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CBAM and Indian Exports

Sector Exposure and the Decarbonisation Imperative

Sector Exposure and Decarbonisation Incentives under the EU Carbon Border Adjustment Mechanism: Implications for India's Steel, Aluminium, and Fertiliser Exporters

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EUR 75.36	2.54 t	EUR 173.8	2034
CBAM Q1 2026 certificate price (per tonne CO_2)	India steel CO_2 intensity (per tonne crude steel)	Projected CBAM duty at full phase-in (per tonne steel)	Year free EU ETS allocations reach zero

About This Brief

This policy brief analyses the implications of the EU Carbon Border Adjustment Mechanism (CBAM) for India's steel, aluminium, and fertiliser export sectors as the definitive phase began on 1 January 2026. It examines sector-specific cost exposures, the revenue logic for domestic carbon pricing acceleration, India's strategic response options, and the critical design questions facing the Carbon Credit Trading Scheme. Prepared under SCRF's Policy Lab for policymakers, industrial stakeholders, and climate finance practitioners.

1. The Mechanism Is Now Operational

The EU Carbon Border Adjustment Mechanism entered its definitive enforcement phase on 1 January 2026. The two-year transitional reporting period (October 2023 to December 2025), during which EU importers were required to submit quarterly emissions data without financial obligation, is closed. The mechanism now imposes real and growing costs on every tonne of steel, aluminium, fertiliser, cement, electricity, and hydrogen imported into the EU.

On 7 April 2026, the European Commission published the first quarterly CBAM certificate price: EUR 75.36 per tonne of CO_2, calculated as a weighted average of EU ETS auction clearing prices. This is not a fixed rate. It will track EU carbon market dynamics quarterly through 2026, then weekly from 2027. The EU ETS averaged EUR 65 per tonne in 2024 and reached EUR 80 in early 2025 before settling back. The Q1 2026 price of EUR 75.36 confirms the upward trajectory many market models had projected as free allocations begin their phase-out.

The mechanism does not function as a tariff set by political discretion. It is a carbon price calculated directly from the EU's own emissions trading system, recalibrated every quarter, and escalating toward full equivalence by 2034.

1.1 Phase-In and Cost Escalation Schedule

The CBAM financial obligation is not fully applied from day one. A phase-in factor, mirroring the gradual phase-out of free EU ETS allowances for covered sectors, determines what proportion of embedded emissions is subject to the carbon price in each year. This creates a rising cost trajectory with a known terminal point.

Year	Free Allocation Factor	CBAM Adjustment Factor	Approximate CBAM Cost (EUR 75/t CO_2 reference)	Key Milestone
2026	97.5%	2.5%	~EUR 1.88/t product (at 1t CO_2/t)	Definitive phase begins; first annual declaration due Sept 2027
2027	95.0%	5.0%	~EUR 3.77/t product	Weekly pricing begins; third-party verification mandatory
2028	87.5%	12.5%	~EUR 9.42/t product	Scope extension to downstream products under consideration
2030	51.5%	48.5%	~EUR 36.5/t product	Significant cost materialisation for high-intensity producers
2032	25.0%	75.0%	~EUR 56.5/t product	Near-full exposure for non-EU producers
2034	0%	100%	~EUR 75+ /t product (at full price)	Free allocation eliminated; CBAM at full equivalence

Note: The 'approximate cost' column assumes a simplified product with 1 tonne CO_2 per tonne of product and the Q1 2026 reference price. Actual costs depend on verified emissions intensity, EU ETS price at time of certificate purchase, and any deduction for domestic carbon prices paid. Sources: EU Regulation 2023/956; Simplification Regulation 2025/2083; Hooper and Co (April 2026).

1.2 The Scope Expansion Risk

The current scope covers six product categories. On 17 December 2025, the European Commission explicitly confirmed that CBAM will expand to approximately 180 additional downstream product categories, including machinery, appliances, vehicles, and industrial equipment with high steel and aluminium content. A call for evidence on the expansion was issued in August 2025. This is not a speculative risk: it is a stated Commission intent with a published legislative timeline. For India, this materially enlarges the exposed export base beyond the primary metals discussed in this brief.

2. India's Sector Exposure: Steel, Aluminium, and Fertilisers

India's CBAM-exposed exports to the EU represent approximately 0.2 percent of GDP, with iron and steel accounting for 90 percent of that exposure, per CGE analysis by CSEP (2025). This concentration means the headline macroeconomic figure understates the sectoral severity: a large, geographically concentrated industrial cluster faces a structural cost increase with a known 2034 terminal level, while the rest of the economy is largely unaffected in direct terms.

2.1 Steel: The Highest-Exposure Sector

India is the world's second-largest steel producer, with output of 140.8 million tonnes in 2023 and exports of over USD 13 billion in FY2023. The sector accounts for approximately 2 percent of GDP. It is also among the most carbon-intensive in the world by process profile.

Metric	India	EU Benchmark	Gap	Implication
CO_2 intensity (blast furnace route)	2.54 tCO_2/t crude steel	~1.37 tCO_2/t	0.73-1.17 tCO_2/t	Structural CBAM cost disadvantage
CO_2 intensity (industry-wide average)	2.54 tCO_2/t (MoSteel data)	~1.5-1.8 tCO_2/t (average)	~0.74-1.04 tCO_2/t	India above global average of 1.91 t
CBAM cost at current price (Q1 2026)	~EUR 4.5-5.9/t (2.5% factor)	0 (covered by free allocation)	~EUR 4.5-5.9/t	Cost disadvantage grows to 2034
CBAM cost at full phase-in (2034)	Up to EUR 173.8/t (FEPS/NIPFP study)	~0	EUR 173.8/t	16.06% of unit export value
CBAM cost at full phase-in (Rystad estimate)	Up to USD 116/t (at USD 100/t CO_2)	N/A	N/A	Confirmed by BCG: India faces steepest global cost increase by 2032
Steel export decline (EU, Jan-Aug 2025 YoY)	-31.4%	N/A	N/A	Market pre-adjusting before financial enforcement

Sources: Ministry of Steel (India); EU JRC; FEPS/NIPFP (2024); Rystad Energy (2025); BCG analysis; CarbonMinus (2025).

The top five Indian steel producers, Tata Steel, JSW Steel, Jindal Steel and Power, SAIL, and AM/NS India, collectively represent over 50 percent of national output. Rystad Energy analysis indicates these firms are on track for only a 43 percent emissions reduction over the next decade, well below the threshold needed to avoid material CBAM costs. Without accelerated decarbonisation, the sector faces a structurally uncompetitive position in EU markets by the late 2020s.

The government introduced a Green Steel Taxonomy under the PLI scheme in December 2024. Steel below 2.2 tonnes CO_2 per tonne of finished steel qualifies as green; below 1.6 tonnes earns a five-star rating. This framework creates a domestic language for differentiated carbon performance. However, even the five-star threshold of 1.6 tCO_2/t remains above the EU blast furnace benchmark of 1.37 tCO_2/t. India is classifying as green what the EU still prices as carbon-intensive.

2.2 Aluminium: Moderate Volume, High Emissions Intensity

Aluminium production is energy-intensive, and India's power grid remains coal-dominated, driving high Scope 2 emissions from electricity consumption. The CBAM calculates aluminium exposure on Scope 1 (direct) emissions, not Scope 2, for the current phase, creating a partial mitigation of India's power-mix disadvantage. However, the Commission's August 2025 call for evidence explicitly seeks review of indirect emissions methodology, and future phases may incorporate Scope 2 more comprehensively.

The transition to renewable energy for aluminium smelters therefore carries a direct CBAM financial benefit under the likely future methodology. Producers that can demonstrate verified low-carbon electricity consumption will have a competitive advantage not only in carbon compliance costs but in the commercial signals sent to EU procurement teams. The 2026 shift to actual-values reporting, replacing default values that are set conservatively high, rewards producers with credible MRV systems.

2.3 Fertilisers: Lower Relative Exposure, Stronger Domestic Logic

India is one of the world's largest fertiliser producers and consumers. The CBAM applies to ammonia, nitric acid, and urea nitrate solution, among other products. India's fertiliser sector carries lower relative carbon intensity than steel in the CBAM exposure calculus. CGE modelling (CSEP, 2025) suggests fertiliser exports could actually improve competitiveness under the PCARBON scenario, where India retains domestic carbon price revenue and uses it to drive energy efficiency in the sector.

The sector's significance for this brief is therefore less about direct CBAM exposure and more about the domestic policy design question. Fertilisers are covered under India's CCTS compliance mechanism from FY2026. A credible carbon price signal in this sector would qualify for CBAM deduction and would retain the fiscal revenue within India rather than transferring it to the EU.

3. The Revenue Argument: Who Collects the Carbon Price?

The most consequential, and least discussed, dimension of India's CBAM exposure is the revenue question. CBAM does not eliminate the carbon price paid on Indian exports. It determines who collects it. If India has no domestic carbon price, EU Member States collect the CBAM certificate revenue. If India has an equivalent domestic price, that revenue stays within India.

> *A domestic carbon price is not a cost to Indian industry. It is a transfer of revenue from EU customs accounts to the Indian government, with decarbonisation incentive effects identical to CBAM. The question is not whether to pay a carbon price, but where the money goes.*

Scenario	Carbon Price Paid By India	Revenue Destination	GDP Impact (2030, CGE)	Long-Run Outcome
No domestic carbon price (CBAM only)	Full CBAM levy on all EU-bound exports	EU Member States	-0.02 to -0.03%	Revenue loss; no domestic decarbonisation incentive; industry bears cost without fiscal offset
Domestic carbon price (PCARBON)	Carbon tax on production; CBAM deducted	Indian government (~1% GDP by 2030)	Near neutral to mildly positive	Revenue recycled for industrial transition; decarbonisation incentive created
Hybrid (PCARBON + CBAM)	Reduced domestic tax; CBAM on residual gap	Split between India and EU	-0.01%	Partial revenue retention; reduced efficiency of domestic signal

Source: CSEP CGE Analysis (2025), Assessing the Distributional Implications of the EU's CBAM on India.

The CGE modelling by CSEP makes this arithmetic explicit: under the PCARBON scenario, where India implements a domestic carbon price equivalent to the CBAM rate, the government captures approximately 1 percent of GDP in carbon tax revenue by 2030. Under the pure CBAM scenario, with no domestic price, this revenue accrues to the EU. For a government managing a debt-to-

GDP ratio of 82.3 percent, this is a material fiscal choice. The argument for domestic carbon pricing is as strong on revenue grounds as it is on industrial competitiveness grounds.

4. India's Carbon Credit Trading Scheme: State of Play

India's domestic carbon pricing framework is at a critical juncture. The Carbon Credit Trading Scheme (CCTS), notified in June 2023 under the Energy Conservation (Amendment) Act 2022, has progressed substantially. The gradual transition from the PAT scheme to the CCTS started in 2025, with seven sectors shifting to CCTS from FY2026. Final GHG emission intensity targets for all nine covered sectors have been notified in two phases during 2025.

CCTS Milestone	Status (April 2026)	Significance
Sectors notified (4 initial: aluminium, cement, chlor-alkali, pulp and paper)	October 2025	First legally binding emission intensity targets for FY2026 and FY2027
Sectors notified (5 additional: iron and steel, fertiliser, petroleum refining, petrochemicals, textiles)	June 2025 (draft) / January 2026 (final)	Covers CBAM-exposed industries; steel has 253 obligated entities
Total covered entities	~740 entities under 9 sectors	~700+ million tCO_2e under scheme
MRV framework published	July 2024	Gate-to-gate scope 1 and 2 monitoring
Offset mechanism procedures (version 1)	March 2025	8 crediting methodologies approved
Carbon Credit Certificate (CCC) trading	Expected by mid-2026	Power exchanges under CERC oversight
Official ICM launch (Power Minister announcement)	Mid-2026	Both compliance and voluntary offset arms
Carbon price signal	Not yet established; no trading has commenced	Critical gap for CBAM deduction eligibility

Sources: ICAP (2025/2026); BEE; IETA (2025).

4.1 Critical Design Questions

The CCTS faces several design challenges that will determine whether it functions as a credible instrument for CBAM deduction purposes, and whether it can drive the decarbonisation required to protect Indian industrial competitiveness.

- Intensity targets versus absolute caps. The CCTS is an intensity-based baseline-and-credit scheme, not a cap-and-trade system. This means total emissions can rise if output grows,

even if intensity improves. For CBAM equivalence, what matters is whether the carbon price signal is meaningful and whether it covers the same emissions scope (Scope 1, and for fertilisers and cement, Scope 2) that CBAM calculates.

- Carbon price level. For CBAM deduction to apply, India must demonstrate an effective carbon price paid at the installation level. A CCTS where credits trade at, say, INR 100-200 per tonne (roughly EUR 1-2.5) when the CBAM reference is EUR 75 would yield only a marginal deduction. The price level matters as much as the existence of the scheme.
- PAT compliance record. Under the predecessor PAT scheme, 50 percent of required ESCerts remained unpurchased with no penalties imposed. This compliance record will be scrutinised by the European Commission when assessing carbon equivalence. CCTS must demonstrate stricter enforcement from its first compliance cycle.
- WTO compatibility. India has signalled intent to challenge CBAM at the WTO on Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC) grounds. WTO jurisprudence on carbon border measures remains unsettled. This track is worth pursuing in parallel, but it is not a substitute for domestic policy action, and any outcome is measured in years.
- Bilateral equivalence recognition. CBAM provides for deduction of carbon prices paid in third countries. India's engagement with the European Commission on CBAM implementation is ongoing; EU missions have visited India for bilateral discussions. A formal equivalence determination would require the CCTS to demonstrate pricing, coverage, and enforcement standards comparable to EU ETS requirements.

5. Strategic Response Options for India

India faces three distinct response modes to CBAM. These are not mutually exclusive, but they carry different timelines, institutional requirements, and distributional consequences. The optimal strategy likely involves all three in sequence, with the domestic decarbonisation response as the non-negotiable foundation.

Option A: Pay the Levy and Absorb

Indian exporters may choose to continue current production methods, absorb the CBAM cost, and pass it through to EU buyers where market conditions allow. This is a viable short-term strategy in 2026-2027, when the phase-in factor is 2.5 percent and 5 percent respectively and the financial exposure is modest. It is not a viable strategy by 2029-2030, when the factor rises above 40 percent and the cost burden becomes material. The 31.4 percent decline in Indian steel exports to the EU in the first eight months of 2025, before financial enforcement even began, suggests EU buyers are already adjusting procurement sourcing. The window for the absorption option is shorter than the phase-in schedule implies.

Option B: Accelerate Domestic Decarbonisation

The most direct response is reducing the embedded carbon intensity of CBAM-covered products to reduce the certificate obligation. This requires capital investment in green production technology, fuel switching, renewable energy procurement for aluminium smelters, and scrap-based electric arc furnace steel. BCG analysis suggests India faces the steepest CBAM cost increase globally by 2032 without such investment. The cost of inaction is therefore not zero: it is EUR 116 per tonne by 2034 (Rystad) or EUR 173.8 per tonne (FEPS/NIPFP) applied to the entire EU-bound export volume.

The CCTS architecture, when fully operational, provides the domestic incentive mechanism. Early movers in the steel sector who reduce emission intensity below their CCTS target will generate tradable Carbon Credit Certificates while simultaneously reducing CBAM liability. The two instruments are complementary: the CCTS creates the domestic price signal; CBAM creates the export market consequence. Together, they constitute a coherent decarbonisation incentive for industrial producers.

Option C: Pursue Bilateral Equivalence and WTO Action

India's bilateral engagement with the EU Commission on CBAM implementation is ongoing. A formal equivalence determination, under which the CCTS carbon price paid by Indian producers would be deducted from CBAM obligations, would partially neutralise the levy while retaining revenue in India. This requires the CCTS to demonstrate credible pricing, comprehensive MRV, and enforcement standards. The WTO challenge, while legitimate on CBDR-RC grounds, should be treated as a long-run diplomatic instrument rather than a near-term relief mechanism. WTO dispute settlement timelines are measured in years; the CBAM financial obligation is operational today.

6. The Finance Dimension

The CBAM challenge is fundamentally a finance challenge. The technologies required for Indian steel and aluminium decarbonisation, primarily electric arc furnaces powered by green electricity, green hydrogen-based direct reduced iron (DRI), and low-carbon power procurement, require substantial capital at the firm level. The industrial decarbonisation requirement for steel and cement alone was estimated at USD 392 billion to 2030 by Raj and Mohan (2025), and current finance flows cover only a fraction of this.

Financing Gap Metric	Value	Source
Steel decarbonisation finance requirement (2022-2030)	USD 251 billion	Raj and Mohan / IMF Task Force (2025)
Cement decarbonisation finance requirement (2022-2030)	USD 141 billion	Raj and Mohan / IMF Task Force (2025)
CBAM-driven revenue loss to EU (no domestic price)	~1% of GDP per year by 2030	CSEP CGE (2025)
CBAM-driven fiscal gain with domestic carbon price	~1% of GDP per year by 2030	CSEP CGE (2025)
REC green bond (April 2023)	USD 750 million	CPI (2024)
IFC blue/climate finance to Axis Bank (Oct 2024)	USD 500 million	IFC (2024)
CBAM sustainability-linked bond potential (steel sector)	Nascent; no issuances under CCTS trajectory yet	Market observation

The CCTS creates a new financial instrument class: Carbon Credit Certificates. Early movers that over-perform against intensity targets will generate tradable CCCs. These credits can be used for CBAM-equivalence demonstrations, traded on power exchanges for revenue, and eventually referenced in sustainability-linked bond structures. For the finance community, the commissioning of the CCTS introduces a domestic carbon price signal that, once established through actual trading, will anchor the pricing of green transition bonds and sustainability-linked instruments for covered industrial sectors.

Public financial institutions, particularly PFC and REC in the power sector and IREDA for renewables, have established track records in green bond intermediation. The industrial decarbonisation financing gap requires an analogous institutional channel for steel and aluminium: a de-risking architecture that lowers the cost of capital for clean production investment in sectors where commercial lenders currently price climate transition risk at a premium. This is the institutional gap that the CCTS and the forthcoming national climate finance taxonomy need to address in combination.

7. Policy Recommendations

This brief advances six recommendations, sequenced by urgency.

Recommendation	Addressed To	Timeline	Rationale
1. Establish the Indian Carbon Market by mid-2026 as publicly committed, with credible CCC trading under CERC oversight and strict penalties for non-compliance from the first cycle	Ministry of Power / BEE / CERC	Immediate	Without a functioning price, CBAM deduction eligibility cannot be demonstrated. Every quarter of delay transfers more revenue to the EU.
2. Set the CCTS intensity targets on a trajectory that converges toward EU ETS benchmark levels by 2030, not merely India's NDC targets	BEE / NSCICM Technical Committee	Before FY2027 targets are set	The current green steel threshold of 1.6 tCO_2/t still exceeds the EU blast furnace benchmark of 1.37 tCO_2/t. Targets calibrated only to NDC compliance will not eliminate the CBAM cost gap.
3. Pursue formal bilateral equivalence determination with the EU Commission, presenting the CCTS as a qualifying domestic carbon price for CBAM deduction	Ministry of Finance / MEA	2026-2027	Even a partial equivalence deduction on steel exports at EUR 75/tonne would constitute a material fiscal transfer back to India. This is a negotiating priority of the first order.
4. Deploy blended finance vehicles to de-risk green steel and aluminium investments: a dedicated industrial transition fund anchored by PFC/IREDA co-investing with international development finance	MoSteel / Ministry of Finance / PFC / IREDA	2026-2028	The cost of capital is the binding constraint on industrial decarbonisation. Public balance sheets must absorb first-loss risk to unlock private capital at scale.
5. Operationalise the national climate finance taxonomy ahead of CBAM scope expansion to downstream products, ensuring steel-intensive manufactured exports can demonstrate climate alignment to EU buyers	Ministry of Finance / MoEFCC	Before 2028	Downstream product inclusion will extend CBAM beyond primary metals to machinery, vehicles, and industrial equipment. A taxonomy that classifies transition-aligned activity is essential for continued market access.
6. Integrate CBAM compliance data obligations into India's existing MRV framework under CCTS, so that verified emissions reported to BEE automatically satisfy the EU's installation-level data requirement	BEE / Ministry of Commerce and Industry	2026	The verification burden is a significant compliance cost for Indian MSMEs in the secondary steel sector. Interoperability between domestic and EU MRV requirements reduces cost and improves data quality.

8. Conclusion

CBAM is not a future risk for Indian industry. The enforcement mechanism is operational, the first certificate price is published, and the cost trajectory to 2034 is a known function of EU ETS prices and a published phase-out schedule. Indian steel exports to the EU declined 31.4 percent in the first eight months of 2025, before a single certificate was required. The market has begun discounting carbon intensity in procurement decisions, and that process will deepen as the cost factor rises from 2.5 percent in 2026 toward full exposure by 2034.

The domestic policy response is not symmetric across the three strategic options. Absorbing the levy is a temporary measure only. Bilateral equivalence requires a credible domestic price to negotiate from. Both depend on Option B: accelerating the CCTS to a functioning, credibly priced carbon market with enforcement integrity. The revenue argument is perhaps the most compelling near-term motivator for urgency. India faces the prospect of approximately 1 percent of GDP per year in carbon revenue accruing to EU Member States by 2030, under the pure CBAM scenario without domestic pricing. This is not a climate cost. It is a fiscal transfer. Accelerating the CCTS is, in structural terms, a recovery of India's own fiscal capacity.

> *India's industrial sector cannot export its way out of the CBAM problem. The correct frame is not resistance to the mechanism, but mobilisation of the domestic policy architecture that transforms the CBAM from an external tax into a domestically retained decarbonisation investment.*

The window for orderly transition is narrowing. The companies, ministries, and financial institutions that move in 2026 will determine whether India's industrial export base navigates CBAM as a manageable transition cost or faces structural exclusion from EU markets at the end of the decade.

Principal Sources

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