. Member states such as Germany have announced that they will establish mechanisms that aim at achieving exactly that. The policy instruments of choice for, say, green steel, aren't limited to investment subsidies for blast furnaces that operate with hydrogen. They could also include so-called "carbon contracts for difference" (CCFD) that subsidize the green steel when it is sold, thus reducing not only the CAPEX of the underlying green investments but also subsidizing their OPEX to a competitive level. While the EU vaguely promotes the use of CCFDs in this respect, a coordinated and adequate EU strategy is still missing.

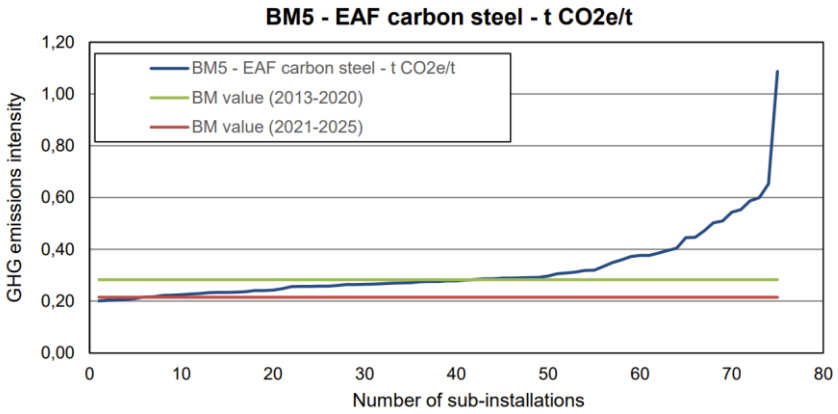
Overall, the EU CBAM could lead to a higher-than-expected burden for importers, especially Russia, Turkey and Ukraine. Previous analyses of the EU CBAM burden were based on the assumption that the product emission intensities are oriented towards average EU emission intensities while in the current version of the EU CBAM, default emission intensities are calculated from actual average emissions intensities of a respective

[2] *"And in some cases financial measures to compensate for indirect emission costs from increases in electricity prices due to the EU ETS (indirect emission costs)"* as correctly stated in the EU CBAM.

[3] In the trial period before 2026, CBAM obligation have only to be reported but no certificates have to be surrendered. The phase out of free allocations is linear and thus 10 additional percentage points per year until it reaches 100% phase out in 2035.

country's products plus an ominous markup that will be determined in a yet to be specified procedure.[4] Or, alternatively, default emissions are calculated from the worst 10% of similar EU producers. Default values for electricity are calculated with a different approach, but we will come to that later.

Figure 1 – Exemplary assessment of EU ETS benchmark installations in the carbon steel production



Source: European Commission. Update of benchmark values for the years 2021 – 2025 of phase 4 of the EU ETS - Benchmark curves and key parameters.

As displayed for the carbon steel benchmark installations (EAF: electric arc furnace) in Figure 1, the emissions vary considerably over different production sites in the EU. The analysis shown is originally used in the benchmarking process to determine the free allocation of emission certificates from the best-in-class emitters. Simply guesstimating from the graph indicates that the 10% of installations with the highest emissions intensities have an emission intensity of around 0.7 compared to the average emission intensity of around 0.3.

Table 1 – Exemplary assessment of EU ETS benchmark installations

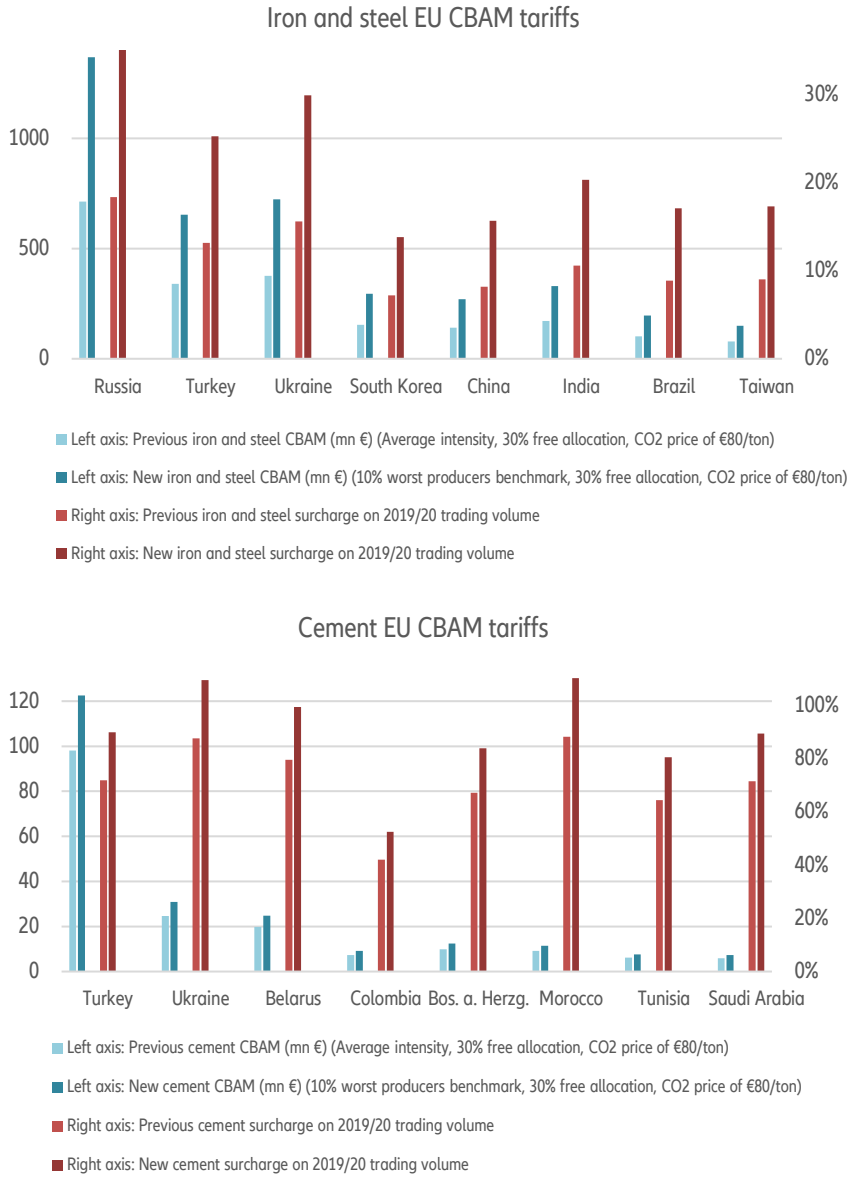
Product by benchmark (BM) installations	GHG emission intensity 2016/2017 (tCO2e/t)			Relative burden*	Average relative burden*
	10% lowest	Average	10% highest		
Carbon steel (BM5)	0.2	0.3	0.7	2.33	1.92
Iron casting (BM7)	0.3	0.4	0.6	1.50	
Aluminum (BM9)	1.5	1.7	2.2	1.29	1.29
Grey cement clinker (BM10)	0.7	0.8	1	1.25	1.25
Nitric acid (BM39)	0.1	0.3	0.8	2.67	1.96
Ammonia (BM41)	1.6	2	2.5	1.25	
				Total:	1.72

**Index with previously expected burden at 1.00 (based on average EU emission intensities)*
Source: Allianz Research

[4] While the process for determining average product specific emission intensities has still to be specified, the experience with previous EU ETS related assessment suggests that a large sample of representative benchmark installations is a likely approach to determine these values.

Similar benchmark installation curves are available for 52 products,[5] and Table 1 summarizes our analysis of the relevant EU ETS benchmark installations.[6] Clearly, these are only indicative as the EU CBAM will provide its own assessment of benchmark installations in coherence with the list of goods covered. Nevertheless, the available data suggest that a focus on the "worst in class" increases the carbon price around 70% on average, with steel and fertilizers facing increases of more than 90% compared to what was previously anticipated.

Figure 2 – Countries most severely affected by EU CBAM for iron, steel (upper graph) and cement (lower graph)



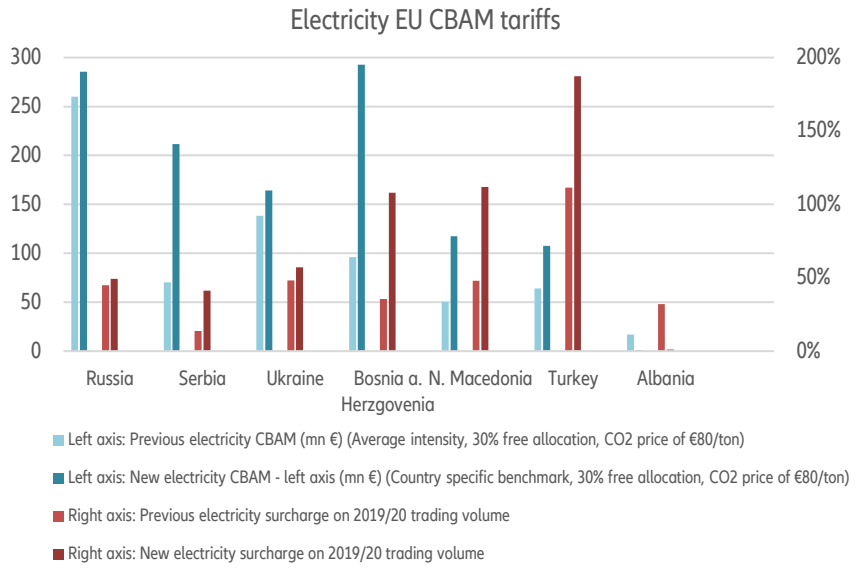
Source: Allianz Research. Own calculations based on Dröge. S. (2021) „SWP Study: Ein CO2-Grenzausgleich für den Green Deal der EU".

[5] From: Update of benchmark values for the years 2021 – 2025 of phase 4 of the EU ETS - Benchmark curves and key parameters. Further information can be found in the European Commission's EU ETS_Handbook.

[6] The respective graphs displaying the emission intensities of the benchmark installations are included in the appendix.

Figures 2 and 3 give updated estimates for the range of the burdens to be expected for the most affected countries. The calculations from the 2021 SWP study "A CO_2 border adjustment for the EU Green Deal"[7] by Susanne Dröge serve as a benchmark for the previously expected burden based on average EU emission intensities while the darker shaded column of a column pair indicates the adjustments according to the new 10% worst emitters benchmark in EU CBAM. The "CN product classifications" in the EU CBAM are not identical with the "NACE sector classifications" used here so the absolute values on the left axis deserve a further assessment. That neither changes the validity of the relative differences between the previous and the new assessment, nor of the surcharge on the right axis. The calculations in Figure 3 differ in so far as default intensities for electricity are supposed to be based on the respective country's "average CO2 emission factor in tons of CO2 per MWh of price setting sources". This particularly benefits Albania, which has an actual carbon intensity of electricity close to zero (thanks to its vast use of hydropower), thus much lower than the average EU carbon intensity employed previously by SWP.[8]

Figure 3 – Countries most severely affected by EU CBAM for electricity



Source: Allianz Research based on Dröge. S. (2021) „SWP Study: Ein CO2-Grenzausgleich für den Green Deal der EU".

These calculations, however, come with a caveat: As producers can use the certified actual emission intensities of their production process instead of the default values, the actual EU CBAM payments will be lower than the ones calculated here with the EU CBAM default values. Setting the default benchmark by the 10% worst benchmark installations represents a strong incentive to use the option of certifying one's own production process. It is to be seen whether producers who export into the EU manage to reach or even undercut the average EU emission intensity. If they do so by greenwashing, the EU could lose another important opportunity along its decarbonization path.

[7] Ein CO2-Grenzausgleich für den Green Deal der EU: Funktionen, Fakten und Fallstricke (swp-berlin.org)

[8] A table with the further emission intensities of electricity in the respective countries is included in the appendix.

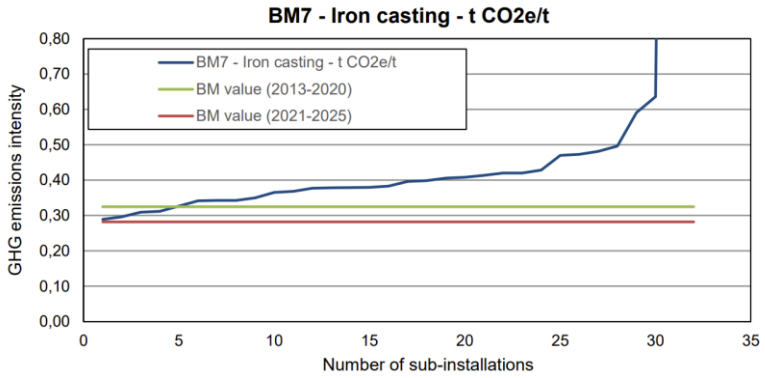
Economists tend to be huge fans of a carbon border adjustment mechanism as it equalizes emissions reductions incentives beyond national borders and eliminates the distortions to the global level-playing field caused by regional carbon pricing, at least in theory. Unfortunately, we don't live in a theoretical world and the devil is in the details (see Appendix). A German proverb states that "well-intended" is the opposite of "well-done"'. The coming years will show how much of the good intentions can be transferred into a well-done regulation. As with the Emissions Trading System, the EU is exploring uncharted territory with the CBAM, which should at least have a better start and hopefully become a similar success, even if it has scope for improvement.

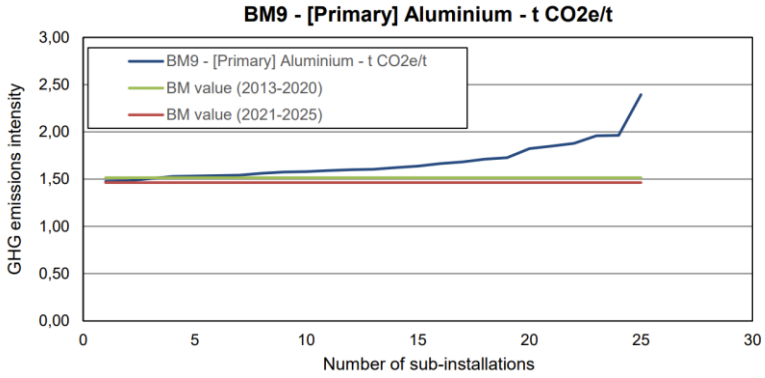
Appendix I: Core elements of the EU CBAM (Adapted and updated from Cándido García Molyneux, Péter Balás and Paul Mertenskötter "Twelve Things to Know About the Upcoming EU Carbon Border Adjustment Mechanism")

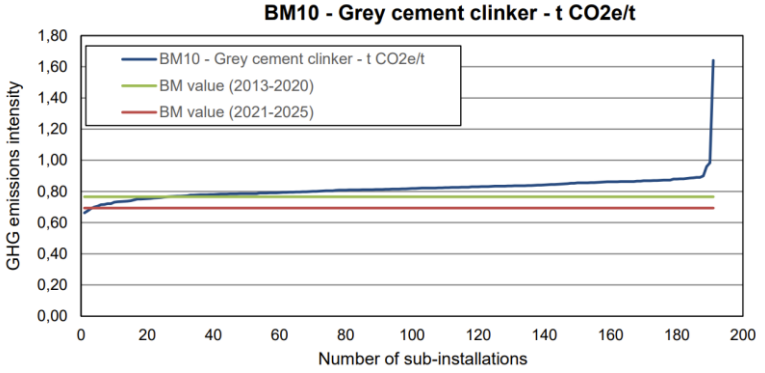
- **Product scope:** The EU CBAM is limited to a sub-selection of products in the cement, fertilizer, aluminum and iron and steel sectors as well as on electricity.
- **CBAM Authorized Declarants:** The number of certificates that need to be surrendered will be calculated and declared annually by authorized declarants. The authorized declarants are EU importers of goods covered by the CBAM register with national authorities where they can also buy CBAM certificates. The price of the certificates will be calculated depending on the weekly average auction price of EU ETS allowances expressed in EUR/ton of CO2 emitted. If importers can prove, based on verified information from third country producers, that a carbon price has already been paid during the production of the imported goods, the corresponding amount can be deducted from their final bill.
- **CBAM declarations, certificates and carbon price deductions:** The EU importer must declare by 31 May each year the quantity of goods and the embedded emissions in those goods imported into the EU in the preceding year. At the same time, the importer surrenders the number of CBAM certificates that corresponds to the amount of greenhouse gas emissions embedded in the products. If importers can prove, based on verified information from third country producers, that a carbon price has already been paid during the production of the imported goods, the corresponding amount can be deducted from their final bill
- **Product carbon footprint methodology:** Certificates have to be surrendered in proportion to either the actual (certified by a third qualified party) emissions or in absence of this certification, in proportion to default emission intensities. Default emission intensities are calculated from actual average emissions intensities of a respective country's products plus an ominous markup that will be determined in a yet to be specified procedure. Or, alternatively, default emissions are calculated from the worst 10% of similar EU producers. Default values for electricity are calculated with a different approach as default intensities for electricity are supposed to be based on the respective country's "average CO2 emission factor in tons of CO2 per MWh of price setting sources".
- **Emission reduction efforts in third countries:** The EU CBAM accounts for the emission reduction efforts of third countries where the imported goods are manufactured. Authorized declarants may claim a reduction in the number of CBAM certificates that they must surrender corresponding to the carbon price paid in the goods' country of origin. This carbon price would be the amount paid in the third county in the form of a tax or emissions allowances under a GHG emissions trading system, which would have to be proved and certified. The EU may conclude agreements with third countries in order to take into account their carbon pricing mechanisms and decarbonization pathways and allow countrywide exceptions from the EU CBAM if the efforts are deemed as sufficient and qualified.

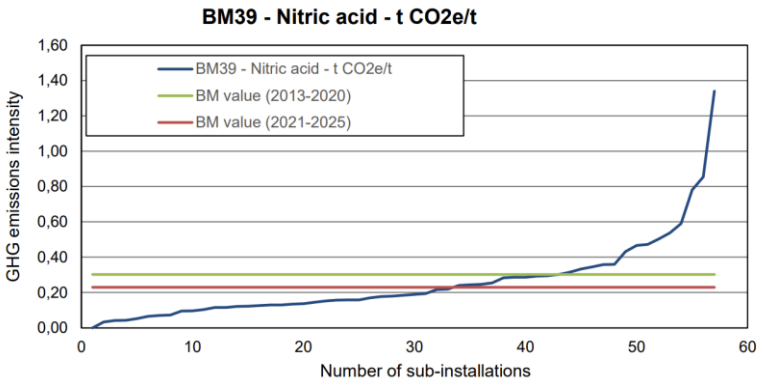
- **Continuation of free allowances for EU Sectors at risk of carbon leakage and adjustments to the CBAM declaration:** The draft CBAM proposal foresees that during an initial period of 10 years starting in 2026, EU installations at risk of carbon leakage would continue to receive free allowances under the EU ETS. The EU CBAM then phases in by 10pp per year, reaching 100% by 2035. The free allocation of certificates phases out by the opposite proportion. This benefits foreign producers as the free allocations are currently already below 100%. So, in 2030, a domestic producer who receives 80% of free certificates will have only 80% x 50% = 40% of free allocations left while the foreign producer still receives 50% of free allocations.
- **Price of CBAM certificates:** The price of the CBAM certificates would reflect the weekly average closing price of the EU ETS allowances. The CBAM Authority will sell, re-purchase and re-sell CBAM certificates to meet the actual demands of authorized declarants. Re-purchases are limited to one third of the purchases of an authorized declarant and the re-purchase price is equal to the purchase price. All other excess certificates from the previous year will be canceled by June 30.
- **Penalties:** Authorized declarants that fail to surrender sufficient certificates will be liable to the penalty set out in Article 16(3) of Directive 2003/87/EC.
- **Transitional period:** The draft CBAM proposal also foresees an initial transitional period. In this period, a CBAM with no financial adjustment aiming at collecting data and raising awareness of declarants will apply in the first years. That transitional period will have a duration of three years, from 1 January 2023 to 31 December 2025, as established. Declarants will report on a quarterly basis the embedded emissions corresponding to their imports of the previous quarter, detailing direct and indirect emissions and reporting any carbon price paid abroad. Customs authorities will inform declarants of their CBAM obligations and exchange information with competent authorities.
- **Not a tax:** The European Commission does not want the CBAM to be a tax under EU law. This allows it to facilitate the European Parliament's and Council's adoption of the CBAM Regulation through the ordinary legislative procedure without the need for unanimity among the Member States.
- **Ordinary legislative procedure:** As the Commission has presented its CBAM Regulation, the proposal will now have to go through the ordinary legislative procedure in the Parliament and Council. This process is likely to take at least one year (and on overage it would take over 18 months) and will provide Member States and Members of the European Parliament with the opportunities to introduce significant changes. This procedure will also provide industry, trade associations and third countries with opportunities to influence the wording of the CBAM Regulation that the EU finally adopts.

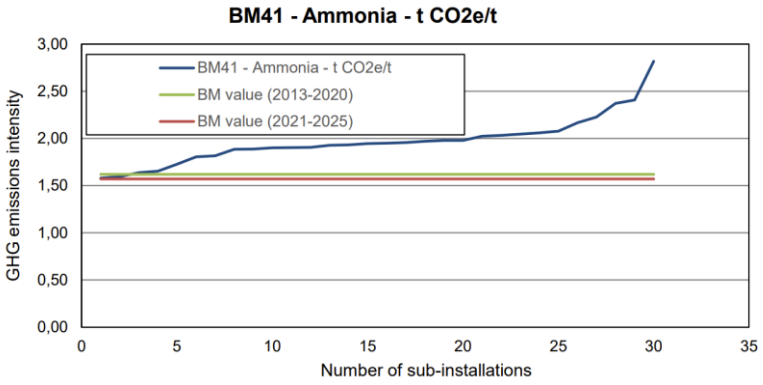
Appendix II: Analysis of benchmark installations from the European Commission's publication: "Update of benchmark values for the years 2021 – 2025 of phase 4 of the EU ETS - Benchmark curves and key parameters".
(https://ec.europa.eu/clima/sites/default/files/ets/allowances/docs/bm_curve_factsheets_en.pdf)











Appendix III: Country specific emission intensities in the electricity sector

EU 27 Import Partners	Emissions intensity tCO2/GWh 2018 (IRENA country profiles)	SWP emissions intensity tCO2/GWh	EU CBAM burden relation
Russia	302	275	1.10
Serbia	828	275	3.01
Ukraine	326	275	1.19
Bosnia and Herzgovenia	838	275	3.05
North Macedonia	641	275	2.33
Turkey	462	275	1.68
Albania	0	275	0.00

These assessments are, as always, subject to the disclaimer provided below.

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