International Journal of Economic Studies and Management (IJESM)
ISSN 2789-049X
Int. J. Econ. Stud. Manag. 6, No.6 (NOVEMBER-2026)

How much of a domestic carbon tax will the EU credit? CBAM Article 9, the phase-out of free allocation and Morocco's carbon tax

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Abstract: Article 9 of the EU Carbon Border Adjustment Mechanism (CBAM) lets importers deduct carbon prices effectively paid where goods are produced, and Morocco's planned carbon tax is presented as keeping carbon revenue at home. Under the Commission's guidance and May 2026 draft rules, the deduction cannot exceed the CBAM payment left after the free-allocation adjustment. As free allocation is phased out over 2026–2034, this limit rises from a few percent of the certificate price at the EU benchmark to the full price. A tax on emissions above a threshold is fully creditable for every installation if and only if the threshold is at least the EU adjustment and the rate at most the certificate price; a flat tax meets this only from 2034. A flat tax of USD 5–10 per tCO_2e would be partly non-creditable for installations below about 1.1 times the benchmark in 2026–2028, and later only well below it; held constant, it offsets a falling share of CBAM payments. Because the EU takes about a fifth of Morocco's diammonium phosphate exports and less than a tenth of its cement and clinker exports, a CBAM-motivated tax would mostly be a domestic tax. Any credit also requires verified installation-level emissions.

Keywords: carbon border adjustment mechanism; carbon pricing; free allocation; carbon tax design; Morocco.

Digital Object Identifier (DOI): https://doi.org/10.5281/zenodo.**24218795**

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1. INTRODUCTION

The EU Carbon Border Adjustment Mechanism (CBAM) entered its definitive period on 1 January 2026. Authorised declarants surrender CBAM certificates for the emissions embedded in imported goods listed in Annex I of Regulation (EU) 2023/956, for the first time in 2027 for imports made in 2026 (Art. 22(1)). Two adjustments determine how many certificates are due. The first reflects the free allowances that EU producers of the same goods still receive under the EU Emissions Trading System (ETS) (Art. 31). The second, in Article 9, allows a reduction "to take into account the carbon price paid in a third country for the declared embedded emissions" (Regulation (EU) 2023/956 [1], as amended by Regulation (EU) 2025/2083 [2]).

Article 9 is often presented as the channel through which the CBAM can spread carbon pricing. Fischer and Mehling [3] write that its implementation "will determine whether the mechanism continues to catalyze carbon pricing abroad". Bahí et al. [4] find that countries more exposed to the CBAM announced more carbon-pricing policies after 2019, with effects concentrated among high- and upper-middle-income countries. In Morocco, the Economic, Social and Environmental Council (CESE) reports the government's plan for a carbon tax of 5 to 10 dollars per tonne of CO_2-equivalent, introduced gradually on products of CBAM sectors, which would keep carbon revenue in the country and avoid "un transfert de capitaux à l'étranger" (a transfer of capital abroad) [5, p. 24]. Article 7 of the 2021 framework law on tax reform commits the government to introducing a carbon tax [6], but according to press reports no such tax had been introduced by October 2026 [7].

Less attention has been paid to the way Article 9 combines with Article 31. The Commission's guidance computes the obligation as embedded emissions, minus the free-allocation adjustment, minus the carbon price paid divided by the CBAM reference price, with a floor at zero. It notes that no certificates are due "where both effects jointly are higher than the embedded emissions" [8, s. 2.4.2]. A foreign carbon price can therefore be credited only up to the CBAM payment that remains after the free-allocation adjustment. Because the CBAM factor phases EU free allocation out between 2026 and 2034, this limit is small for efficient installations in the first years and reaches the full CBAM price in 2034. The closest analyses compare partners' prices with the full CBAM price [3] or examine how foreign rebates are netted [9]. Neither examines how the limit evolves over the phase-out, how it varies across installations, or what it implies for the design of carbon taxes in exporting countries.

The paper makes three contributions. First, it shows that during the phase-out the relevant comparator for a partner's carbon price is the CBAM price net of the free-allocation adjustment, and traces its path for installations of different emission intensities. Second, it states a design rule: a tax on emissions above a threshold is fully creditable for every installation if and only if the threshold is at least the EU adjustment and the rate at most the CBAM price; a flat tax meets this rule only from 2034. Third, it shows that a tax on all of an installation's output can displace CBAM payments only on the EU-bound share of that output, and draws the implications for the carbon tax Morocco is planning, using public sources only.

The paper is organised as follows. Section 2 reviews the literature. Section 3 sets out the rules and the analytical framework. Section 4 presents the results: the path of the creditable limit, the conditions under which a flat tax is creditable, the design rule and its application to diammonium phosphate, and the share of collections that a CBAM-motivated tax can redirect. Section 5 discusses the implications for Morocco's carbon tax and the limitations of the analysis, and Section 6 concludes.

2. LITERATURE REVIEW

Studies of Article 9 ask which instruments qualify and how their price is measured. Boute [10] notes that the CBAM credits carbon taxes and emissions trading systems but not emission standards or indirect carbon prices such as fuel excise. Wildgrube et al. [9] compare an "average price approach" with an "actual payment approach" and observe that under tradable performance standards a payment is due "only for the share that exceeds the intensity benchmark or the emissions baseline" [9, p. 32]. Clausing et al. [11, p. 3] note that "the European Union will not credit free allocation methods, such as full output-based allocation". Fischer and Mehling [3], the closest analysis of the May 2026 draft rules, measure a partner's price gap against the CBAM certificate price and set out three ways to close it: recapturing rebates or free allocation for exports, top-up purchases of eligible credits, and top-up tax payments or allowance purchases at home. In the full texts of Boute [10], Wildgrube et al. [9], Clausing et al. [11], Bahí et al. [4] and Fischer and Mehling [3], we found no discussion of how the EU free-allocation adjustment limits the Article 9 deduction over the phase-out. Clausing et al. [11, p. 2] list the two adjustments as separate reasons for lower CBAM charges without examining how they interact.

A second strand estimates the CBAM's effects on trading partners. Beaufils et al. [12] find that middle- and low-income countries for which the EU is an important export market would be disproportionately affected (see also Magacho et al. [13] and the review by Zhong and Pei [14]). For Morocco, Morchid et al. [15] estimate an initial carbon bill of USD 20–34 million a year from an input-output model with 2019 data, a sector scope wider than the final Annex I and no free-allocation adjustment. The CESE [5, pp. 7, 11, 19] reports an EU estimate that CBAM goods account for 3.7% of Moroccan exports to the EU, mainly fertilisers, and Bachegour and Temmam [16] stress the credibility of emissions data.

The design we analyse belongs to the family of output-based and intensity-based instruments, which price emissions at the margin while rebating part of the cost per unit of output, so that the average burden falls on emissions above a performance standard [17]–[20].

3. METHODS: RULES AND ANALYTICAL FRAMEWORK

3.1 The certificate obligation and the free-allocation adjustment

The Commission's Guidance Document No. 1 [8] writes the obligation for an imported good g in year t as

$$N_g = \max\left[0;\ SEE_g - SEFA_{g,t} - \frac{SECPP_g}{RP_t}\right] \times M_g \qquad (1)$$

where SEE is the specific embedded emissions of the good (tCO_2e per tonne), SEFA its specific embedded free allocation, SECPP the specific embedded carbon price paid (EUR per tonne of good), M the imported mass and RP the reference price of a CBAM certificate, "determined by the Commission as the yearly average of the prices determined pursuant to Article 21". The guidance adds: "If this calculation gives a negative number, the CBAM obligation is zero" [8, s. 2.4.2]. The guidance is not legally binding. The Regulation states only that the declaration reports the certificates due "after the reduction" under Article 9 "and the adjustment" under Article 31 (Art. 6(2)(c)).

Commission Implementing Regulation (EU) 2025/2620 (IR 2025/2620) [21] sets the adjustment. Per tonne of good,

$$SEFA_{g,t} = CBAM_t \times CSCF_t \times BM_g = c_t\, BM_g \qquad (2)$$

where $CBAM_t$ is the CBAM factor, $CSCF_t$ the cross-sectoral correction factor, BM_g the CBAM benchmark, and $c_t \equiv CBAM_t \times CSCF_t$ [22, eqs. 2 and 6]. With actual emissions, BM_g is the process

benchmark (Annex, point 5, Column A) plus the benchmarks of precursors in proportion to their mass; with default values, a single default benchmark applies (Column B; Art. 3). The CBAM factor falls from 97.5% in 2026 to 14% in 2033 (Table A1), and "From 2034, no CBAM factor shall apply" (Directive 2003/87/EC [23], Art. 10a(1a), inserted by Directive (EU) 2023/959 [24]). The CSCF is 100% for 2026–2030 (Implementing Decision (EU) 2026/1862 [25], Art. 1). The factor applies to the year of production [21, Annex, point 1(2)], which is presumed to be the year of import [21, recital 12]. For 2026, certificates are priced at the quarterly average of auction prices in the quarter of importation, and weekly from 2027 [1, Art. 21], [26]. The Commission has published EUR 75.36, 75.28 and 82.32 for the first three quarters of 2026 [27].

3.2 Article 9 and the draft implementing regulation

Article 9 distinguishes two routes. "Where the embedded emissions are determined on the basis of actual emissions", the declarant may claim a reduction for the carbon price "effectively paid in a third country", net of "any rebate or other form of compensation available in that country" (Art. 9(1)). The documentation must be certified by a person "independent from the authorised CBAM declarant and from the authorities of the third country" (Art. 9(2)). Alternatively, the declarant may refer to "yearly default carbon prices"; the reduction may then be claimed only where a carbon price is set by the third country's rules and a default price can be determined, "including on a conservative basis". With default emission values, this is the only route, and "As from 2027, the Commission may … determine and make available" such prices (Art. 9(4)). Default values also carry a mark-up: 1% "for the year 2026 and onwards" for fertilisers, and 10% in 2026, 20% in 2027 and 30% from 2028 for cement, iron and steel, aluminium and hydrogen (IR 2025/2621 [28], Annex I, as corrected by IR 2026/1740 [29]).

The Commission published a draft implementing regulation on the conversion of the carbon price paid on 13 May 2026, with feedback until 10 June 2026 [30]. As of mid-October 2026 it did not appear among the adopted CBAM acts listed by the Commission. It would apply from 1 January 2026 (draft Art. 32). The draft converts the price into a reduction as

$$\text{Reduction}_g = \frac{SECPP_g}{RP_t} \times M_g \qquad (3)$$

where SECPP is "the effective carbon price, expressed in EUR per tonne of good" and RP "the yearly reference price of CBAM certificates … for the year of import" (draft Art. 6(1)), calculated "as the average of the price of CBAM certificates published pursuant to Implementing Regulation (EU) 2025/2548" (Art. 6(3)). Foreign-currency prices are converted at the yearly average exchange rate (Art. 5). The effective price is net of compensation, including "emissions exempted from the application of the carbon tax, levy or fee" and emissions "below an emission intensity baseline under a baseline-and-credit emissions trading system" (Art. 8(1)(b)). It is computed from the emissions "attributed to the quantity of production of good g" over the reporting period, net of rebated emissions per tonne of good (draft Annex I, section 4.2, and eq. 12a in section 6.1). Subsidies financed by the carbon-price revenue are not deducted if four cumulative conditions hold (Art. 8(2); Section 5.4).

3.3 The creditable limit

For SEE > SEFA, equation (1) reaches zero when SECPP equals RP × (SEE − SEFA); any carbon price above that level earns no further reduction. The creditable limit per tonne of good is therefore

$$C^*_{g,t} = RP_t \times \max\left(0;\ SEE_g - SEFA_{g,t}\right) \qquad (4)$$

which is the CBAM payment due without any foreign price. For SEE ≤ SEFA, the whole of any tax is non-creditable. Let x = SEE/BM be the ratio of an installation's embedded emissions to the benchmark, and $\kappa = E^{cov}/SEE$ the coverage ratio, the share of embedded emissions on which the domestic price is

paid ($\kappa < 1$ when, for example, precursors are imported). For a price τ on covered emissions, SECPP = τ κ SEE, and the creditable limit per covered tCO_2e is

$$\tau^*_{g,t} = \frac{RP_t}{\kappa_g} \max\left(0;\ 1 - \frac{c_t}{x_g}\right) \qquad (5)$$

The limit rises with x, falls with the CBAM factor, and so rises over time, reaching RP/κ in 2034.

Two assumptions matter. First, we apply the floor per good, as the guidance does; Article 6(2)(c) refers to "the total number of CBAM certificates to be surrendered", and if the floor applied to a declarant's total, the non-creditable shares below would overstate the problem for importers buying from several origins. Second, in 2026 certificates are bought at quarterly prices but the deduction is converted at the yearly price. At the provisional reference price used below, one euro of 2026 carbon price offsets certificates worth EUR 0.97 for imports in the first two quarters and EUR 1.06 for third-quarter imports; from 2027 the value depends on the week of purchase (Arts. 20(4) and 21).

3.4 A flat carbon price

A flat price $\bar{\tau}$ on covered emissions is fully creditable in year t if $\bar{\tau} \leq \tau^*_t$, that is, if the installation's ratio exceeds

$$\hat{x}_t = \frac{c_t}{1 - \kappa\bar{\tau}/RP_t} \qquad (6)$$

Below the threshold, the share max(0, $\bar{\tau} - \tau^*$)/$\bar{\tau}$ of the tax earns no reduction. Above it, the tax offsets the share $\kappa\bar{\tau}/[RP_t(1 - c_t/x)]$ of the CBAM payment. We call this the share offset: the part of the CBAM payment that would be due without a domestic tax and is instead paid as domestic tax. Partial coverage lowers the threshold but reduces the share offset in proportion.

3.5 Parameters and the fertiliser case

We hold the reference price at EUR 77.65, the mean of the three quarterly prices published for 2026, as an illustrative constant (Table A1 in the Appendix). The CSCF is held at 100% after 2030 by assumption; values from 2031 are expected to be published in late 2030 [22, fn. 10]. At 1.1186 USD per EUR [31], the CESE range of 5–10 dollars, which we read as US dollars, equals EUR 4.47–8.94, or 5.8–11.5% of the reference price. We report results for x from 1.0 to 2.0, and for one fertiliser case.

Diammonium phosphate (DAP, CN 3105 30 00) has an official default benchmark of 0.339 tCO_2e per tonne and a process benchmark of 0.006; anhydrous ammonia has a benchmark of 1.522 [21, Annex, point 5.3]. If the default benchmark equals the process benchmark plus ammonia at its benchmark, the two values imply 0.219 t of ammonia per tonne of DAP (authors' calculation). For SEE we use the figures that the CESE reports from OCP: a CBAM adjustment of EUR 13–20 per tonne from 2026 and EUR 45–68 per tonne by 2034, at a carbon cost of EUR 100–150 per tCO_2 [5, box 2, pp. 23–24]. With no CBAM factor in 2034, the 2034 figures imply SEE ≈ 0.452 tCO_2e per tonne of DAP (the mean of 45/100 and 68/150, pairing the ends of the ranges; 0.4517 in all calculations), so x ≈ 1.33. This SEE is OCP's assumption, not a verified emission value. The CESE opinion was adopted on 28 August 2025, before IR 2025/2620 set the benchmarks, and the box presents OCP's decarbonisation roadmap, so SEE may fall over time.

4. RESULTS

4.1 The path of the creditable limit

Figure 1 plots the limit per tCO_2e under full coverage. At the benchmark (x = 1), the creditable share of the reference price equals one minus the CBAM factor: 2.5% in 2026, 10% in 2028, 48.5% in 2030 and

100% in 2034, that is, EUR 1.94, 7.77, 37.66 and 77.65 per tCO_2e. In 2026 the limit ranges from EUR 1.94 at the benchmark to EUR 39.80 at twice the benchmark, and it is zero below 0.975 times the benchmark. The largest one-year rise comes in 2030, when the factor falls by 26 points.

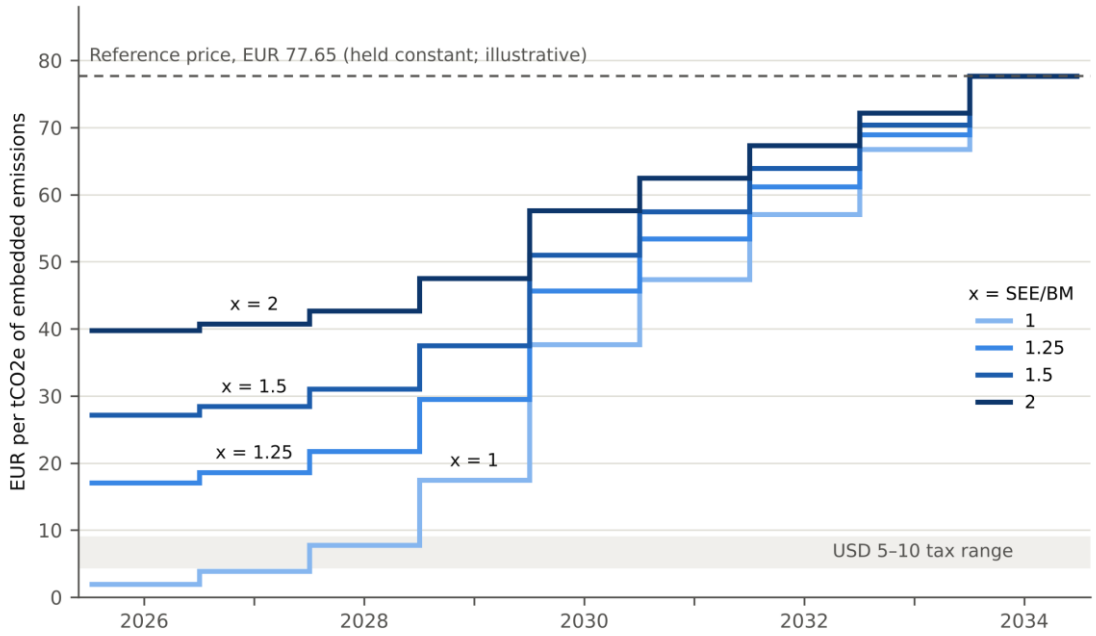

Figure 1: Creditable limit per tCO_2e of embedded emissions, by ratio x of embedded emissions to the CBAM benchmark, 2026–2034

Note. Full coverage. Limit = RP × max(0, 1 − CBAM factor × CSCF ÷ x), with RP held at EUR 77.65 (mean of the 2026 quarterly prices published to date; illustrative). The shaded band is the USD 5–10 range discussed by the CESE [5, p. 24], at 1.1186 USD per EUR. Source: authors' calculations.

4.2 When is a flat USD 5–10 tax creditable?

Table 1 sets out the calculation year by year over the whole phase-out, under full coverage: the CBAM factor, the creditable limit from equation (5) at the benchmark and at twice the benchmark, the share of a USD 5 and of a USD 10 tax that earns no reduction for an installation at the benchmark, and the threshold ratio from equation (6). The note to the table gives the formula and the source of every input. For an installation at the benchmark, 78.3% of a USD 10 tax earns no reduction in 2026, 56.6% in 2027 and 13.1% in 2028; for a USD 5 tax the shares are 56.6% and 13.1% in 2026 and 2027. From 2029 both rates are fully creditable at the benchmark, and a USD 10 tax remains partly non-creditable only for installations below 0.876 times the benchmark in 2029 and 0.582 times in 2030. With $\kappa = 0.25$, the 2026 threshold for USD 10 falls to 1.004.

Table 1: Creditable limit and creditability of a flat USD 5–10 tax across the phases of free-allocation reduction, 2026–2034

Year	CBAM factor	Creditable limit (EUR/tCO₂e)		Non-creditable share at x = 1		Threshold ratio, eq. (6)	
		x = 1	x = 2	USD 5	USD 10	USD 5	USD 10
2026	97.5%	1.94	39.80	56.6%	78.3%	1.035	1.102
2027	95%	3.88	40.77	13.1%	56.6%	1.008	1.074
2028	90%	7.77	42.71	0%	13.1%	0.955	1.017
2029	77.5%	17.47	47.56	0%	0%	0.822	0.876
2030	51.5%	37.66	57.66	0%	0%	0.546	0.582
2031	39%	47.37	62.51	0%	0%	0.414	0.441
2032	26.5%	57.07	67.36	0%	0%	0.281	0.299
2033	14%	66.78	72.21	0%	0%	0.149	0.158
2034	0%	77.65	77.65	0%	0%	0.000	0.000

Note. Full coverage (κ = 1). RP = EUR 77.65, the mean of the 2026 quarterly CBAM certificate prices [27]; CBAM factor from Directive 2003/87/EC [23, Art. 10a(1a)]; CSCF = 100% [25], assumed after 2030. Creditable limit = RP × max(0, 1 − CBAM factor/x), equation (5). Non-creditable share = max(0, $\bar{\tau}$ − limit)/$\bar{\tau}$ at x = 1, with $\bar{\tau}$ = EUR 4.47 (USD 5) or EUR 8.94 (USD 10), converted at 1.1186 USD per EUR [31] from the range reported by the CESE [5, p. 24]. Threshold ratio = CBAM factor/(1 − $\bar{\tau}$/RP), equation (6): the tax is fully creditable for installations with x above it, and values below 1 mean that installations cleaner than the benchmark qualify. Source: authors' calculations.

The result matters for incentives as well as costs (Table A2). A flat tax that exceeds the limit removes the CBAM obligation, so the marginal price on EU sales falls from the certificate price to the tax rate: in 2026, a USD 10 tax would lower it from about EUR 78 to EUR 9 per tCO₂e for installations between 0.975 and 1.10 times the benchmark (0.90 to 1.02 in 2028), and raise it from zero to EUR 9 for cleaner ones; for dirtier installations the total cost of EU sales is unchanged. A flat tax therefore narrows the cost advantage of clean installations on the EU market in 2026–2028 and weakens the CBAM's incentive just above the benchmark.

4.3 A design rule for full creditability

Consider a tax at rate t_y per tCO2e on embedded emissions above a threshold T_y per tonne of good, with full coverage. The tax is fully creditable for every installation producing good g in year y (for a positive rate, and for any possible SEE) if and only if $T_y \geq SEFA_{g,y}$ and $t_y \leq RP_y$. Sufficiency is immediate: t·max(0, SEE − T) ≤ RP·max(0, SEE − SEFA) when both factors on the left are no larger. For necessity, if T < SEFA, an installation with T < SEE ≤ SEFA pays tax but owes no certificates; if t > RP, the ratio of tax to limit tends to t/RP > 1 as SEE grows. A flat tax has T = 0 and meets the rule only when SEFA = 0, that is, from 2034.

The design that meets the rule with the lowest threshold taxes emissions above the EU adjustment at a fraction λ of the reference price:

$$SECPP_{g,t} = \lambda\, RP_t \times \max\left(0;\ SEE_g - SEFA_{g,t}\right), \qquad 0 < \lambda \leq 1 \qquad (7)$$

The remaining obligation is (1 − λ)(SEE − SEFA), so the design offsets the constant share λ of the CBAM payment for every installation. Its average rate, $\lambda\tau_t^*$, rises with the phase-out. Its marginal rate, λRP, is high from the first year: EUR 33.3 per tCO₂e at λ = 0.43, 3.7 times the USD 10 rate (Table A2). We use λ = 0.43 (0.4292 to four decimals), at which the design raises as much per tonne of DAP in 2026 as a USD 10 tax (Section 4.4). Below the threshold it gives no incentive at all. A baseline-and-credit variant, in which installations below the threshold earn credits, would restore that incentive; the draft recognises such systems and treats emissions below the baseline as rebated (draft Art. 2(5) and Art. 8(1)(b)(ii)). Canada's output-based pricing system works this way: facilities below their limit "earn surplus credits" [32].

The instrument is familiar. In its first phase, South Africa's carbon tax granted tax-free allowances of 60–95% of emissions [33], which on our reading would count as exempted emissions under draft Article 8(1)(b)(iii); the draft annex also counts as rebated the emissions "below a threshold under which no carbon price is due" (draft Annex I, section 5(c)), so on our reading the effective price of the threshold design is the tax paid above the threshold, as equation (7) assumes. Goulder et al. [20] analyse China's "unconventional" national ETS. What is specific is a threshold equal to the EU adjustment. Unlike the recapture option of Fischer and Mehling [3, s. 4.3], the design needs no destination-specific recapture and its burden falls on all output rather than on export-oriented installations. Unlike their option of top-up tax payments or allowance purchases at home, for which "the draft implementing regulation offers only an attenuated basis" [3, p. 11], it is a mandatory tax with a fixed base and rate.

Full creditability also requires the domestic tax to follow the EU calculation in five respects, set out in Note A1 in the Appendix. The base and threshold must match the embedded emissions and the benchmark the declarant uses. The price and exchange rate must be the EU's yearly values, or λ must leave room for the difference: a year-on-year fall as large as the rise in average German auction prices, from about EUR 65 in 2024 to EUR 73.86 in 2025 [34], would require $\lambda \leq 0.88$. The tax must be paid and certified before the declaration and surrender, both due by 30 September of the following year (Arts. 6(1) and 22(1)). Whether the floor applies per good or per declarant matters only for the flat tax. Finally, on our reading of the 2011 Constitution [35, Arts. 39 and 71], the threshold table and rate must be set by law, for example in each finance law.

The share offset equals λ only if the tax also covers indirect and precursor emissions. If precursors are imported and untaxed, the threshold must be split. Taxing domestic emissions above c_t times the process benchmark, at a rate of at most RP_t, keeps the tax creditable as long as each imported precursor is no cleaner than c_t times its own benchmark and carries no carbon price paid abroad, because SEE − SEFA then exceeds the taxed emissions by $\sum_i m_i (e_i - c_t BM_i) \geq 0$, where m_i and e_i are the precursor's mass and emission intensity (authors' calculation). A carbon price paid abroad on a precursor would be added to the good's effective carbon price (draft Annex I, section 7.2, eq. 16) and use up part of the limit.

The July 2026 proposal to amend the ETS Directive would reintroduce "15% of the free allocation phased out due to the CBAM factor … starting in 2028" and delay the phase-out "until 2038" [36]; the reported factors are 91.5% in 2028, 59% in 2030 and 15% in 2034–2037 ([37, p. 12]; Table A1). The proposal is under negotiation [38]. If adopted, it would lower the limit and raise the threshold in equation (6): at the benchmark, the creditable share would be 8.5% instead of 10% in 2028, 41% instead of 48.5% in 2030 and 85% instead of 100% in 2034–2037 (authors' calculation). A threshold design would follow the change if the domestic law referred to the EU schedule.

4.4 Comparing designs for the fertiliser case

For DAP at $x \approx 1.33$, the 2026 CBAM payment at the reference price is EUR 9.41 per tonne of DAP, rising to EUR 21.52 in 2030 and EUR 35.07 in 2034. A USD 10 tax on all embedded emissions costs EUR 4.04 per tonne of DAP. It is fully creditable in every year, and the absolute amount it redirects stays at EUR 4.04, but held constant it offsets a falling share of the payment: 42.9% in 2026, 18.8% in 2030 and 11.5% in 2034 (Figure 2a). If held at USD 5–10 until 2034, the tax would offset 6–12% of the 2034 payment, or 9% for USD 10 at a 2034 price of EUR 100 and 6% at EUR 150. Table 2 sets out these calculations for every year of the phase-out, and Figure 2 compares the shares offset under the different designs.

Table 2: Fertiliser case (DAP): free-allocation adjustment, CBAM payment and share offset by a flat USD 5–10 tax, 2026–2034

Year	CBAM factor	SEFA (tCO_2e/t)	SEE − SEFA (tCO_2e/t)	CBAM payment (EUR/t)	Creditable limit (EUR/tCO_2e)	Share of the CBAM payment offset	
						USD 5	USD 10
2026	97.5%	0.331	0.121	9.41	20.83	21.5%	42.9%
2027	95%	0.322	0.130	10.07	22.29	20.1%	40.1%
2028	90%	0.305	0.147	11.38	25.20	17.7%	35.5%
2029	77.5%	0.263	0.189	14.67	32.49	13.8%	27.5%
2030	51.5%	0.175	0.277	21.52	47.64	9.4%	18.8%
2031	39%	0.132	0.319	24.81	54.92	8.1%	16.3%
2032	26.5%	0.090	0.362	28.10	62.21	7.2%	14.4%
2033	14%	0.047	0.404	31.39	69.49	6.4%	12.9%
2034	0%	0.000	0.452	35.07	77.65	5.8%	11.5%

Note. Diammonium phosphate, x = SEE/BM ≈ 1.33, full coverage. SEFA = CBAM factor × CSCF × BM, equation (2), with BM = 0.339 tCO_2e/t, the default benchmark for DAP [21, Annex, point 5.3], and CSCF = 100%. SEE = 0.4517 tCO_2e/t, inferred from OCP figures reported by the CESE [5, box 2]. CBAM payment = RP × (SEE − SEFA), equation (4), with RP = EUR 77.65. Creditable limit = RP × (1 − SEFA/SEE), equation (5); a tax of EUR 4.47–8.94 per tCO_2e is below it in every year and is therefore fully creditable. Share offset = tax per tonne of DAP (EUR 2.02 for USD 5 and EUR 4.04 for USD 10, i.e. the rate times SEE) divided by the CBAM payment. Source: authors' calculations.

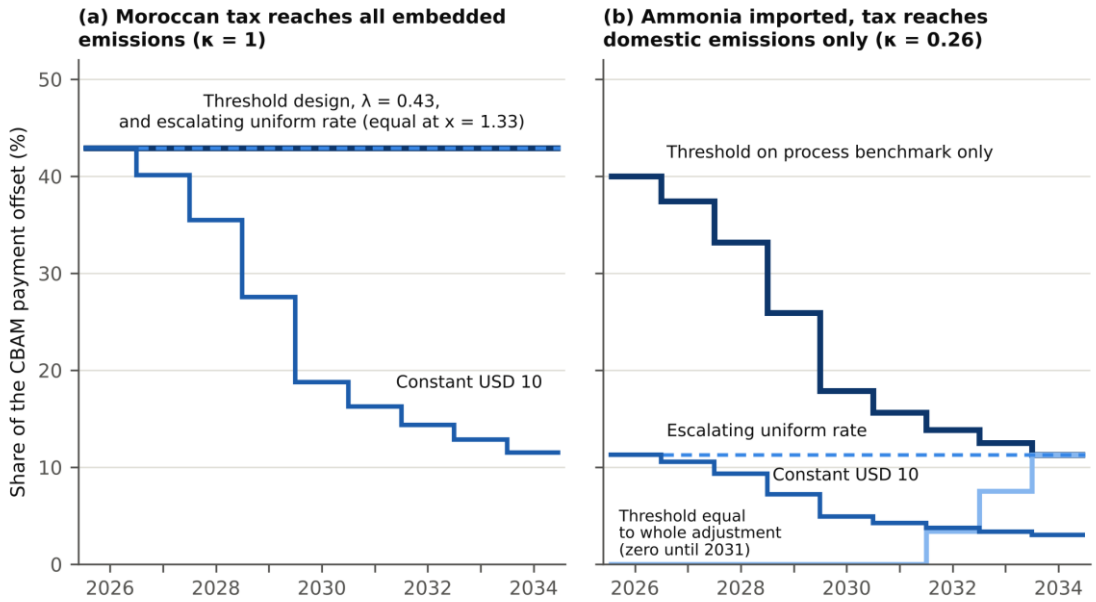

Figure 2: Share of the CBAM payment offset by a Moroccan tax, diammonium phosphate

Note. x = SEE/BM = 1.33 (official default benchmark 0.339 tCO_2e/t; SEE from OCP figures reported by the CESE [5, box 2]), RP held at EUR 77.65. In panel (a), the escalating uniform rate and the threshold design (λ = 0.43) raise the same revenue per tonne as a USD 10 tax in 2026, and their shares are constant by construction. Panel (b) assumes that all ammonia (0.219 t per tonne of DAP) is imported at benchmark intensity and untaxed (κ = 0.26; illustrative). Source: authors' calculations.

A rate frozen at its 2026 level is an unfair comparator, because the average rate of the threshold design rises over time. A uniform rate that tracks the threshold design's average rate for this case (λ = 0.43) rises from EUR 8.94 in 2026 to EUR 20.45 in 2030 and EUR 33.33 in 2034, and at x ≈ 1.33 it offsets the same 42.9% as the threshold design in every year. Across installations, however, it behaves differently (Table A3): at the benchmark, 78.3% of it is non-creditable in 2026, 59.4% in 2027 and 28.2% in 2028, and for installations at twice the benchmark it offsets less than the threshold design until

2033 (22.5% in 2026). The advantage of the threshold design comes from differentiating between installations, not from its time path.

Coverage changes the picture. If the ammonia is imported at benchmark intensity, a Moroccan tax reaches 0.119 of the 0.452 tCO_2e per tonne, about a quarter of DAP's embedded emissions ($\kappa \approx 0.26$; illustrative). In December 2022 OCP presented a 2023–2027 investment programme that, according to the Ammonia Energy Association, would eventually replace the 1.5–2 million tonnes of ammonia shipped to Morocco each year [39]; we could not verify current volumes or targets. A USD 10 tax would then offset 11.3% of the 2026 payment and 3.0% in 2034, and the escalating rate 11.3% in every year (Figure 2b). A threshold equal to the whole adjustment, which includes the ammonia's share, exceeds domestic emissions until 2031 and collects nothing before 2032. A threshold on the process benchmark alone taxes almost all domestic emissions at λRP and offsets 40.0% of the payment in 2026 and 11.3% in 2034, but only because its rate is high.

4.5 How much can a CBAM-motivated tax redirect?

Take a fully creditable tax levied at the same rate on all of an installation's output, and let s be the EU-bound share of that output. The CBAM payments it displaces equal s times its collections; the rest is an ordinary tax on domestic sales and exports to other markets. Each euro redirected from the EU therefore comes with $(1 - s)/s$ euros collected on other sales: 9 if $s = 0.1$, 4 if $s = 0.2$, 2.3 if $s = 0.3$ and 1 if $s = 0.5$. The identity holds for the flat and threshold designs alike. Under our reading of draft equation 12a, exempting non-EU sales would not change it, because the exemption would dilute the price attributed to every tonne of the good, including EU-bound tonnes. Exempting all exports would be worse: the payment on exported goods would then be zero and, as Wildgrube et al. [9, p. 33] note, "the declarant cannot apply for recognition of the third-country carbon price". Only differentiation between installations, such as withholding exemptions from installations that export to the EU, can raise the creditable share of collections above s. Fischer and Mehling [3, p. 10] consider that installation-level attribution in the draft gives such recapture "a relatively secure footing", but it helps only where installations specialise by market.

Public data suggest that s is small for Morocco. In Moroccan-reported trade data, EU members took 20.9% of DAP exports by quantity in 2023, 5.4% of monoammonium phosphate (MAP) exports and 13.5% of the two combined, and 8.8% of exports of cement and clinker in 2024 [40]. We use 2023 for fertilisers because the Moroccan-reported 2024 quantities are about double those of 2023 and of the EU's own import records; for 2023 the two sources agree (802,147 t and 812,479 t of DAP) [41]. Press reports of OCP's first-half 2025 results put Europe, which is wider than the EU, at 21% of fertiliser revenue, behind South America (26%) [42]. For cement, EU imports from Morocco in 2024 were almost all clinker, 110,773 t, or about 0.8% of the 13.69 million tonnes of cement deliveries reported by the Association professionnelle des cimentiers for that year ([41], [43]; authors' calculation, which treats clinker and cement tonnes alike and assumes that deliveries are domestic). EU imports of steel bars and rods from Morocco were below 2 t a year in 2023–2025. Measured on export shares, the ratio $(1 - s)/s$ is thus 3.8 for DAP, 6.4 for DAP and MAP together, and 10.4 for cement; measured on shares of output, which include domestic sales, it is higher. Table 3 summarises these shares, their sources and the implied ratios.

Table 3: EU-bound share of Moroccan exports of CBAM goods and the ratio (1 − s)/s

Product and measure	Year	EU share, s	(1 − s)/s	Source
Diammonium phosphate (DAP, HS 310530), export quantity	2023	20.9%	3.8	[40]
Monoammonium phosphate (MAP, HS 310540), export quantity	2023	5.4%	17.7	[40]
DAP and MAP combined, export quantity	2023	13.5%	6.4	[40]
Cement and clinker (HS 2523), export quantity	2024	8.8%	10.4	[40]
OCP fertiliser revenue from Europe (wider than the EU), first half of the year	2025	21%	–	[42]
EU imports of clinker from Morocco relative to Moroccan cement deliveries	2024	0.8%	–	[41], [43]; authors' calculation

Note. Shares of export quantities in UN Comtrade data reported by Morocco, summed over EU member states [40]. For DAP in 2023, the Moroccan-reported and EU import quantities agree (802,147 t and 812,479 t) [40], [41]. (1 − s)/s is the amount collected on other sales for each euro of CBAM payments redirected (Section 4.5); it is computed from unrounded shares and is higher when measured on output, which includes domestic sales. Source: authors' compilation and calculations.

The amounts are modest. The EU imported 924,610 t of DAP from Morocco in 2024 [41]. On that volume, the CBAM payment, which is the most any creditable tax could redirect, is EUR 8.7 million in 2026, 19.9 million in 2030 and 32.4 million in 2034, if the tax reaches all embedded emissions. The threshold design with $\lambda = 0.43$ would redirect EUR 3.7, 8.5 and 13.9 million. If ammonia is imported, a tax on domestic emissions can redirect at most about EUR 8.5 million a year, even at the full certificate price.

5. DISCUSSION: IMPLICATIONS FOR MOROCCO'S CARBON TAX

5.1 Where Morocco stands

Article 7 of the framework law provides for "l'instauration d'une taxe carbone" (the introduction of a carbon tax) without a rate, base or date [6, p. 1153]. Under the IMF's Resilience and Sustainability Facility, the measure on a design document for a carbon tax was "not met" and postponed [44, p. 2 and ¶34], and the third NDC describes a national carbon tax as "en cours de réflexion" (under consideration) [45, §3.1.2]. In January 2025 the Minister Delegate for the Budget spoke of "une mise en œuvre progressive sur une période de dix ans" (gradual implementation over ten years), said that the government did not want the carbon tax to become "une nouvelle taxe" (a new tax), and added that it "doit exister" (must exist) [46]. The exporters' association ASMEX asks that future carbon pricing be designed from the start to fit with the CBAM [7]. According to the CESE, the government's plan would also convert the parafiscal tax on cement and the tax on reinforcing bars into carbon taxes [5, pp. 24–25]; for cement, its box describes a tax on "la quantité de CO_2 effectivement émise" (the quantity of CO_2 actually emitted), declared by firms and certified by IMANOR, but also cites "un coefficient d'émission de 1,094 t CO_2 par tonne de ciment" (an emission coefficient of 1.094 t CO_2 per tonne of cement) [5, box 3, p. 25]; on our reading, only the first would meet the base condition in Table 4. The CESE itself recommends a national MRV system, approval of carbon auditors under IMANOR, EU accreditation of the national verification system, a fund for exporting SMEs and a dedicated revenue fund [5, pp. 8–9, 30–32]. Table 4 sets these choices against the rules.

Table 4: Design choices for a CBAM-compatible Moroccan carbon tax

Design choice	Rule (legal status)	Option, costs and risks
Verification and certification	Actual price credited only with actual emissions; payment certified by a person independent of the declarant and of the third country's authorities (Art. 9(1)–(2), binding); reasonable assurance (draft Art. 10)	Build installation-level MRV and accredited verification before or with the tax; cost to firms and the state; IMANOR's independence uncertain (Section 5.3)
Base	Carbon price "calculated on greenhouse gases" (Art. 3(29), binding); up to 5% difference tolerated (draft recital 7)	Per-tonne levies on cement or rebar would probably not qualify; redefine them per tCO_2e of installation emissions, which needs installation data for every taxpayer
Coverage across destinations and installations	Effective price averaged per tonne of good over the reporting period (draft Annex I, s. 4.2, and eq. 12a in s. 6.1; authors' reading)	Exempting non-EU sales would dilute the credit on EU-bound tonnes; installation-level differentiation escapes dilution but invites subsidy scrutiny
Level and path	Limit RP × max(0, SEE − SEFA) (eq. 4; guidance formula and draft conversion)	Flat USD 5–10: non-creditable only near the benchmark in 2026–2028, and a falling share offset unless the rate rises. Threshold at SEFA with rate λRP: no non-creditable payments if aligned, but a high marginal rate on all output
Rebates and use of revenue	Refunds and exemptions reduce the effective price; revenue-financed decarbonisation subsidies not deducted under four conditions (draft Art. 8)	Recycle revenue through an open, application-based decarbonisation fund; support for carbon accounting would count as compensation
Indirect emissions and precursors	Actual price on indirect emissions the main rule, default optional; precursor prices certified or default (draft Annex I, points 3.2 and 6.2)	A tax on domestic emissions does not reach imported ammonia; split the threshold between process and precursor benchmarks
Default carbon price	Commission "may" set yearly default prices from 2027, "including on a conservative basis" (Art. 9(4), binding, discretionary)	Request a default price once a tax exists; for a threshold design, a conservative country-level price would be low
Legal form	Taxes created by law; base and rate in the domain of the law (Constitution [35], Arts. 39 and 71; our reading)	Update the threshold table and rate in each finance law, with an annual lag

Note. Art. refers to Regulation (EU) 2023/956 [1] unless stated otherwise; "draft" refers to the draft implementing regulation of May 2026 [30]. Source: authors' compilation.

5.2 Level, trajectory and domestic objectives

If the priority is to avoid paying tax that the EU will not credit, a threshold equal to the EU adjustment is preferable to a flat rate, mainly for installations close to the benchmark. Its constant share of the CBAM payment, however, comes from an average rate that rises with the phase-out on all output and from a marginal rate, λRP, that is high from the first year, and each euro it redirects from the EU comes with $(1 - s)/s$ euros paid on domestic sales and exports to other markets. The choice of λ, and between flat and threshold designs, thus depends mainly on domestic objectives: abatement, revenue, the domestic price of fertilisers and cement, and competitiveness in markets where competitors may pay no carbon price. The IMF's estimates of the tax needed to meet Morocco's conditional NDC, about USD 82 per tCO_2, or USD 36 with the other measures of the programme [44, Box 3], are economy-wide rates, not rates for a tax on CBAM sectors. Where, as in Morocco, the EU buys a minority of the output of CBAM sectors, the case for the tax must rest on domestic objectives, with creditability under Article 9 as a design constraint rather than as a source of revenue.

5.3 Verification, independence and the default-price route

Two functions must be distinguished. Embedded emissions determined on the basis of actual emissions must be verified by a verifier accredited under the CBAM rules (Arts. 8(1) and 18), and the carbon price paid must be certified by a person "independent from the authorised CBAM declarant and from the authorities of the third country" (Art. 9(2)). The CESE [5, p. 25] reports that IMANOR has been

designated under law n° 75.24 to certify manufacturers' emissions. IMANOR replaced a department of the Ministry of Industry in 2010 and has administrative and financial autonomy [47]. Whether it could meet the independence requirement for certifying the carbon price paid is, in our view, uncertain and should be clarified with the Commission; private accredited bodies may be needed for both functions. Morocco's annual grid emission factor, which is not publicly available [16], matters for indirect emissions and any carbon price attributed to them.

Exporters that declare default values can benefit from a Moroccan tax only through a yearly default carbon price that the Commission may set from 2027. For a flat tax without exemptions, that price would presumably equal the rate. For a threshold design, a country-level price set "on a conservative basis" would average over installations that pay nothing below the threshold; Wildgrube et al. [9, p. 31] show how averaged recognition treats a low-emission installation fully covered by the benchmark like one above it. The default price would then be low, penalising small exporters on default values, whom the CESE wants to support.

Default values can also cost more. For DAP from Morocco, the Commission's default is 0.550 tCO_2e per tonne of total emissions [48], or 0.556 with the 1% mark-up applied for certificates (IR 2025/2621 [28], Annex I, as corrected by IR 2026/1740 [29]): $x \approx 1.6$, about 23% above the SEE inferred from OCP figures. At the reference price, an importer using it would pay about EUR 8 more per tonne of DAP in every year (EUR 17.5 in 2026 and 43.1 in 2034; authors' calculation). If OCP's figure holds and covers the same emissions, including indirect ones, declaring verified emissions would save the EU importer about twice what a USD 10 tax could redirect per EU-bound tonne (EUR 4.04), a further reason to build installation-level MRV before or with the tax.

5.4 Rebates and the use of revenue

Refunds linked to output or to the tax paid would reduce the credit. Under draft Art. 8(2), subsidies financed by the tax would not be deducted if four conditions all hold: every installation subject to the tax is eligible irrespective of the price it paid, eligible installations must apply to obtain the subsidy, the granting decision is public, and the subsidy aims to reduce the beneficiary installation's emissions. A decarbonisation fund meeting these conditions would let revenue return to industry without losing the credit, and revenue use is a main lever for acceptability [49]. On our reading, support for small exporters' carbon accounting or verification costs would not meet condition (d); if financed by the tax and granted to installations that pay it, such support would count as compensation.

5.5 Costs and risks beyond creditability

Competitiveness and incidence. Most OCP fertiliser revenue comes from outside Europe (Section 4.5), where competitors may pay no carbon price. Where Moroccan producers are price-takers, they bear the tax themselves; if they pass it on, buyers outside the EU pay more. Pass-through is often incomplete: in the US manufacturing industries studied by Ganapati et al. [50], about 70% of energy-price-driven changes in input costs reach consumers in the short to medium run. The CBAM reduction accrues to the EU declarant, not to the Moroccan producer, so keeping revenue at home also requires the exporter to recover the creditable tax through a higher price to EU buyers, which happens only if contracts adjust. On domestic sales the tax falls on Moroccan farmers and builders. The evidence that carbon pricing is more often progressive in lower-income countries concerns economy-wide pricing [51], [52]; we found no study of a sectoral tax on fertilisers and cement in Morocco.

Trade law and administration. A destination-specific levy would need to be checked against Morocco's trade commitments, and Fischer and Mehling [3, p. 11] note that asymmetric allocation for exporters "could in principle attract scrutiny under the World Trade Organization's Agreement on Subsidies and Countervailing Measures". A tax on domestic production of cement and rebar that does not apply to

imports would penalise domestic producers in their home market. The threshold design requires SEFA for each good and year and MRV aligned with the CBAM boundary; a flat tax is much simpler to administer.

Political economy and timing. The threshold design's rising burden on all output sits uneasily with the minister's wish that the tax not become "une nouvelle taxe". According to the sources consulted, no carbon tax had been introduced by October 2026 [7], [45], and the minister spoke of a ten-year phase-in. The non-creditability of a flat tax near the benchmark matters only if a tax is introduced quickly, or if the July 2026 proposal keeps the adjustment high for longer.

5.6 Limitations

The analysis rests on a draft implementing regulation that may change before adoption and on Commission guidance that is not legally binding. The CBAM benchmarks may also change: they "should be reviewed at the latest one month after the final EU ETS benchmarks" for 2026–2030 are published [21, recital 10]. These were published on 29 June 2026, with ammonia at the 1.522 used here [53]; we have not seen revised CBAM benchmarks. We assume that the zero floor applies per good, and our reading of the draft's per-good averaging should be confirmed against the adopted act. The cross-sectoral correction factor has been set only for 2026–2030, and we hold it at 100% thereafter; results for 2031–2033 depend on this assumption, those for 2034 do not. The reference price is held constant, and the flat tax is compared both at a constant nominal rate and at an escalating rate. The fertiliser case uses official benchmarks but an embedded-emission value inferred from OCP figures computed before those benchmarks existed, and the imported-ammonia case is illustrative. The EU-bound shares come from export data with the inconsistencies noted. Morocco's default values are taken from the Commission's informational file; only those in IR 2026/1740 are legally binding. We do not model incidence between importers and exporters, market responses, abatement or welfare, and we do not assess WTO compatibility.

6. CONCLUSION

Article 9 gives exporting countries a reason to price carbon, but the EU credits a foreign carbon price only up to the CBAM payment left after its free-allocation adjustment. As free allocation is phased out over 2026–2034, this limit rises from a few euros per tonne for efficient installations to the full CBAM price. A tax that exempts emissions up to the EU adjustment and charges at most the CBAM price is creditable for every installation if its base, price and exchange rate follow the EU's; a flat rate is not, for installations near the benchmark in 2026–2028. Because a tax on all output displaces CBAM payments only on EU-bound sales, and the EU buys a minority of Morocco's fertiliser and cement output, Morocco's carbon tax must be justified mainly by domestic objectives. In any design, the credit depends on verified installation-level emissions and on certification by a person independent of the government.

Three extensions would be useful once the implementing act is adopted and installation data become available. The first is to model incidence between EU importers and Moroccan exporters, and the pass-through of a domestic tax to buyers inside and outside the EU. The second is to replace the illustrative emission values used here with verified installation-level data for fertilisers and cement. The third is to assess the trade-law compatibility of installation-level differentiation, which is the only way to raise the creditable share of collections above the EU-bound share of output.

DECLARATIONS

Conflict of interest. The authors declare no conflict of interest.

Funding. This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Ethics. The study uses only public documents and statistics and involves no human or animal participants.

DATA AVAILABILITY STATEMENT

The calculations use only public sources cited in the text. The code and parameters that reproduce the tables and figures are provided as supplementary material: model/ceiling.py and model/params.json (creditable limits, thresholds and non-creditable shares), model/ceiling_v2.py (official DAP benchmark, coverage ratio, escalating uniform rate, redirectable amounts and (1 − s)/s ratios), model/figures_v2.py (Figures 1 and 2 and the auxiliary values quoted in the text), model/proposal_v5.py (sensitivity to the proposed CBAM factors and rounding checks), and model/defaults_v5.py (Morocco's default value for DAP, which reads the Commission's Excel file cited as [48]). These files will be deposited in a public repository with a DOI upon acceptance.

DECLARATION ON THE USE OF GENERATIVE AI

The authors used Claude (Anthropic), to search legal and academic sources.

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APPENDIX: SUPPLEMENTARY TABLES AND NOTE

Table A1: Rules and parameters used in the analysis

Parameter	Value used	Source
CBAM factor, 2026–2034	97.5, 95, 90, 77.5, 51.5, 39, 26.5, 14, 0%	Directive 2003/87/EC [23], Art. 10a(1a)
Proposed CBAM factor (sensitivity)	97.5, 95, 91.5, 81, 59, 48, 37.5, 27, 15% (15% in 2034–2037; 0% from 2038)	COM(2026) 616 [36], as reported by A&O Shearman [37, p. 12]; each value equals the current factor plus 15% of the allocation it phases out, rounded to half a point (authors' calculation)
Cross-sectoral correction factor	100% in 2026–2030; 100% assumed for 2031–2034	Implementing Decision (EU) 2026/1862 [25]; assumption
Obligation formula	Equation (1), floor at zero, per good	European Commission [8, s. 2.4.2] (guidance)
Conversion of the price paid	Equation (3), yearly reference price	Draft implementing regulation [30], Art. 6 (draft)
Reference price RP	EUR 77.65 (mean of Q1–Q3 2026 prices), held constant; EUR 100 and 150 as 2034 sensitivities	European Commission [27]; CESE [5, box 2]
Exchange rate	1.1186 USD per EUR (8 October 2026)	European Central Bank [31]
Domestic tax range	5–10 dollars per tCO_2e, read as USD (EUR 4.47–8.94)	CESE [5, p. 24]
DAP benchmarks (CN 3105 30 00)	0.339 (default, Column B); 0.006 (process, Column A); ammonia 1.522 tCO_2e/t	IR 2025/2620 [21], Annex, point 5.3
Implied ammonia mass	0.219 t NH3 per t DAP	Authors' calculation from the benchmarks
SEE of DAP	0.452 tCO_2e/t (0.4517 to four decimals; mean of 45/100 and 68/150, pairing the ends of the ranges)	Authors' calculation from OCP figures in CESE [5, box 2] (OCP assumption)
Ratio x = SEE/BM	1.0–2.0 (illustrative); DAP 1.33	Authors' calculations
Default value of DAP from Morocco	0.550 tCO_2e/t (total emissions, printed to two decimals); 0.556 with the 1% mark-up; $x \approx 1.6$	European Commission [48]; mark-up: IR 2025/2621 [28], Annex I, as corrected by IR 2026/1740 [29]
Coverage κ, DAP with imported ammonia	0.26 (ammonia at benchmark intensity)	Authors' calculation; illustrative
EU imports of DAP from Morocco	924,610 t (2024)	Eurostat [41]
EU-bound share of exports s	DAP 20.9%, DAP+MAP 13.5% (2023); cement and clinker 8.8% (2024), by quantity	World Bank [40], WITS/UN Comtrade

Table A2: Marginal cost of an additional tCO_2e (EUR), full coverage, RP = EUR 77.65

Design	EU-bound output	Other output
CBAM only	RP if SEE > SEFA, otherwise 0	0
Flat tax $\bar{\tau}$ = EUR 8.94 (USD 10)	$\bar{\tau}$ if $x \leq \hat{x}_t$, otherwise RP	$\bar{\tau}$
Threshold design, λ = 0.43 (0.4292 to four decimals; Section 4.3)	RP if SEE > SEFA, otherwise 0	λRP = 33.3 if SEE > SEFA, otherwise 0

Table A3: Escalating uniform rate equal to the threshold design's average rate at $x \approx 1.33$ (full coverage)

Year	Rate (EUR/tCO_2e)	Non-creditable share at x = 1	Share offset at x = 2
2026	8.94	78.3%	22.5%
2027	9.57	59.4%	23.5%
2028	10.82	28.2%	25.3%
2030	20.45	0%	35.5%
2034	33.33	0%	42.9%

Note. The threshold design (λ = 0.43) has no non-creditable share and offsets 42.9% of the CBAM payment at every x and in every year.

Note A1. Alignment conditions for full creditability of the threshold design (Section 4.3).

1. *Base and threshold.* The domestic base must not exceed the embedded emissions declared under the CBAM for the same good (the draft tolerates differences of up to 5%; recital 7), and the threshold must use the benchmark the declarant uses, actual or default, including precursors.
2. *Price and exchange rate.* Suppose the domestic law sets the reference price P in EUR and converts the tax into dirhams at a rate e (dirhams per EUR), while the Commission converts the payment back at its yearly rate $\bar{e}_t$ (same units) and compares it with the yearly reference price RP_t. Full creditability then requires $\lambda(P/RP_t)(e/\bar{e}_t) \leq 1$. Assessing the tax after year-end on the published yearly reference price and the Commission's yearly exchange rate (draft Art. 5) removes the mismatch for any $\lambda \leq 1$. With a one-year lag, λ must absorb year-on-year falls in the price: average prices in German auctions rose from about EUR 65 in 2024 to EUR 73.86 in 2025 [34], and a fall of that size would require $\lambda \leq 0.88$.
3. *Timing.* The tax must be paid and its payment certified before the declaration and surrender, both due by 30 September of the following year (Arts. 6(1) and 22(1)).
4. *Level of the floor.* The design is creditable per good; whether the floor applies per good or to a declarant's total (Section 3.3) affects only the flat tax.
5. *Legal form.* A threshold that follows EU implementing acts requires a domestic tax law that refers to them. Under the 2011 Constitution, on our reading, only the law can create taxes (Art. 39), and the tax regime, base and rate are in the domain of the law (Art. 71) [35]. An annual update of the threshold table and rate in each finance law is a practical alternative.