

Coking coal: Fueling India's steel ambition in a carbon-priced world

November 2026

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“What can change is how diligently we respond to these challenges: how we diversify the sourcing, how much indigenous coal we may make usable in our processes, how we optimize the blend to de-risk the sourcing and, lastly, how well we align with the market.”

Naveen Jindal,
President,
Indian Steel Association



“Coking coal touches mining, washing, rail, ports, steelmaking and trade policy — and progress in one can be limited by constraints in another.”



Alok Sahay
Secretary General,
Indian Steel Association

“Our message is direct: plan for coking coal imports … measure domestic progress in usable tons rather than raw tons, and treat verified emissions data as a commercial asset. The companies that act on all three now can set the terms of India’s steel growth; others may bear the cost.”



Vinayak Vipul
Partner,
Metals & Mining,
EY Parthenon

Foreword

Steel Plants are meant to run for decades, and so are blast furnaces, rolling mills and mines. India unlike developed countries started using bulk of steel only in last decade and, therefore, lacks legacy steel, a source for scrap. Therefore, it has to rely heavily on a blast Furnace route of production, instead of moving towards electric arc furnace based on scrap input.

Coking Coal is one major input for blast furnace route of production, which is key to realization of India's ambitions to ramp up its steel capacity in coming decades. Bulk of quality coking coal is procured from overseas mines. Recent volatility in coking coal prices is a major cause of concern and well beyond our control. That reality is unlikely to change. What can change is how diligently we respond to these challenges: how we diversify the sourcing, how much indigenous coal we may make usable in our processes, how we optimize the blend to de-risk the sourcing and, lastly, how well we align with the market.

While on one side, we are forced to adopt coking coal as an input for reducing iron, on the other side, CO2 emissions increasingly attract major costs to the steel makers. With EU CBAM in its definitive phase and with a costing of 82 Euro per ton of CO2, it has become imperative that the lower carbon emission, with credible verified data emission, will keep the steel suppliers ahead in the business.

This Report makes a clear case for treating coking coal as strategic asset and I will go on to add that it assumes significance not only in procurement offices but also in the boardroom.

I hope my fellow steelmakers read it with that in mind: to test their own sourcing and blending choices, to look afresh at washed domestic coal, and to invest early in the data that carbon-priced markets reward.

Indian steel has built its record on taking the long view. Coking coal is a good place to apply it once more.

Naveen Jindal
President, Indian Steel Association

Foreword

Raw material security is rarely discussed until it is tested. For Indian steel, coking coal is where that test is now most visible. Most of the coking coal the industry uses is imported, prices have been unusually volatile, and the cost of carbon is becoming part of how steel is bought and sold in some of our export markets.

Steelmakers experience these pressures in practical terms: what variety of coal can be secured, which grades can be blended, how much stock should be held, and how emissions per tonne of steel can be kept to a minimum. The answers differ from plant to plant. That is why an industry-wide view matters. It helps individual companies benchmark their own choices, and at the same time gives Government and coal producers a clearer picture of what steel plants need in order to use more domestic coal with confidence.

This report offers a comprehensive view across the entire range of issues. It sets out a transparent outlook for future import requirements, examines closely how more domestic coal can be made usable, and traces how procurement, blending and emissions data remain interlinked.

The National Steel Policy has set a clear direction: coking coal import dependence must fall from about 85% to around 65% by 2030-31, with Mission Coking Coal targeting 140 million tonnes of raw production by 2030. The industry shares that objective and also recognizes that an aspiration at this scale is demanding. What matters is how much of that coal becomes usable supply – which depends on washing, logistics cost, plant acceptance and mining feasibility.

I particularly welcome the report's attention to the entire value chain, especially the last mile at the plant end. Domestic coal becomes part of the answer only when it meets steel plant specifications, and that will depend on trials, quality standards and the trust built between domestic coal producers and steelmakers over time.

The Indian Steel Association sees value in bringing these conversations together. Coking coal touches mining, washing, rail, ports, steelmaking and trade policy — and progress in one can be limited by constraints in another.

I am grateful to EY for its work and to everyone who contributed to the discussions around it. I hope the ISA Coking Coal Summit becomes a place where those discussions turn into practical next steps for realizing India's steel ambitions.

Alok Sahay
Secretary General, Indian
Steel Association



Foreword

For most of the last decade, the Indian steel conversation has been about demand, and demand has delivered. Output is up by two-fifths in four years, and India is the only major market growing at close to 8%. The harder conversation is on the other side of the furnace. In the last 18 months, India has declared coking coal a critical mineral, rebuilt its trade defenses, concluded a trade agreement with the European Union (EU) that leaves carbon charges intact and drafted plant-level carbon targets for 255 steel units. Over the same period, seaborne coking coal has swung by close to US$100 a ton, and the domestic program meant to cushion the swings has yet to scale. These are not separate stories. Together, they redefine raw-material security as a portfolio of supply, processing, carbon and data capabilities.

Our message is direct: plan for coking coal imports of 85-90 million metric tons (Mt) by 2030 (FY30) and stress-test to ~112 Mt, with ~140 Mt as an outer bound, measure domestic progress in usable tons rather than raw tons, and treat verified emissions data as a commercial asset. The companies that act on all three now can set the terms of India's steel growth; others may bear the cost.

Vinayak Vipul
Partner,
Business consulting, EY LLP



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1 Executive summary



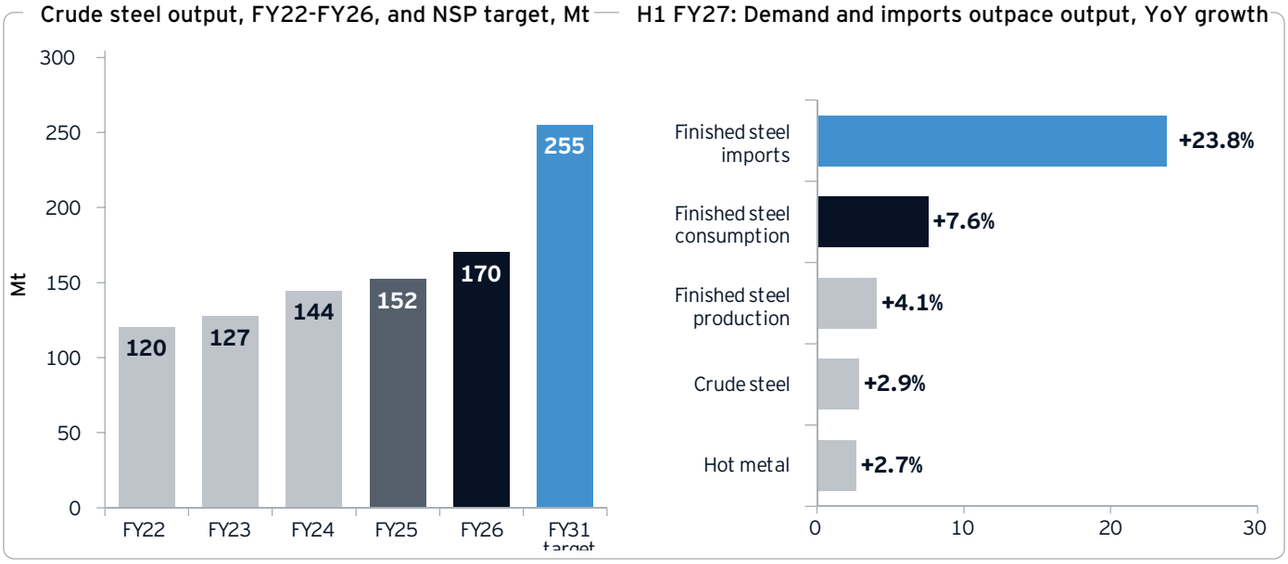
India is the growth engine of seaborne coking coal but not its price-setter. The contest over the next five years is about usable tons, landed cost and verified carbon - not raw mining volume.

1.1 Why coking coal is the most consequential external constraint on India's steel ambition

The central thesis of this report is that India's coking-coal security is decided by the usable, competitively priced and carbon-verified ton that reaches the furnace, and that the three attributes are best managed together. The same ton carries all three. Its availability depends on supply concentration, trade policy (including the coke market) and the conversion of domestic raw coal into washed coal, with gasification as a further outlet for high-ash coal (Chapters 2, 4 and 7); its cost on price volatility, contract and index design, freight, inventories and blend choices (Chapter 3); and its carbon on how it is mined, blended and used (Chapters 5, 6 and 8). The grade and blend choices that set landed cost also affect coke rate and coal consumption per ton of hot metal, and higher coal consumption raises carbon intensity. Since January 2026 the European Union's Carbon Border Adjustment Mechanism (CBAM) has applied a price to embedded emissions in steel entering the EU, and India's draft Carbon Credit Trading Scheme (CCTS) proposes plant-level targets for 255 steel units. Procurement and inventories, domestic beneficiation, capital and verified emissions data are therefore one decision set, which Chapter 10 turns into a single program.

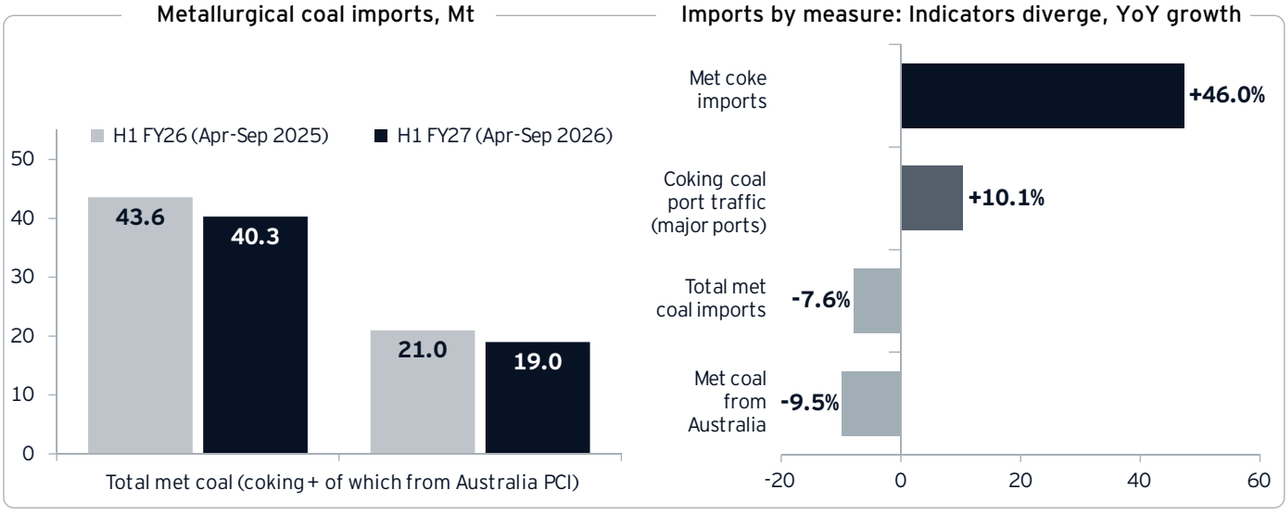
India's steel growth story is increasingly becoming a coking-coal story. Crude steel production reached ~170 Mt in financial year (FY) 2025-26 (FY26), ~40% above FY22 levels, supported by ~223 Mt of installed capacity (September 2026). With Indian steel demand expected to grow by ~8% annually through 2027 even as global demand remains broadly flat, the sector has the demand visibility, iron ore base and capital required to expand. **The critical constraint is increasingly the availability of usable coking coal.** With import dependence at 85%-90% in FY25, based on the Standing Committee's measure and raw materials accounting for 65%-70% of steelmaking costs, according to the draft National Steel Policy - Vision 2047 (the share varies by production route, product mix and captive-resource position), coking coal is emerging as a strategic determinant of India's steel competitiveness and growth ambitions.[1,2,3,4,5]

Exhibit 1: India's steel engine: Four years of ~9% annual growth, with demand now outrunning domestic output



Note: FY26 and H1 FY27 data are provisional; H1 = first half of the financial year (April-September); YoY = year on year; NSP = National Steel Policy 2017 (255 Mt production target for FY31). Installed crude steel capacity was ~223 Mt in September 2026. H1 FY27 growth rates reflect the Ministry of Steel's revised release of 23 October 2026 (hot metal 48.4 Mt, +2.7%; finished steel consumption 85.0 Mt, +7.6%; finished steel production 82.0 Mt, +4.1%; crude steel 85.1 Mt, +2.9%; finished steel imports 4.14 Mt, +23.8%). Sources: Joint Plant Committee (JPC) via Ministr of Steel; Ministry of Steel H1 FY27 update.1,88

Exhibit 2: H1 FY27: Total metallurgical coal imports eased while met coke imports rose and coking-coal port traffic grew



Note: PCI = pulverized coal injection. Measures differ in coverage and timing and are not additive. Met coke: BigMint provisional data show ~+46% to ~2.8 Mt in H1 FY27; Indian Steel Association (ISA)-shared BigMint data indicate 1.8 Mt to 2.9 Mt (~+61%), and BigMint's published January-June 2026 figure is 2.91 Mt (+44%). The direction is consistent across sources; the H1 FY27 level is subject to confirmation. Sources: BigMint (October 2026) for metallurgical coal and met coke; Indian Ports Association (IPA) via SteelOrbis for major-port traffic.28,75,94

The signature number of this report is not production but conversion. The five figures below describe how far India's raw-coal ambition is from steel-grade coal delivered to coke ovens.

Table 1: The usable-ton gap in five numbers

140 Mt	~48-52 Mt	23 Mt	25 Mt	5.9 Mt
Raw coking coal target, FY306, against ~58 Mt of Coal India Limited (CIL) output in base year FY267,[11]	Usable equivalent at 34%-37% recovery[7]	Domestic washed supply projected by 20308	Gap to 48 Mt washed coal required (Standing Committee)8	Washed coking coal produced, FY257

Read left to right: target → usable equivalent → planned supply → shortfall → delivery today.

1.2
Key focal points



How exposed is India?

India took 25% of seaborne metallurgical coal imports in 2025 (~21% of global imports including overland flows, on ISA insights) and imported 66.33 Mt of coking coal in FY26 (+15.2% on an FY25 base of 57.58 Mt74). In H1 FY27 (April-September 2026), total metallurgical coal imports, including pulverized coal injection (PCI) coal, fell 7.6% year on year while hot metal rose 2.7%.75,88 EY's transparent planning bridge (Chapter 2) puts FY30 coking coal imports at ~86 Mt in the base case, about 30% above the FY26 base, rising to ~112 Mt if new capacity is blast-furnace-heavy and domestic supply stalls. The Ministry projection of 138 Mt assumes National Steel Policy (NSP)-era output of 300 Mt and is best read as an upper bound. Including PCI coal, India imported ~83-85 Mt of metallurgical coal in calendar 2025 (BigMint; S&P Global Energy), and S&P Global Energy projects ~120 Mt by 2030, consistent with the base case once ~30 Mt of PCI coal is netted out, so the two measures are not directly comparable. Every US$10/t increase in the price of coking coal raises the national import bill by ~US$660 million a year at FY26 import volumes.7,9,10,92,97 Contracts do not remove that exposure: premium coking coal has been priced off spot indices since 2017, so term cargoes secure volume but not price.99,100 Coke is a second channel: India imported 4.62 Mt of metallurgical coke in FY26 and imports rose ~46% in H1 FY27, outside the coal planning bridge.105,75



Can domestic supply substitute?

Not yet at the pace planned, though the upside is significant. Coal India's raw coking coal output fell 2.4% in FY26 and that of its subsidiary Bharat Coking Coal Limited (BCCL) fell 13.4%; only 5 of Coal India's 13 washeries meet the 95% efficiency benchmark; and domestic coal accounts for ~10% of coke-oven blends. The Mission's goal of cutting dependence to 65% by 2030 would require ~35 Mt of usable domestic coal in our base case - about six times FY25 washed output.4,7,8,11 High-ash coal that washing cannot upgrade has a second route, gasification, though published roadmap ranges put its carbon intensity above that of the blast-furnace route.111



What does carbon change?

An illustrative blast furnace-basic oxygen furnace (BF-BOF) hot-rolled-steel calculation using India's reported average intensity produces approximately 1.2 chargeable tons of carbon dioxide (tCO_2) per ton in 2026; actual exposure depends on installation-level direct emissions, product code, production route, precursor treatment, applicable benchmarks and recognized carbon prices. EU exposure is small in volume, with India's free trade agreement (FTA) quota at 1.64 Mt a year, but domestic CCTS targets for 255 steel units from FY27 affect the whole industry.12,13,14,15



What can leaders do now?

Four no-regret moves: buy on value-in-use (US$ per ton of hot metal), not US$ per ton of coal, on index-aware contracts; set grade-specific inventory bands, with shared port storage as the next step; secure verified emissions data before CBAM certificate sales open in February 2027; and publish washery performance monthly. Beyond these, selective overseas equity with offtake, shared blending hubs and gasification pilots for high-ash coal follow once the basics are in place. Chapter 10 sets these within an India Coking Coal Security Program, with owners, timelines and success measures.

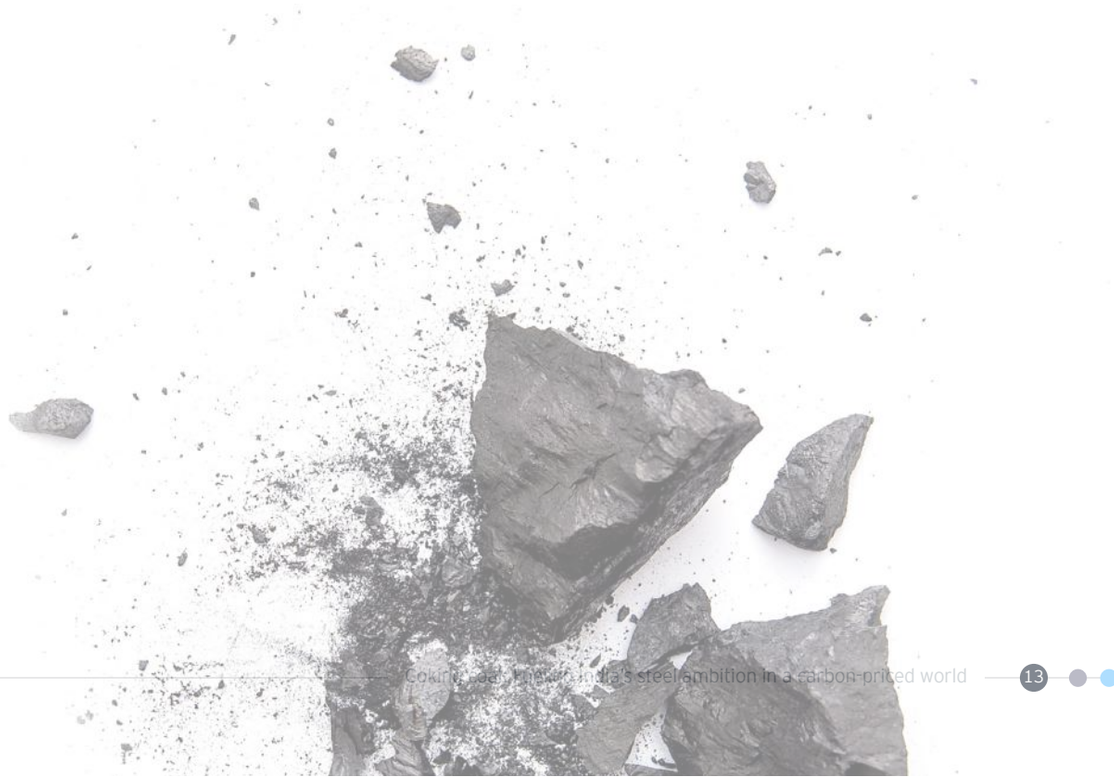
1.3
Stakeholder takeaways: What the report means for each group

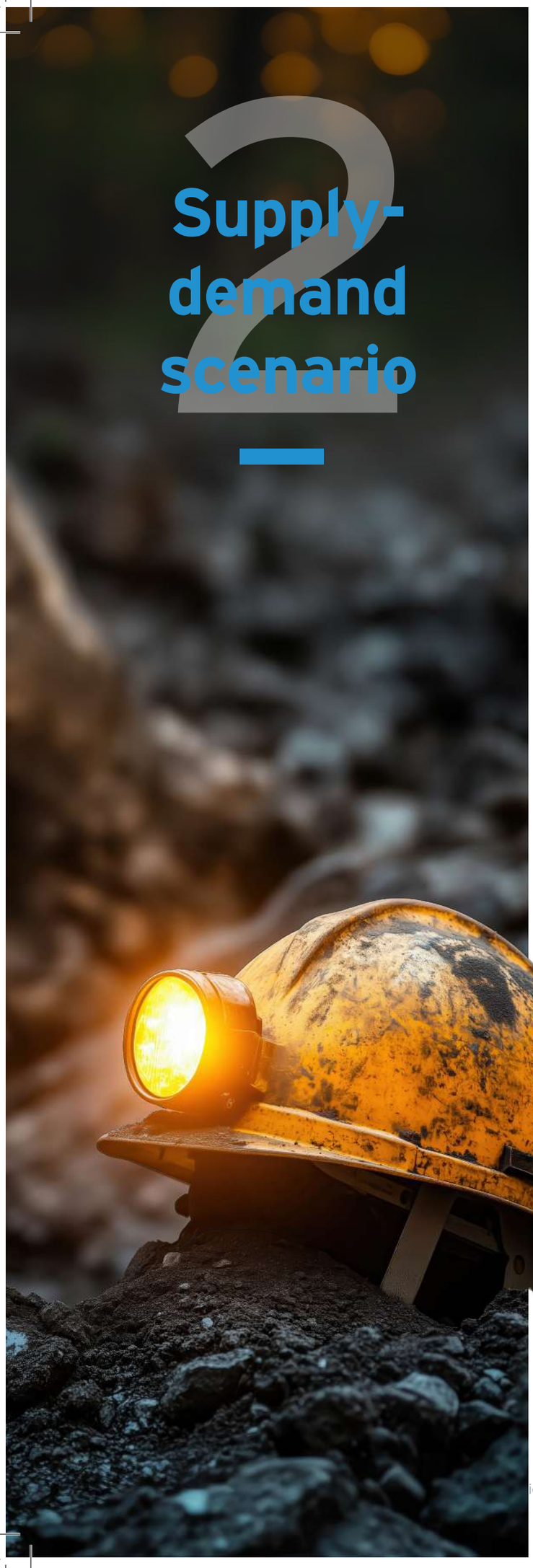
The findings translate differently for each group. The table summarizes what each group can take away and its first moves; owners, timelines and success measures are in Chapter 10.

Table 2: Stakeholder takeaways and first moves

Stakeholder	What the report means for them	First moves
Steelmakers (procurement, operations and sustainability leads)	Coking coal is a hot-metal cost and carbon decision, not only a US$-per-ton purchase. Plan against the national import range (~86 Mt base case, ~112 Mt stress case) rather than a single forecast.	Buy on value-in-use; set grade-specific inventory bands and port segregation; review the term, index and spot mix of contracts; build verified emissions data for EU volumes before CBAM certificate sales open in February 2027 (Chapters 3, 6 and 10).
Government and regulators (Ministries of Coal, Steel, Commerce and Industry, Environment, Forest and Climate Change, and Railways)	Delivery is measured in usable tons, not announced capacity: washed supply, rail evacuation and acceptance in blends set the pace, and carbon policy is only as credible as the plant-level data behind it.	Publish a reconciled raw, washed and delivered series and monthly washery performance; complete critical rail links; clarify coking coal's place in the national stockpile framework; seek recognition of CCTS carbon prices in the CBAM dialogue (Chapters 4 and 10).
Coal producers and washery operators (Coal India, BCCL, private block holders)	Domestic coal counts toward supply only when converted into specification-compliant washed coal, so washery efficiency and utilization are the measures that matter. Mine-level methane data are currently missing.	Report washery performance monthly; modernize or monetize laggard washeries; unlock idle private washeries; pilot gasification for high-ash coal; baseline methane at major underground coking mines (Chapters 5, 7 and 10).
Investors and lenders	Capital has most value where it removes conversion and logistics bottlenecks. The scenario range of 57-140 Mt of imports is wide, so a single-point forecast is an unreliable basis for investment.	Back beneficiation and logistics platforms, including shared storage and blending hubs; finance offtake-backed overseas stakes and build-operate washeries; stress-test the full import range (Chapter 10).

POV: We read the evidence as one program, not three topics. India is likely to remain import-dependent for at least the next decade (Chapter 10), so the levers within reach are converting more domestic coal into usable tons, finding a second outlet for high-ash coal through gasification, buying on delivered value rather than price per ton of coal, and treating verified emissions data as part of the product. Other countries combine similar levers (Section 2.5): Nippon Steel and POSCO paired minority stakes in Canada's Elk Valley Resources with offtake rights, China relies on a domestic washed-coal base about four times its imports, and China's steel emissions-trading scheme began by building data quality. Diversifying origins helps, but alternative origins are smaller than Australia76 and BHP has said Queensland's royalty regime does not support long-term investment,20 so domestic conversion and contract structure carry much of the weight.





2 Supply-demand scenario

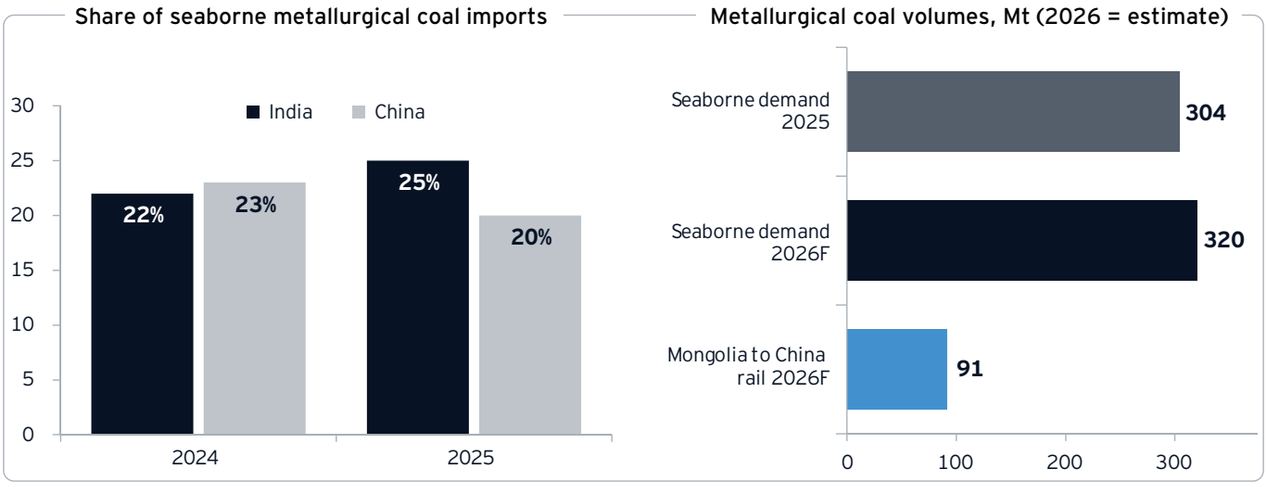
India is the growth engine of seaborne coking coal but not its price-setter. The contest over the next five years is about usable tons, landed cost and verified carbon - not raw mining volume.

2.1
Global balance: India is becoming the largest structural source of incremental seaborne demand

Global metallurgical-coal consumption edged down to ~995 Mt in 2025 from ~1,002 Mt in 2024. Beneath this headline stability, however, the market is undergoing a significant regional rebalancing. Seaborne demand is projected to increase by 16 Mt from its 2025 level of 304 Mt, with India and Indonesia accounting for much of the incremental growth, while China increasingly turns to Mongolian rail supply, projected at ~91 Mt. Including overland flows, ISA insights put India at ~21% and China at ~33% of global metallurgical coal imports in 2025, consistent with S&P Global Energy estimates of ~85 Mt and ~131 Mt of imports, respectively.16,17 Demand is also contracting in mature importing markets. The IEA expects metallurgical coal use in the European Union, Japan and Korea to decline to 2030 as steel output stays subdued and the blast-furnace share falls, a combined reduction of ~21 Mt, while India adds ~26 Mt, the largest increase of any country. S&P Global Energy's October 2026 outlook is directionally the same but steeper: combined EU, Japan and Korea consumption falls from ~115 Mt in 2025 to ~91 Mt in 2030, while India's rises from ~94 Mt to ~133 Mt. Seaborne suppliers' growth is therefore increasingly oriented toward India.17,89,90,97

The near-term environment is also unusually volatile. Conflict in the Middle East has lifted gas prices and provided support to coal markets, while worldsteel assumes that Gulf steel demand could decline by ~11% in 2026 before recovering following the reopening of the Strait of Hormuz. This combination of regional demand shifts and geopolitical disruption is increasing the strategic importance of secure, flexible supply portfolios.18,19

Exhibit 3: India has overtaken China as the largest seaborne buyer, while China pivots to Mongolian rail coal

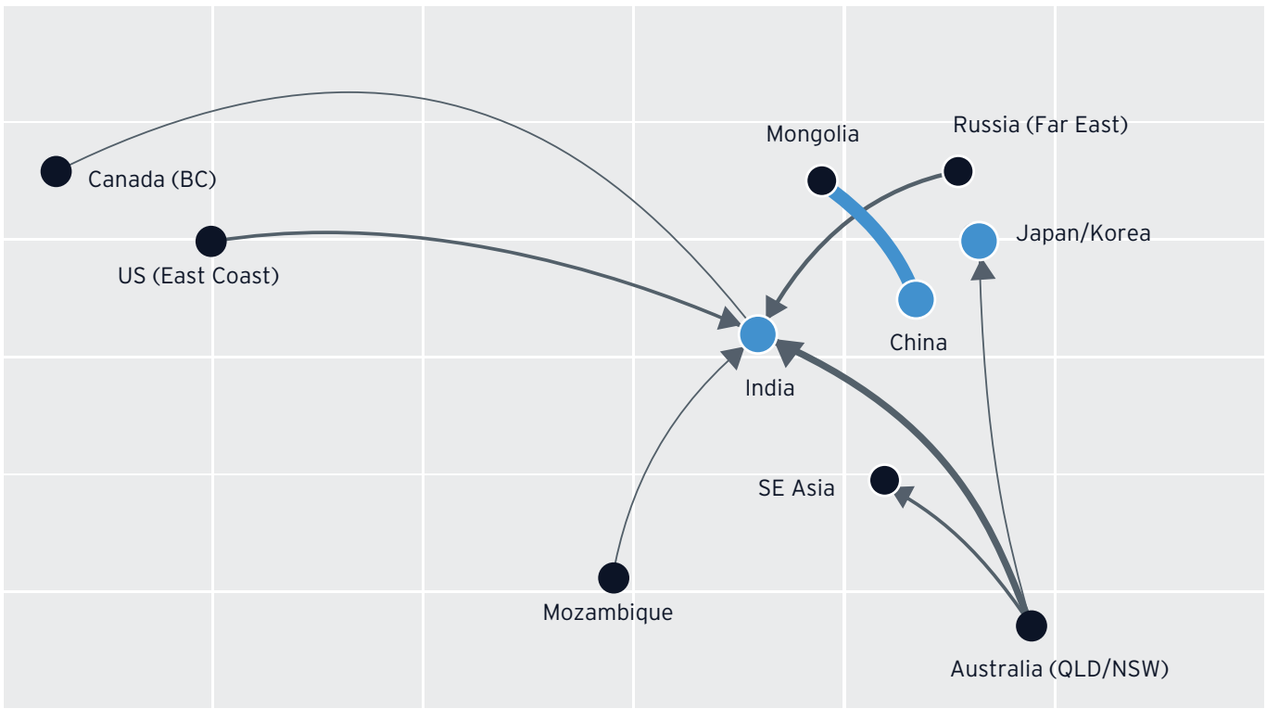


Note: Seaborne basis. Including overland flows, ISA insights put India at ~21% and China at ~33% of global metallurgical coal imports in 2025. F = forecast. Sources: Australian Department of Industry, Science and Resources (DISR) Resources and Energy Quarterly, September 2026 (shares); IEA Coal Mid-Year Update 2026 (volumes).9,17

Supply, meanwhile, remains concentrated and is becoming more disciplined. Australia exported ~142-147 Mt of metallurgical coal in the latest year, depending on source and period (IEA: ~142 Mt and S&P Global Energy: ~146 Mt in calendar 2025; DISR: ~147 Mt in fiscal 2025-26), still well below the ~184 Mt of 2018-19.17,78,95,97 The Department of Industry, Science and Resources (DISR) projects exports to peak at 164 Mt in 2028-29 before easing to ~158 Mt in 2030-31, although its past projections have overestimated actual volumes;9,79,97 S&P Global Energy is more cautious, projecting ~144 Mt by 2030 and flat volumes through 2035, and ISA insights citing McCloskey point lower still, to ~139 Mt. Australia's exports to India have been declining since 2021.96 Near-term growth is far from assured: BHP Mitsubishi Alliance (BMA) has guided to FY27 production of 37-41 Mt, Saraji South has remained under care and maintenance since December 2025 and BHP has stated that Queensland's royalty regime does not support long-term investment, while weather disruption in early 2026 interrupted shipments. Anglo American's Grosvenor mine also remains offline, with longwall operations targeted to restart only in late 2027.20,21,22

Exhibit 4: Stylized view of key metallurgical coal flows: India draws on a widening set of origins

Stylized map of key metallurgical coal flows (line weight indicative of relative importance)



Flow	2025 share of India's coking coal imports (Ministry of Steel)	Share incl. PCI coal, Jan-Aug 2025 (S&P Global)	Role and trend
Australia (Queensland/New South Wales) to India	54%	~49%	Largest supplier and premium hard coking coal anchor; shipments to India -9.5% in H1 FY2775
United States (East Coast) to India	17%	~12%	Largest alternative origin by coking coal share; flexible, price-responsive supply
Russia (Far East) to India	8.2%	~24%	Mainly PCI coal; supplied under the India-Russia cooperation framework
Mozambique to India	7.3%	~8%	Fastest-growing origin (FY26 imports up an estimated 27%)77; Moatize basin and MdR project scaling
Indonesia to India	4%	n/a	Growing coking coal and coke supplier from India's near neighborhood
Canada (British Columbia) and others to India	~9.5% (residual)	n/a	Premium hard coking coal from the Pacific coast; smaller volumes to India
Mongolia to China (rail)	-	-	~91 Mt in 2026F (IEA); reduces China's pull on seaborne supply

Note: Schematic summary, not to scale. Shares are shown on two bases that are not additive: the Ministry of Steel coking coal basis (calendar 2025) and S&P Global metallurgical coal data including PCI coal (January-August 2025, via IEEFA). n/a = not separately reported. Sources: Ministry of Steel; IEEFA (S&P Global data); IEA; BigMint.17,75,76,77,91

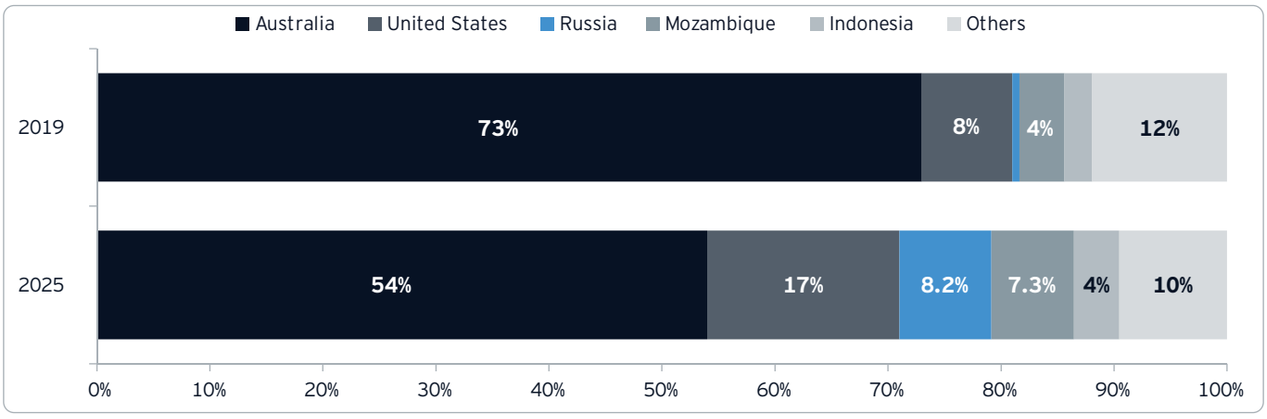
The implication is clear: India is becoming the marginal buyer in a seaborne market whose supply base remains concentrated, operationally exposed and increasingly cautious about committing new capital.

2.2
Supplier portfolio: Diversification is widening options; resilience is the next step

India has materially diversified its coking-coal portfolio. On the Ministry of Steel's coking coal basis, Australia's share fell from 73% in 2019 to 54% in 2025, while the United States rose from 8% to 17%, Russia from 0.6% to 8.2%, Mozambique from 4% to 7.3% and Indonesia from 2.5% to 4%.76 On a broader metallurgical coal basis that includes PCI coal, S&P Global data for January-August 2025 show Australia at ~49%, Russia at ~24% (largely PCI coal), the United States at ~12% and Mozambique at ~8%.91,92 This shift has increased sourcing flexibility and, at times, improved India's negotiating position and access to discounted cargoes. Mozambique and the United States are the fastest-growing alternative sources, with FY26 imports up an estimated 27% and 17% respectively,77 and an industry analyst quoted by Reuters expects Mozambique to become India's second-largest coking coal supplier over the longer term; S&P Global Energy projects Mozambique's exports rising from ~10 Mt in 2025 to ~13 Mt by 2030 and ~19 Mt by 2035, the fastest growth among major exporters.93,97 Shipments from Australia to India, by contrast, fell 9.5% in H1 FY27, and Australian exports remain below 2018-19 levels amid weather disruption and, as BHP has stated, limited appetite for new investment under Queensland's royalty regime.20,75,78

Each alternative origin adds a distinct strength, and together they can progressively complement Australia. Russia offers price-competitive volumes, particularly of PCI coal, under an India-Russia coking coal cooperation framework supported by structured contracts, payment channels and logistics; the United States provides flexible, price-responsive supply; Mozambique is scaling as Moatize basin output and new projects such as JSW's Minas de Revuboè ramp up; Indonesia adds coking coal and coke supply from India's near neighborhood; and Canada offers premium hard coking coal from the Pacific coast. As mature importers in Europe, Japan and Korea buy less, more of this supply becomes available to India. India's Ministry of Steel notes that these origins currently have smaller export capacities than Australia, which continues to anchor the portfolio, particularly for premium hard coking coal.9,17,23,24,76,89

Exhibit 5: India's coking coal imports by origin: Australia's share fell from 73% to 54% between 2019 and 2025 as other origins grew



Note: Ministry of Steel coking coal basis (statement to the Parliamentary Standing Committee on Coal, Mines and Steel, 5 November 2026); 'Others' (including Canada) is a residual.
Source: Ministry of Steel.76

Table 3: Supplier origins: Role, cost and logistics, and key considerations

Origin	Role in India's supply	Cost and logistics	Key considerations
Australia	~54% of 2025 coking coal imports (Ministry of Steel)76; ~49% including PCI coal (S&P Global, January-August 2025)91; premium hard coking coal (HCC) and premium low-volatile (PLV) reference grades	Free on board (FOB)-indexed; Panamax Hay Point-Paradip US$18.9-26.1/t (Mar-Jul 2026)25	Weather, mine incidents and royalty-driven under-investment; shipments to India fell 9.5% in H1 FY2775
Russia	~8% of 2025 coking coal imports (Ministry of Steel)76; ~24% including PCI coal (S&P Global)91, largely PCI coal92	Historically priced at a 15%-20% discount; Far East routing17,23	Established supplier under the India-Russia cooperation framework; structured contracts, payment channels and logistics support continuity; blend fit managed through value-in-use23
United States	~17% of 2025 coking coal imports (Ministry of Steel)76; ~12% including PCI coal (S&P Global)91	Flexible, price-responsive supply; longest voyage17	Fast-growing (FY26 imports up an estimated 17%)77; volumes respond to price
Mozambique	~7.3% of 2025 coking coal imports (Ministry of Steel)76; JSW's Minas de Revuboè (MdR) project targets 2.4 Mt/yr in phase one24	Indian Ocean proximity; rail and port dependence	Fast-growing (FY26 imports up an estimated 27%)77; expected by an industry analyst to become India's second-largest supplier over the longer term93; rail, port and project execution are the key variables
Indonesia, Canada and others	~14% combined: Indonesia ~4%, Canada and others ~9.5% (Ministry of Steel)76	Near-neighbor supply (Indonesia); Pacific-coast supply (Canada)	Canada offers premium HCC; Indonesia is also a growing coke supplier to India94

India has broadened its origins; the next step is to turn that breadth into resilience. The next phase can move beyond opportunistic spot-price arbitrage toward a deliberately segmented portfolio combining secure baseload volumes, flexible swing supply, selective upstream participation and quality-specific contingency arrangements.

Industry perspectives

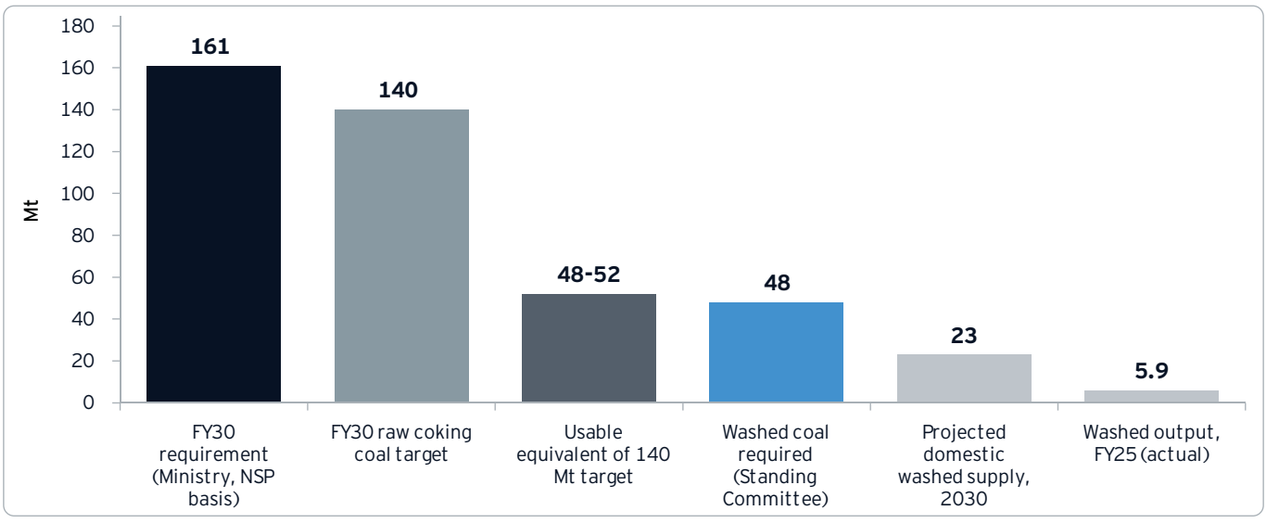
- **International Energy Agency (Coal 2025):** Metallurgical coal exporters "appear to have the stronger prospects due to the relatively robust demand outlook in India."89
- **Sylvia Cao, principal analyst, S&P Global Energy:** Australian exports face "the reality that India is diversifying met coal imports away from Australia."89
- **T.V. Narendran, CEO, Tata Steel (2022):** If Australian supply does not grow, "India will have to start looking at other sources."98
- **BHP (FY2026 results):** Queensland's royalty regime is not supportive of long-term investment in steelmaking coal.20,21
- **What we take from these views:** Suppliers, buyers and analysts agree on the direction (India is the growth market and is diversifying), so the differentiator is execution: contract structure, blend capability and usable domestic tonnes.

2.3
Domestic supply: The usable-ton gap

India's domestic coking-coal challenge is not fundamentally one of geological availability or headline production. It is a problem of converting raw coal into material that can be used consistently and economically in blast-furnace operations.

Mission Coking Coal targets 140 Mt of raw coking-coal production by FY30. Recent performance shows where the next gains lie in converting this ambition into usable supply: Coal India produced 58.21 Mt in FY26, down 2.4%, while BCCL produced 33.70 Mt, down 13.4%.6,7,11

Exhibit 6: The usable-ton gap: 140 Mt of raw coal yields only ~48-52 Mt usable; 23 Mt is planned and 5.9 Mt is delivered



Note: The 48-52 Mt usable equivalent (34%-37% recovery) and the Standing Committee's 48 Mt requirement are separate estimates; the 25 Mt gap is the requirement (48 Mt) minus projected supply (23 Mt). 52 Mt = 140 Mt x FY25 observed recovery of ~37% (author's arithmetic). Sources: Ministry projection as reproduced by SMM; Standing Committee on Coal, Mines and Steel, 27th Report (via PRS).7,8

At FY25's reported recovery of ~37%, 140 Mt of raw coal could theoretically yield approximately 52 Mt of washed coal; the ~48 Mt usable equivalent reproduced from the Ministry projection implies a recovery of about 34%. The Standing Committee's 48 Mt figure is a separate estimate of washed coal required, not the mechanical yield of the 140 Mt production target. The 161 Mt is total FY30 coking-coal demand on the Ministry's NSP basis and 23 Mt is projected domestic washed supply; the 25 Mt gap is the requirement (48 Mt) minus projected supply (23 Mt).7,8

Raw production is therefore the wrong measure of progress. Indian domestic coal typically contains 25%-45% ash and washeries recovered only ~37 tons of washed coal for every 100 tons of feed in FY25, producing 5.90 Mt. The Standing Committee estimates that achieving the National Steel Policy ambition requires 48 Mt of washed coking coal by 2030, compared with projected domestic supply of only 23 Mt.7,8

The strategic gap is consequently not 140 Mt of raw coal; it is the shortfall in specification-compliant, consistently washed and economically usable tons. Unless mine productivity, washery recovery, logistics and steel-plant acceptance improve together, higher raw production is unlikely to translate proportionately into lower import dependence.

2.4
Import requirement: A transparent planning bridge

India's future import requirement can be assessed through a transparent operating bridge rather than a single top-down forecast:

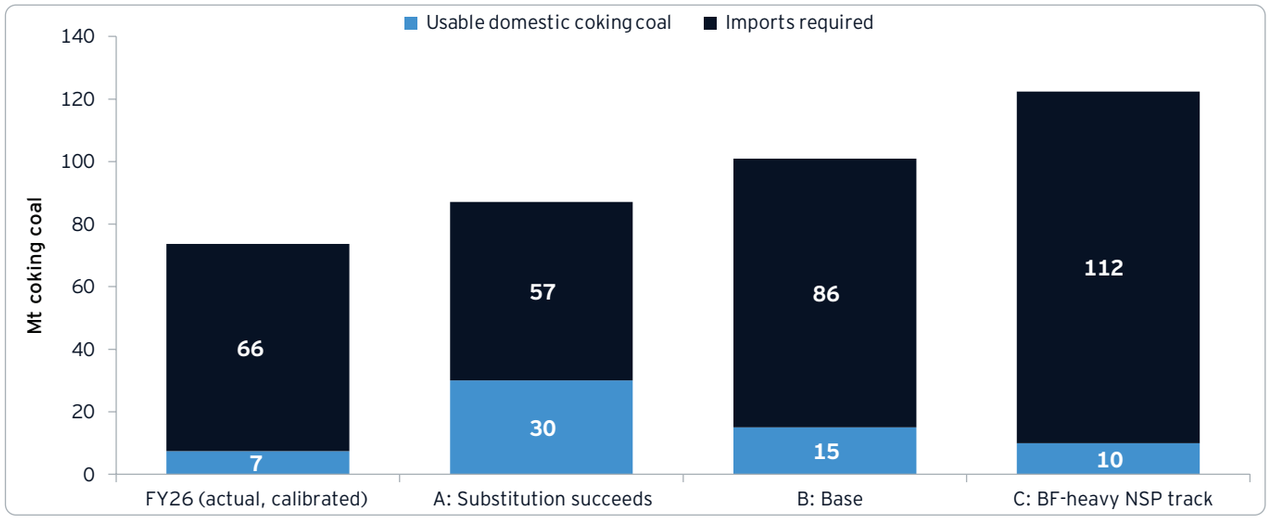
Required imports = Blast-furnace-route hot metal × coking coal consumed per ton of hot metal − usable domestic coking coal

Calibrating this relationship to FY26, using imports of 66.33 Mt, domestic coal at ~10% of the blend and hot-metal production of ~97 Mt, implies consumption of ~0.76 tons of coking coal per ton of hot metal. This is below the ~0.89 tons implied by older official planning ratios, reflecting differences in operating assumptions, coal definitions and steelmaking efficiency.2,4,7,10

Reconciliation: What the planning bridge includes and excludes

- **Included:** Coking-coal imports (Ministry data, FY26: 66.33 Mt), domestic coal at ~10% of coke-oven blends and hot-metal output (~97 Mt, estimated from the H1 hot-metal-to-crude-steel ratio).2,4,7
- **Excluded:** Imported metallurgical coke (in coal-equivalent terms), coal and coke stock changes, PCI coal, merchant coke purchases, coke-oven yield losses and timing differences between customs imports and major-port traffic.
- **Direction of bias:** Excluding imported coke means the 0.76 t/t calibration probably understates true coal intensity, so the base-case import estimate is, if anything, conservative.
- **Definition used:** Import dependence = imported coking coal as a share of total usable coking coal consumed in coke making. The FY26 calibration implies ~90% by construction; the 85%-90% (Standing Committee), ~92% (draft NSP) and ~95% (Ministry of Coal, steel sector) figures cited elsewhere use their own definitions.4,5

Exhibit 7: Transparent planning bridge: FY30 imports rise ~30% in the base case; doubling requires NSP-era output



Note: Author's planning bridge, not a forecast. Total requirement: FY26 ~74 Mt; A 87 Mt; B 101 Mt; C 122 Mt. Calibration: FY26 imports of 66.33 Mt / 0.90 (domestic ~10% of blend) / FY26 hot metal of ~97 Mt (crude steel 170.15 Mt x H1 FY26 hot-metal ratio of 0.571) = 0.76 t of coking coal per t of hot metal. Excludes imported met coke, stock changes and PCI coal. Reference points: Ministry projection 138 Mt (NSP-era 300 Mt output basis); IndexBox ~90 Mt of coking coal plus ~30 Mt of PCI coal by 2030. BF = blast furnace. Sources: Ministry of Coal; SMM; Standing Committee; Ministry of Steel; IndexBox.2,4,7,26,74

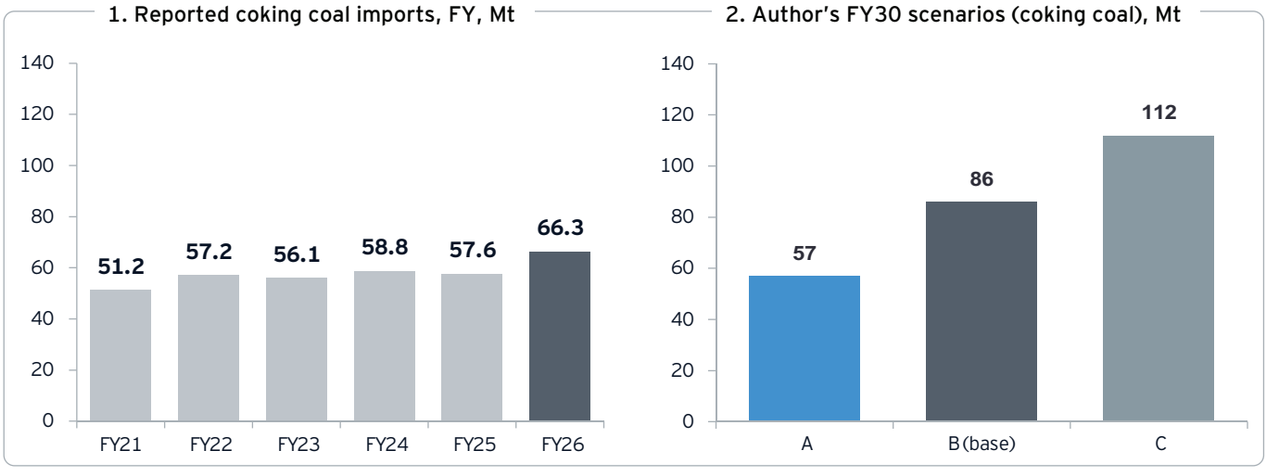
Table 4: FY30 scenario assumptions for the transparent planning bridge

Assumption (FY30)	A: Substitution succeeds	B: Base	C: BF-heavy NSP track	Basis
Crude steel output	215 Mt (6.0% compound annual growth rate, CAGR)	230 Mt (7.8% CAGR)	255 Mt (10.6% CAGR)	FY26 170.15 Mt; NSP 255 Mt by FY311
Hot metal/crude steel	0.54	0.57	0.60	H1 FY26 ratio 0.571; H1 FY27 ratio 0.5692,88
Coking coal per t hot metal	0.75 t	0.77 t	0.80 t	FY26 calibration 0.76 t
Coking coal requirement	87 Mt	101 Mt	122 Mt	Calculated
Usable domestic coal	30 Mt	15 Mt	10 Mt	FY26 ~7 Mt; 23 Mt projected8
Domestic-coal rationale (author's assumption)	Full delivery of the 23 Mt projected washed supply plus ~7 Mt from private blocks and stamp-charging uptake; a stretch above the official projection	About two-thirds of the 23 Mt projection becomes specification-compliant, deliverable and accepted in blends (only 5 of 13 washeries meet the norm; FY25 delivered 5.9 Mt)	Modest rise from FY26's ~7 Mt; washery efficiency, logistics and plant-acceptance constraints persist	No public data on washery feed, deliverable volume or plant acceptance; assumptions are judgmental
Imports required	57 Mt	86 Mt	112 Mt	Calculated
Import dependence (imports ÷ usable coking coal consumed)	66%	85%	92%	Mission target 65%4

Although 23 Mt of washed production is projected by 2030, the base case recognizes only 15 Mt as consistently specification-compliant, logistically available and commercially adopted in coke-oven blends; the substitution-success case assumes delivery beyond the official projection.8

Published projections therefore vary widely because they are built on different definitions and production pathways. The Ministry's 138 Mt estimate is linked to a 161 Mt total requirement based on National Steel Policy-era assumptions of 300 Mt of crude-steel production and 181 Mt produced through the blast-furnace route. IndexBox's estimate of ~90 Mt of coking coal, alongside ~30 Mt of pulverized coal injection supply, is closer to the base case, while Argus's estimate of ~82 Mt for calendar 2026 appears to use a broader product or period definition than the H1 FY27 annualized run rate of ~67 Mt. S&P Global Energy's October 2026 outlook puts India's total metallurgical coal imports (coking plus PCI coal) at ~106 Mt in 2028, ~120 Mt in 2030 and ~162 Mt in 2035; this is not like-for-like with the coking-coal scenarios but, net of ~30 Mt of PCI coal, is consistent with the base case.7,10,26,27,28,97

Exhibit 8: Reported imports, the author's FY30 scenarios and external references are not one series



3. External reference points (definitions differ; not like-for-like)

External reference point	Value	Definition and basis
Ministry projection	138 Mt, FY30	Coking coal imports; requirement-based; NSP-era 300 Mt output
S&P Global Energy (October 2026)	~106 Mt, 2028; ~120 Mt, 2030; ~162 Mt, 2035	Metallurgical coal imports including PCI; calendar year
S&P Global Energy, implied coking coal	~90 Mt, 2030	Author's derivation: ~120 Mt less ~30 Mt of PCI coal (IndexBox split)
IndexBox	~90 Mt + ~30 Mt PCI, 2030	Coking coal plus PCI coal shown separately
Argus	~82 Mt, CY2026	Definition may include PCI coal

Note: Historical series is the Ministry of Coal's official coking coal import data (FY22-FY26; FY21 per Ministry of Coal notification). A ~160 Mt figure attributed to the Steel Secretary (via US International Trade Administration) is not reconciled to the coking-coal definition used here and is not shown. Sources: Ministry of Coal; author's planning bridge (Exhibit 7); Ministry projection via SMM; S&P Global Energy (October 2026 outlook); IndexBox; Argus.7,26,27,43,74,97

Import indicators diverged in H1 FY27. Coking-coal traffic through major ports rose 10.1% (Indian Ports Association data), whereas BigMint's provisional data show total metallurgical coal imports (coking coal plus PCI coal) falling 7.6% to 40.3 Mt, against 2.7% growth in hot metal; imported met coke rose ~46% to ~2.8 Mt on BigMint's provisional data, and BigMint's published January-June 2026 figure (2.91 Mt, +44%) confirms the direction.28,75,88,94 The measures differ in coverage (major ports versus all ports; coking coal versus coking plus PCI coal) and in timing. Lower coal imports alongside higher hot metal could reflect inventory drawdown, a recovery in domestic output, or a shift back to imported coke after country quotas were replaced by an anti-dumping duty. **The available evidence does not yet support isolating any one explanation, but the divergence merits monitoring as an early indicator of inventory, working-capital and price-timing risk.29,30,31,32**

On a bottom-up basis, India can plan for ~85-90 Mt of coking-coal imports by FY30 under the base case, with a stress case of ~112 Mt on a blast-furnace-heavy pathway (Scenario C) and an upper bound of ~140 Mt only if NSP-era output assumptions were realized. The wide range does not reflect forecasting uncertainty alone. It reflects genuine strategic choices around steel output, production routes, coal intensity and the success of domestic substitution.

Two independent methods point to the same answer.

- Our bottom-up bridge puts FY30 coking-coal imports at ~86 Mt; S&P Global Energy's October 2026 outlook implies ~90 Mt once PCI coal is netted out of its ~120 Mt metallurgical coal figure. S&P also projects India's domestic metallurgical coal output at only ~15 Mt by 2030, close to our base-case 15 Mt of usable domestic coal, and import dependence staying near 90%.97
- We therefore treat **~85-90 Mt as the planning anchor** and the Mission's 65% dependence target as an outcome that requires washery, stamp-charging and private-block delivery well beyond current plans, not as a baseline for procurement or infrastructure sizing.

Implication

Size procurement, port and logistics capacity for the base case, hedge contracts and inventory for the stress case and track import-to-hot-metal growth monthly: a persistent gap at elevated prices signals working-capital and price-timing risk. Value the domestic program as a hedge whose worth lies in washed, quality-assured tons.

2.5
Lessons from other countries: Managing coking coal dependence and emissions data

Other large steel producers face the same two questions - how to secure usable coking coal and how to measure emissions credibly - and have answered them differently. The cases below are drawn from public sources and are illustrative, not exhaustive.

Table 5: How other steel producers manage coking-coal dependence and emissions data

Case	What happened	Lesson for India
Japan and South Korea: equity with offtake	Announced in November 2023 and completed in 2024, Nippon Steel took a 20% interest and POSCO a 3% interest in Canada's Elk Valley Resources, alongside Glencore's 77%. Nippon Steel said the aim was a stable supply of high-quality steelmaking coal for decarbonization and signed an offtake rights agreement for long-term procurement.82,83	Minority stakes bought access and offtake, not control. For India, selective equity (Chapter 10, workstream 2) works best when tied to long-tenor, quality-specific offtake.
China: domestic base plus overland supply	In 2025 China imported 118.6 Mt of coking coal against 479.5 Mt of domestic washed coking-coal output, so net imports were about one-fifth of supply (author's arithmetic). Mongolia supplied 50.6% of imports, supported by border-crossing infrastructure upgrades.84,85	Dependence is managed first through a large usable domestic base and logistics corridors. India's import dependence is 85%-90%, so washed supply and rail evacuation come before origin diversification.
China: steel in the emissions-trading scheme	Steel joined China's national emissions-trading scheme in 2025, covering 2024 emissions. Allocation is output-based and intensity-controlled, entities report monthly under a three-tier review, and the first phase (2024-2026) aims to improve data quality before the system tightens from 2027.86	Credible targets need credible data. India's draft CCTS targets for 255 units are best matched by plant-level baselines and verification capacity before benchmarks tighten.
Australia: methane measurement	Australia is moving coal-mine methane reporting from default factors (Method 1) to site-specific estimation (Method 2). In FY2023-24 Safeguard Mechanism data, reported methane intensity under Method 2 was 80% lower in New South Wales and 38% lower in Queensland than under default factors, and the Institute for Energy Economics and Financial Analysis (IEEFA) argues that accurate measurement is still needed.87	The measurement method changes the reported result. India's underground coking mines can start with direct baselines (Chapter 5) rather than default factors, as EU importers face monitoring, reporting and verification requirements from 2027.

What India can take from these cases: secure usable domestic supply and logistics first, use equity and offtake selectively to complement rather than replace them, and measure emissions at plant and mine level before targets tighten. Scale, resource endowment and regulation differ from India's, so the cases inform sequencing rather than provide templates.

India's own recent moves point the same way. JSW Steel raised its stake in M Resources' New South Wales operations from 66.7% to 83.3% in September 2025, lifting its share of output from 20% to 30%, and its Minas de Revuboè project in Mozambique regained its mining concession in early 2025.104 Meanwhile Australian lenders such as National Australia Bank now require transition plans and rule out project finance for greenfield metallurgical coal mines,104 which raises the value of buyer capital and offtake in new supply. At home, 100% foreign investment is permitted through the automatic route in coal mining, the sixteenth round of commercial block auctions opened in September 2026 with no end-use restriction, and a washery-developer-and-operator route with long linkages exists for steel.114,115 Capital can therefore enter the chain at several points, through minority stakes tied to offtake, build-operate washeries backed by feedstock and offtake commitments, and long-tenor contracts, each with a different risk profile. That is the design choice for steelmakers and financiers.



3 Pricing trends

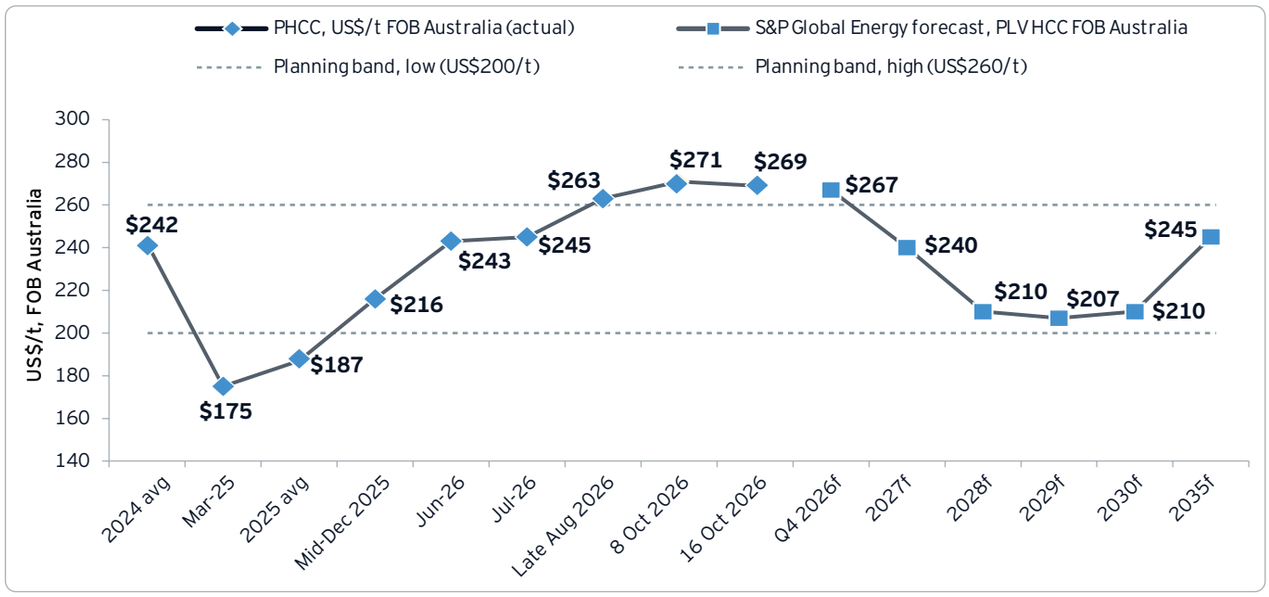


Prices have moved from a cost floor to a supply-risk premium. Volatility and landed cost, not the headline index, are what boards need to manage.

3.1
Price trajectory: Supply risk is sustaining a higher volatility regime

Premium hard coking coal (PHCC) averaged US$187/t in 2025, down from US$242/t in 2024. That apparent moderation, however, masks a sharp reversal during 2026. Prices reached US$263/t in late August and stood at US$269/t FOB Australia on 16 October 2026, while Singapore Exchange (SGX) front-month futures peaked at US$282/t in August 2026.[9,33,34,35]

Exhibit 9: Hard coking coal is ~45% above its 2025 average; S&P Global Energy sees easing toward ~US$210/t in 2028-2030



Note: Actuals are indicative waypoints, not a continuous series; benchmarks differ by provider. The blue line shows S&P Global Energy's PLV HCC FOB Australia forecasts (Q4 2026 quarterly; annual averages thereafter; as of 27 October 2026). Grey dashed lines show the author's 2027-2030 planning band (US$200-260/t). SGX front-month futures peaked at US$282/t in August 2026. Sources: DISR Resources and Energy Quarterly (December 2025 and September 2026); Ministry of Steel HCC FOB Australia series (via SMM); GMK Center; IEA Coal Mid-Year Update 2026; BigMint; Cbonds/SGX; S&P Global Energy.7,9,18,33,34,35,97

The recent rally has been driven primarily by supply-side disruption rather than a corresponding acceleration in Indian demand. Chinese production interruptions, safety inspections in Shanxi, constraints affecting Mongolian deliveries and higher energy prices linked to Middle East disruption collectively tightened the market. At the same time, Queensland's investment environment and continued producer discipline are placing a more structural floor under seaborne prices.9,17,18,21

Some near-term easing is possible as Chinese supply recovers and weak steel margins constrain purchasing, although forecasters differ on timing. Wood Mackenzie expects PLV prices to ease through Q4 2026, while S&P Global Energy's October 2026 outlook still averages ~US$267/t for Q4 2026 and ~US$264/t for Q1 2027 before easing to ~US$224/t by Q3 2027; S&P notes that improving Chinese supply is weighing on prices but that weather and logistics risks could temper further declines. **The market may therefore soften from current levels without returning to the conditions that produced the 2025 average.**36,37,97

Table 6: Drivers of the 2026 price rally

Driver	Evidence (2026)	Direction	Persistence (author's view)
China supply shock	Shanxi accident and safety inspections; Shanxi supplies over half of China's coking coal17	Up	Temporary - supply recovering36
Mongolian logistics	Diesel shortages disrupted deliveries9	Up	Temporary
Middle East energy shock	Higher gas prices; some Iranian gas-based steel output lost18	Up	Uncertain
Queensland supply discipline	Royalty regime "not supportive" of investment (BHP)21	Up	Structural
Indian demand	25% of seaborne imports; post-monsoon restocking9,36	Floor	Structural
Steel margins	Weak margins triggered a September correction37	Down	Cyclical

DISR expects prices to decline from prevailing levels and subsequently stabilize in real terms through 2031. For planning purposes, a nominal FOB Australia range of US$200-260/t for 2027-30 provides a practical management band rather than a point forecast; S&P Global Energy's path (~US$240/t in 2027 and ~US$207-210/t in 2028-2030) sits within it. Steelmakers can nevertheless stress-test procurement and margins above this range because short-duration disruptions can push prices materially beyond the underlying equilibrium.9,97

The strategic message is that volatility, rather than the average price alone, is becoming the defining feature of the market. Indian demand provides a structural floor, while concentrated supply and recurring disruptions create periodic risk premiums.

The price risk is back-loaded

S&P Global Energy projects a global surplus of ~13-29 Mt a year in 2027-2030, pulling PLV HCC FOB Australia from ~US$247/t in 2026 to ~US$207-210/t in 2028-2030, followed by deficits from 2033 that lift prices back to ~US$245/t by 2035.97

The window to lock in long-tenor offtake and selective equity on favorable terms is therefore the late 2020s, before the balance tightens and India's import need (S&P: ~162 Mt of metallurgical coal by 2035) is largest. Buyers who wait for the next spike to secure supply will be negotiating from the weakest position.

3.2
Landed cost and value-in-use: What ultimately reaches the P&L

The benchmark FOB price is only the starting point of coking-coal economics. The cost ultimately absorbed in a steelmaker's profit and loss (P&L) account also includes ocean freight, port handling and demurrage, inland logistics, financing and inventory carrying costs, currency exposure and the operational consequences of coal quality.

Table 7: Landed-cost components: Benchmark price explains only part of steelmakers' exposure; freight, logistics, financing, currency and coal quality determine the realized cost

Landed-cost component	Evidence/driver	How to manage
FOB price (PHCC, Australia)	US$269/t on 16-Oct-2026[34]	Index-aware contracting; hedging
Ocean freight (Panamax, Hay Point-Paradip)	US$18.9-26.1/t, March-July 2026[25]	Cost and freight (CFR)/FOB optionality; freight hedges
Port handling and demurrage	Prolonged berthing waits reported in June 2026[38]	Port slot planning; vessel scheduling
Inland logistics	Indian steel logistics costs 16%-18% of revenue vs. 10%-12% globally (all inputs and outputs)[4]	Rail evacuation; plant-port integration
Financing and inventory carry	Company-specific: days of cover × price × cost of capital	Grade-specific inventory bands
Quality adjustment	Value-in-use relative to reference grade (below)	Blend management; value-in-use (VIU)-based pricing
Currency	Indian rupee (INR)/US$ exposure on the full CFR value	Natural and financial hedges

The FOB price and ocean freight alone imply a 2026 CFR cost of ~US$288-295/t for premium Australian coal, before accounting for port, inland transport, financing and quality adjustments. Based on the FY26 calibration, every US$10/t movement in coal cost changes hot-metal cost by ~US$7.6/t, compared with ~US$8.9/t under older official consumption ratios.10,25,34

This transmission makes relatively small changes in coal prices, freight rates or exchange rates material at the steelmaking margin. **Procurement performance can therefore be evaluated in US dollars per ton of hot metal, not merely US dollars per ton of coal purchased.**

Quality further complicates comparison between suppliers and origins. Higher ash increases coke and slag volumes and can raise the coke rate. Lower coke strength can reduce blast-furnace permeability and productivity. Volatile matter affects coke yield, while sulfur and phosphorus create additional treatment and quality costs. Higher coal consumption also increases the carbon intensity of hot metal.

A lower-priced coal is not necessarily a lower-cost coal. Commercial comparisons can account for coke yield, coke strength, ash and slag generation, furnace productivity, chemistry-management costs and carbon intensity. This value-in-use approach allows steelmakers to diversify their coal blends without inadvertently sacrificing operating performance or increasing total conversion cost.

Table 8: Value-in-use parameters: Coal value is best measured through coke yield and furnace performance, not purchase price alone

Value-in-use parameter	Effect on hot-metal cost	What to measure
Ash	Raises coke ash and slag volume, increases coke rate	Coal and coke ash; slag rate
Coke strength after reaction (CSR)	Lower CSR reduces furnace permeability and productivity	CSR and coke reactivity index (CRI) by blend
Volatile matter and yield	Determines coke yield per ton of coal	Coke-oven yield
Sulfur and phosphorus	Adds desulfurization and quality cost	Hot-metal chemistry
Carbon intensity	Higher coke rate raises CO2 per ton (CCTS, CBAM)	tCO2/t hot metal

3.3
Procurement and inventories: Managing volatility across the full cost book

India's coking-coal procurement model remains anchored to FOB Australia benchmarks, even though the country's supplier portfolio and delivered-cost exposure have become more diverse. Term contracts provide volume security, while spot purchases preserve flexibility and allow buyers to respond to price dislocations. However, neither instrument alone adequately manages the combined exposure to basis risk, freight, foreign exchange, quality variation and physical disruption.

The contract question is therefore less about tenor than about price. Since 2017, premium coking coal has been priced off the average of daily spot assessments rather than a negotiated quarterly benchmark,100 so term contracts secure volume but carry spot tightness into term cargoes,99 and exchange-traded hedging has yet to reach efficient scale.99 The levers that remain with an Indian buyer are the volume split between term, index-linked and spot purchases; the choice of reference, since a delivered assessment such as CFR India (Paradip) can fit plant economics better than FOB Australia alone; and the quality, flexibility and force-majeure terms written into the contract.

India-bound cargoes represented 32% of published premium hard coking-coal spot transactions in 2023, underlining India's growing influence in the traded market. The 2024 launch of a CFR India (Paradip) price assessment is an important development because it brings price discovery closer to the cost actually experienced by Indian buyers. India is also the world's largest seaborne buyer of coking coal, importing more than 80 Mt a year including PCI coal,80 and BigMint's premium hard coking coal index on a cost-and-freight (CNF) Paradip basis provides a further India-specific delivered price reference.81 Even so, differences in grade requirements have constrained collective purchasing initiatives, including the proposed joint import consortium considered in 2024.39,40,41

Domestic supply does not fully insulate steelmakers from price escalation. BCCL increased prices for selected coking-coal grades by up to ~14% from 14 October 2026, reinforcing the need to compare domestic and imported material on a washed, delivered and value-in-use basis rather than on nominal mine-gate prices.42

Inventory remains an under-managed strategic lever. In the absence of publicly available grade-specific stock information, steelmakers can establish company-level inventory bands for prime hard coking coal, semi-soft coking coal and pulverized coal injection material. Port inventories can also be segregated by grade and quality to protect blend integrity rather than treated as a single undifferentiated stockpile.

At the sector level, an emergency inventory-release protocol coordinated through the Ministry of Steel could provide an additional layer of protection during major supply disruptions such as floods, mine outages or logistics interruptions. Such a mechanism would need clearly defined activation thresholds, eligible grades, allocation principles and replenishment rules to avoid crowding out normal commercial procurement.

A sector-level release protocol would sit alongside a national stockpile framework now taking shape. The National Critical Mineral Mission provides for a stockpile programme,102 and the Mines Secretary indicated on 9 October 2026 that the policy, including release procedures and eligible users, would be finalized within about a month.101 Coking coal was notified as a critical and strategic mineral in January 2026 (Section 4.1), so its place in that framework is a natural question. A practical design would keep company-level inventory bands as the first line, add port-based storage operated on commercial terms so that grade-segregated stock is shared across plants, and reserve a public tier for emergency release, with explicit rotation, replenishment and cost-sharing rules.

The objective is not to maximize inventory, which would increase financing and working-capital costs. It is to hold the right grades, at the right locations, against clearly defined disruption scenarios.

Implication

Shift procurement key performance indicators (KPIs) from US$ per ton of coal to US$ per ton of hot metal and manage FOB, freight, inventory and foreign exchange (FX) as one landed-cost book. Value-in-use discipline lets buyers diversify origins without losing furnace performance.

Contracting can combine secure baseload volumes with flexible swing supply, supported by explicit grade-level inventory bands.

The procurement advantage does not come from consistently predicting the benchmark. It comes from controlling the full cost of volatility before that volatility reaches the steelmaking profit and loss (P&L) account.



4 Regulatory and policy developments

India has assembled a full-spectrum raw-material policy stack. The test now is execution, and it can be scored like a program.



Exhibit 10: Policy clock: India's raw-material and the EU's carbon rulebooks are being rewritten at the same time

	2025	2026	2027	2028	2029	2030
India	Jan: QRs on low-ash met coke Apr: 12% provisional steel safeguard Dec: Three-year safeguard (12%/11.5%/11%)	Jan: Met coke QRs lifted; ADD imposed 27 Jan: India-EU FTA concluded 29 Jan: Coking coal declared a critical and strategic mineral Jun: Draft CCTS steel targets (FY27 compliance) Oct: Draft NSP Vision 2047	FY27: First CCTS steel compliance year (draft)	Apr: Safeguard duty expires	-	FY30: 140 Mt coking coal and 58 Mt washing targets FY31: 300 Mt steel capacity (NSP)
EU/ external	Oct: CBAM Omnibus (EU) 2025/2083	1 Jan: CBAM definitive period Q1-Q3: Certificate prices €75.36/€75.28/€82.32 1 Jul: EU steel regulation (50% OOQ duty) 31 Jul: Corrected default values (IR 2026/1740)	Jan: EU methane MRV equivalence for relevant coal contracts Q1: India-EU FTA entry into force (expected) Feb: CBAM certificate sales open 30 Sep: First declaration and surrender	CBAM downstream extension (proposed)	-	CBAM factor 51.5% (free allocation retained)

Note: ADD = anti-dumping duty; CCTS = Carbon Credit Trading Scheme; FTA = free trade agreement; IR = implementing regulation; MRV = monitoring, reporting and verification; NSP = National Steel Policy; OOQ = out-of-quota; QR = quantitative restriction. Sources: Directorate General of Foreign Trade, Directorate General of Trade Remedies and Ministry of Finance notifications (via SteelOrbis, BigMint and Angel One); Ministry of Coal; Ministry of Environment, Forest and Climate Change draft S.O. 517(E); European Commission; Regulation (EU) 2026/1384; Regulation (EU) 2024/1787.32,43,49,52,55,61,73

4.1
Policy execution scorecard: Shifting from announcements to usable supply

The designation of coking coal as a Critical and Strategic Mineral on 29 January 2026 represents an important shift in policy recognition. The classification provides procedural benefits, including exemption from public consultation, while royalties continue to accrue to state governments. However, classification alone does not materially reduce India's import exposure.43,44

The central policy challenge is no longer the absence of interventions but the conversion of multiple interventions into specification-compliant coal delivered reliably to steel plants. Mission Coking Coal, washery expansion, private-block development, domestic-blending targets, carbon-intensity standards and trade measures each address part of the problem. Their combined impact depends on whether implementation is managed as a single program rather than as a collection of independent schemes.

Current performance indicates a material execution gap. Mission Coking Coal remains behind its 140 Mt raw-coal ambition, while the washery program has aging assets and uneven operating efficiency to address. The proposed increase in domestic coal blending from approximately 10% to 30% is constrained not only by washed-coal availability but also by coal quality, coke-oven compatibility and blast-furnace acceptance. Private coking-coal blocks may broaden the production base, but first output remains dependent on timely forest and environmental clearances.4,7,8,45

The Standing Committee's July 2026 report locates the execution gap precisely: delays in environmental and forest clearances for coking coal mines; limited mechanized loading, with 33 rail lines still to be built; washeries located away from pitheads; advanced dry-beneficiation and dense-media technologies still at pilot stage; and a Coal Controller's Organisation whose mandate covers reject disposal but not the monitoring of washery output or coal quality.8 Each sits at a different stage between allocation and delivered coal, which is why time from block allocation to first commercial coal is among the outcome measures above. Private blocks that depend on clearances are expected to deliver first output only in 2028-29.

Policy performance can therefore be assessed against outcomes that directly affect steelmaking economics:

- Washed and usable tons delivered, rather than raw coal mined
- Washery yield, utilization and product consistency
- Sustainable domestic blend achieved in operating plants
- Time from block allocation to first commercial coal
- Quality-adjusted delivered cost relative to imported alternatives
- Reduction in import exposure without loss of furnace productivity

A credible scorecard needs to distinguish among policy announcement, physical commissioning, stable production and successful adoption by steelmakers. Installed capacity is not equivalent to deliver impact.

Table 9: Policy execution scorecard

Policy	Status	Bottleneck	Next step	Owner	Indicator
Mission Coking Coal (140 Mt raw)	Behind plan: CIL FY26 58.21 Mt vs. 83 Mt target6,7	Underground decline; clearances	Report usable tons	MoC, CIL	Washed Mt delivered
Washery program (8 washeries, 21.5 Mtpa combined capacity)	Early stage: 1 of 8 commissioned (Bhojudih)7,46	Aging assets: 5 of 13 meet efficiency norm8	Modernize; monetize	CIL, BCCL	Yield; capacity use
Domestic blend 10% 30%	Behind plan: ~10% today4	Washed coal supply; battery technology	Stamp-charging at rebuilds	MoS, steel cos	Domestic blend %
16 private coking blocks	Pending: output expected by 2028-2945	Forest and environment clearances8	Time-bound clearances	MoC, MoEFCC	First-coal dates
Met coke anti-dumping duty	In force (5 years)32	Diversion via Indonesia17	Mid-term review	DGTR, MoF	Coke imports by origin
CCTS steel targets	Draft (255 units)15	Finalization; credit price	Final notification	MoEFCC, BEE	Final GEI targets
India-EU FTA and CBAM dialogue	Concluded; not yet in force47,48	No CBAM carve-out	Seek CCTS recognition	MoCI, MoS	Entry into force

Note: BEE = Bureau of Energy Efficiency; CIL = Coal India Limited; DGTR = Directorate General of Trade Remedies; GEI = greenhouse gas emission intensity; MoC = Ministry of Coal; MoCI = Ministry of Commerce and Industry; MoEFCC = Ministry of Environment, Forest and Climate Change; MoF = Ministry of Finance; MoS = Ministry of Steel; Mtpa = million metric tons per annum.

4.2
Trade measures: Protecting the chain without starving the furnace

India's trade interventions are attempting to balance two legitimate but potentially competing objectives: protecting domestic producers from unfairly priced imports and preserving access to competitively priced raw materials and intermediate products.

A five-year anti-dumping duty of **US$42.95-US$128.83/t** has applied to low-ash metallurgical coke since July 2026, following the replacement of country quotas with a provisional duty in January. The measure strengthens the commercial position of domestic coke producers, but it also shifts demand upstream towards imported coking coal. **Protection at one stage of the value chain can therefore transfer cost and supply pressure to another.**[32,49]



The finished-steel safeguard follows a similar logic. The duty is set at 11.5% until April 2027 and 11% until April 2028, yet finished-steel imports increased by 23.8% in H1 FY27. This suggests that tariffs alone may not be sufficient where landed-price differentials, product availability or grade-specific requirements continue to favor imports.[29,50]

The India-European Union trade agreement adds a further strategic dimension. India receives an annual European Union steel quota of 1.64 Mt, but without an exemption from the European Union's carbon-border mechanism. **Market access and carbon competitiveness need to be treated as a single issue: preferential quotas create limited value if the associated emissions cost erodes the underlying commercial advantage.**[14,47]

Trade defense can consequently be designed as a time-bound bridge to competitiveness, not a permanent substitute for it. Each intervention can include predefined review points linked to measurable improvements in domestic availability, quality, utilization, cost competitiveness and downstream impact.

The policy objective is to protect efficient domestic capacity without institutionalizing high input costs for steelmakers or downstream users.

4.3
Coke market: The other half of the demand equation

Coking coal is only half of the blast-furnace input story, because the coke market moves coal demand in both directions. India produced about 51.7 Mt of metallurgical coke in FY26 (+9%), roughly 91% of it captive to integrated steelmakers, and imported 4.62 Mt (-4%); imports then rose ~46% in H1 FY27 (Exhibit 2).105,75,94 Merchant output was just over 4 Mt in 2025,108 so the balance for low-ash, quality-critical coke is met largely through imports, led by Indonesia. BigMint expects imports to keep a cost and quality edge: it projects steel-sector coke demand rising from 37 Mt in FY26 to 52 Mt in FY30 and imports reaching a multi-year high in calendar 2026.[107]

Policy has tried to protect merchant producers while keeping coke available to blast furnaces. Quotas gave way to a provisional duty in January 2026, and a definitive five-year duty of US$42.95-128.83/t was notified on 27 July 2026.32,106 Imports have remained competitive despite it, while domestic producers still face cost, quality-consistency and utilization challenges.[106]

For coal planning, coke and coal are best read together. The planning bridge excludes imported coke (Section 2.4), and every ton of coke made in India rather than imported adds more than a ton to coking coal demand, because coal yield is below 100%. The growth in coke demand to FY30 can land either on domestic batteries, and so on coal imports and washed domestic coal, or on coke imports. A duty that holds imports down raises coal demand; a duty that does not leaves it roughly unchanged. Steelmakers can plan the two as one system, tracking coke imports alongside hot metal and coal imports (Table 16) and using domestic coke capacity and quality milestones, not the duty alone, as the test for any review.

Implication

The coke duty shifts value to domestic coke-making and, in turn, raises coking coal demand. Trade defense can include sunset reviews tied to measurable domestic quality and capacity milestones, so downstream steel users are not taxed indefinitely for upstream shortfalls.



5 ESG, emissions and methane management



For integrated steelmakers, coking-coal quality and consumption are immediate drivers of carbon intensity; methane and social acceptance come next.t

5.1
Carbon intensity: Converting targets into plant-level operating action

Indian steel production averages ~2.54 tCO per ton of crude steel, compared with a global average of ~1.91 tCO. The Green Steel Taxonomy classifies steel below 2.2 tCOe/t and 104 producers had received Green Steel Certificates in lists issued up to October 2026.13,51,88

Draft carbon-market targets cover 255 iron and steel units from FY2026-27, with plant-specific emission-intensity targets set against FY2023-24 baselines. However, the targets are not yet final.15,52

The immediate priority is therefore to establish credible plant-level baselines and translate carbon-intensity targets into operating measures covering coke rate, fuel rate, energy recovery and raw-material quality.

5.2
Methane: Measure first, then capture, verify and contract

Coal operations emit ~43 Mt of methane annually, and the IEA identifies underground coking-coal mines as a priority for abatement because methane capture is often more feasible at these sites. From 1 January 2027, EU importers face monitoring, reporting and verification (MRV)-equivalence requirements for relevant coal supply contracts concluded or renewed after 4 August 2024 (with an "all reasonable efforts" obligation for earlier contracts), alongside annual reporting obligations under the EU Methane Regulation. In July 2026, the European Commission issued recommendations offering optional model contractual clauses and a recommended three-year penalty grace period.53,54,55,56,57

India currently lacks authoritative public mine-level methane data for coking-coal operations. The first priority is therefore measurement: establish mine-level baselines using ground and satellite methods, assess drainage-gas potential, deploy utilization or destruction technologies, obtain independent verification and embed methane-data requirements in import contracts.

Methane management can move from an environmental, social and governance (ESG) reporting exercise to a defined operational program with named owners, verified baselines and tons of methane abated as the principal measure of success.

Table 10: Five-step methane program

Step	Action	Owner
1. Measure	Baseline underground coking mines using ground and satellite methods	CMPDI, CIL/BCCL
2. Assess capture	Test drainage-gas quality and volumes at gassy mines	CIL, private block holders
3. Utilize or destroy	Gas use, flaring, ventilation-air methane oxidation	Mine operators
4. Verify	Third-party MRV aligned with EU equivalence	MoC, accredited verifiers
5. Contract	Supplier methane-data clauses in import contracts	Steelmakers' procurement

Note: CMPDI = Central Mine Planning and Design Institute; MRV = monitoring, reporting and verification.

5.3
Responsible mining: Strengthening the social and operational acceptance of supply

Responsible mining is not separate from supply security. Rehabilitation, fire control, worker safety, community acceptance and water management directly influence whether domestic coking-coal resources can be developed and sustained.

Jharia, India's principal prime coking-coal field, requires a revised INR5,940.47 crore program covering fire management, subsidence and rehabilitation. Reported fire sites have declined from 77 to 27, but significant execution challenges remain.58,59

Beneficiation also increases washery rejects and water requirements, while existing washeries lack water-recycling norms. International experience at Grosvenor and Moranbah North further demonstrates that major safety incidents can remove supply from the market for several years.8,22

Responsible-mining performance can therefore be treated as a leading indicator of supply reliability, not simply as a compliance measure.

5.4
Transition pathways: Efficiency before substitution

For India's integrated steel plants, blast-furnace efficiency is likely to remain the most practical decarbonization lever through 2035. Lower coke and fuel rates, stronger coal blending, increased pulverized-coal injection, top-pressure recovery and waste-heat recovery can reduce both emissions and coking-coal consumption using technologies that are already relatively mature.

Natural gas, hydrogen and biomass injection, supported where appropriate by carbon capture, could provide an intermediate pathway from 2028 onward. However, Indian readiness remains limited to moderate.

Gas- or hydrogen-based direct reduced iron combined with electric-arc furnaces could ultimately remove most coking-coal demand from the production route. In India, however, hydrogen-based direct reduction remains at pilot stage, with two 100% hydrogen direct reduced iron (DRI) pilots and one hydrogen-in-blast-furnace pilot awarded. Scrap-based electric-arc furnaces offer another lower-carbon route, but their expansion is constrained by scrap availability.51 Coal-gasification-based DRI is already operating in India on domestic high-ash coal, but published roadmap ranges put its carbon intensity above that of the blast-furnace route (Section 7.3).

The strategic sequencing is clear: improve blast-furnace efficiency now, scale injectants and carbon-management options next and preserve hydrogen-based production as a longer-term transition pathway rather than a near-term base case.

These pathways change the pattern of coking coal demand as well as its level. Injection of pulverized coal, natural gas, hydrogen or biomass lowers coke use per ton of hot metal, and PCI is already visible in trade: India imported more than 21 Mt of PCI coal in 2025, over 14 Mt of it from Russia, while premium and hard coking coal imports also grew as mills blended premium grades.92 The planning bridge carries these effects through two parameters: coking coal per ton of hot metal (0.75-0.80 t across the scenarios) and the hot-metal share of crude steel (0.54-0.60). Hydrogen-based DRI, scrap-based electric-arc

furnaces and gasification-based DRI act mainly on the second, and their scale limits are why they remain upside to the base case.

Exhibit 11: Steelmaking transition pathways and what they mean for coking coal demand

Pathway	Coking coal intensity	CO2 lever	Indian readiness	Horizon
A. Efficient BF-BOF (PCI, coke rate, TRT, WHR)	High	Low-medium	High	Now
B. BF-BOF plus injectants (natural gas, hydrogen, biomass) and CCUS	Medium-high	Medium	Low-medium	2028+
C. Gas- or hydrogen-based DRI plus EAF	Low/none	High	Low (pilots)	2030+
D. Scrap-based EAF and DRI-IF upgrades	None	High	Medium (scrap-limited)	Now-2035

Note: Author's framework synthesizing IEA, Ministry of Steel (Green Steel Mission, hydrogen pilots) and NITI Aayog evidence cited in Chapter 5. Ratings are qualitative. BF-BOF = blast furnace-basic oxygen furnace; CCUS = carbon capture, utilization and storage; DRI = direct reduced iron; EAF = electric-arc furnace; IF = induction furnace; TRT = top-pressure recovery turbine; WHR = waste-heat recovery.51,67

India's steel transition is likely to be evolutionary before it becomes transformational. Efficiency improvements can deliver immediate reductions within the existing blast-furnace fleet, while methane management and responsible mining strengthen the integrity of the supply chain. Hydrogen remains strategically important, but its material impact depends on successfully scaling today's pilots.

Implication

Through 2035, integrated steelmakers can prioritize lower coke and fuel rates, improved blending and greater use of lower-ash coal, while building credible mine-level methane and carbon data.
Coal quality, CO reduction and methane management can be treated as complementary investments. The near-term objective is not to eliminate coking coal, but to reduce the emissions, consumption and supply risk associated with every ton used.



6 CBAM implications



CBAM is small in volume but large in signal: It sets the evidence standard for Indian steel in premium markets.

6.1
Mechanics, validated against European Commission guidance

The definitive phase of CBAM began on 1 January 2026. Certificates covering 2026 imports become available from 1 February 2027, with the first declaration due by 30 September 2027. Certificate prices for 2026 imports have been set at €75.36 (Q1), €75.28 (Q2) and €82.32 (Q3) per tCO2, making embedded-emissions data a direct commercial variable.60,61

The obligation is based on embedded emissions after the applicable free-allocation adjustment. This adjustment declines over time as the CBAM factor falls from 97.5% in 2026 to 51.5% in 2030 and zero in 2034. European Commission Guidance Document 4 confirms the mechanics: for default-value declarations the deduction equals the CBAM factor × the cross-sectoral correction factor (1.0 for 2026-2030) × the default CBAM benchmark; for actual data, it is built from process benchmarks along the value chain.12,62,63

CBAM therefore creates a progressively stronger link between verified plant-level emissions and market access. As free allocation is withdrawn, carbon efficiency and data quality increasingly influence the delivered competitiveness of Indian steel in Europe. The same logic connects this chapter to Chapters 2 to 4: the grade, blend and coke rate that set landed cost also determine the plant-level emissions that CBAM and the CCTS measure.

CBAM and coking coal are the same decision viewed from two ends. The grade and blend that set landed cost also set coke rate and therefore embedded emissions. On our illustrative numbers, verified data is worth ~€180-250 per ton of EU-bound steel, an order of magnitude more than the ~US$7.6/t hot-metal cost effect of a US$10/t move in the coal price.

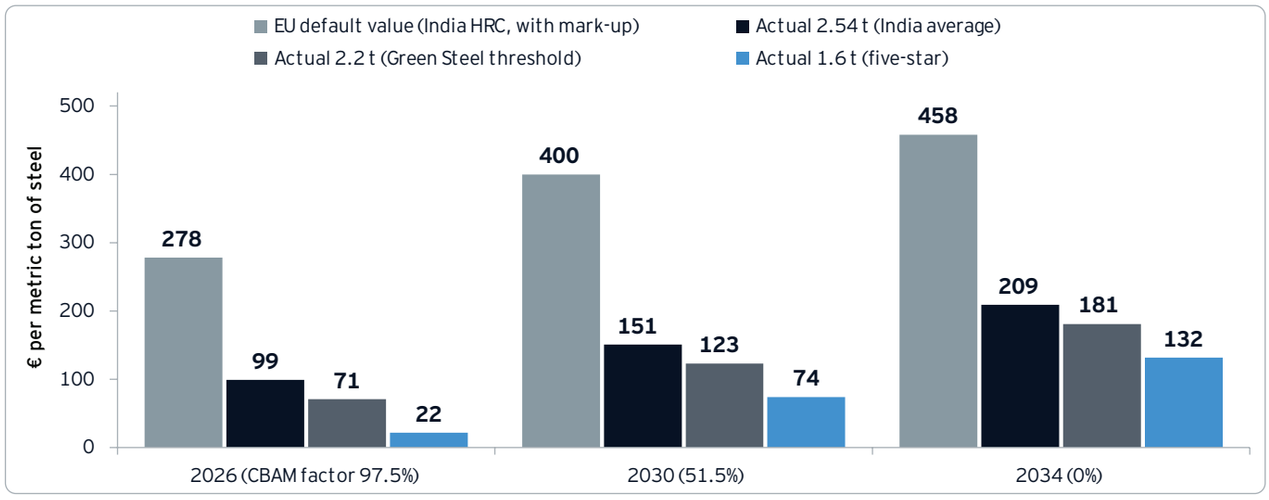
For EU-facing and other premium volumes, procurement can therefore be judged on delivered coal cost plus carbon cost per ton of hot metal, with low-ash, high-strength coals valued for the emissions they avoid as well as the coke they save.

6.2
The "2.5% illusion": An illustrative sensitivity, not a liability estimate

The claim that only 2.5% of emissions are chargeable in 2026 is incomplete. The phase-in adjustment applies at the benchmark; emissions above that benchmark can remain exposed from the outset. For BF-BOF hot-rolled flat steel, the default CBAM benchmark is reported at 1.370 tCO2e/t and India's default value at 4.28 tCO2e/t; at India's average intensity of 2.54 tCO2/t, roughly 1.2 t per ton of steel is chargeable in 2026 (author's calculation). The same method reproduces an independent estimate of €163.53/t for Chinese hot-rolled coil.13,64,65,66

The illustrative analysis shows how sharply outcomes can differ across default values, India's average emissions intensity, the Green Steel threshold and lower-emissions production. At €82.32/t, verified data at India's average intensity is worth ~€180 per ton of steel relative to default values in 2026, widening to ~€250 per ton by 2030.

Exhibit 12: Emissions above the EU benchmark are exposed from day one: Illustrative CBAM charge, € per metric ton of steel



Note: Author's illustrative calculation, not a forecast. Certificates = embedded emissions - (BF-BOF benchmark of 1.370 t x CBAM factor), per the free-allocation-adjustment logic of IR (EU) 2025/2620; constant certificate price of €82.32/tCO2 (Q3 2026). India HRC default value of 4.28 t (IR (EU) 2025/2621, as reported). Excludes indirect emissions, precursors and carbon-price deductions. HRC = hot-rolled coil. Sources: European Commission; CBAM Guide; ZeroCarbon India.12,61,62,64,65

Table 11: Illustrative CBAM charge at alternative certificate prices, € per metric ton of steel

Case	€70/t	€82.32/t	€100/t
2026 - EU default value (4.28 t + 10%)	236	278	337
2026 - actual 2.54 t	84	99	120
2026 - actual 2.2 t	60	71	86
2030 - EU default value (+30%)	340	400	486
2030 - actual 2.54 t	128	151	183

Note: This is an illustrative sensitivity, not an exporter-specific liability estimate. The final exposure depends on installation-level direct emissions (India's 2.54 t average may include indirect emissions, which are outside CBAM's scope for steel), precursor sourcing, applicable benchmarks, carbon prices already paid in India and the legal treatment of individual transactions.12,65

The strategic point is not the precise liability today. It is the widening commercial gap between verified operating performance and administratively assigned default values.

6.3
Compliance readiness

India exported ~2.4 Mt of steel to the European Union in 2025, equivalent to ~1.4% of domestic output. While the immediate volume at risk is limited, the evidence standard is likely to influence procurement decisions across a broader set of premium buyers.14

Exporters can establish installation-level, verifier-ready emissions data; trace sinter, pig iron and crude steel by production route; and include CBAM data-sharing provisions in European contracts. The same data architecture can support domestic carbon-market requirements and the Green Steel Taxonomy.

Table 12: CBAM compliance readiness

Dimension	Minimum by Q1 2027	Leading practice	Link to coking coal
Plant-level MRV	Installation-level, verifier-ready data	Continuous monitoring, digital audit trail	Coke rate, coal quality and PCI data
Precursor tracing	Sinter, pig iron, crude steel attributed by route	Mass balance by product line	Coke-oven efficiency drives embedded CO2
Commercial	CBAM clauses and data-sharing in EU contracts	Carbon-adjusted pricing tiers	Low-ash coal can earn its premium
Domestic alignment	CCTS baseline mapping	One MRV stack for CBAM, CCTS, taxonomy	No duplicate measurement

The objective is to create one auditable emissions-data system serving CBAM, domestic carbon compliance and green-steel certification, rather than multiple reporting structures with inconsistent calculations.

Coking-coal data needs to be embedded in this architecture. Coke rate, coal quality, pulverized-coal injection and coke-oven efficiency directly influence the emissions attributed to blast-furnace steel. Better-quality coal may therefore support both lower operating intensity and a defensible commercial premium.

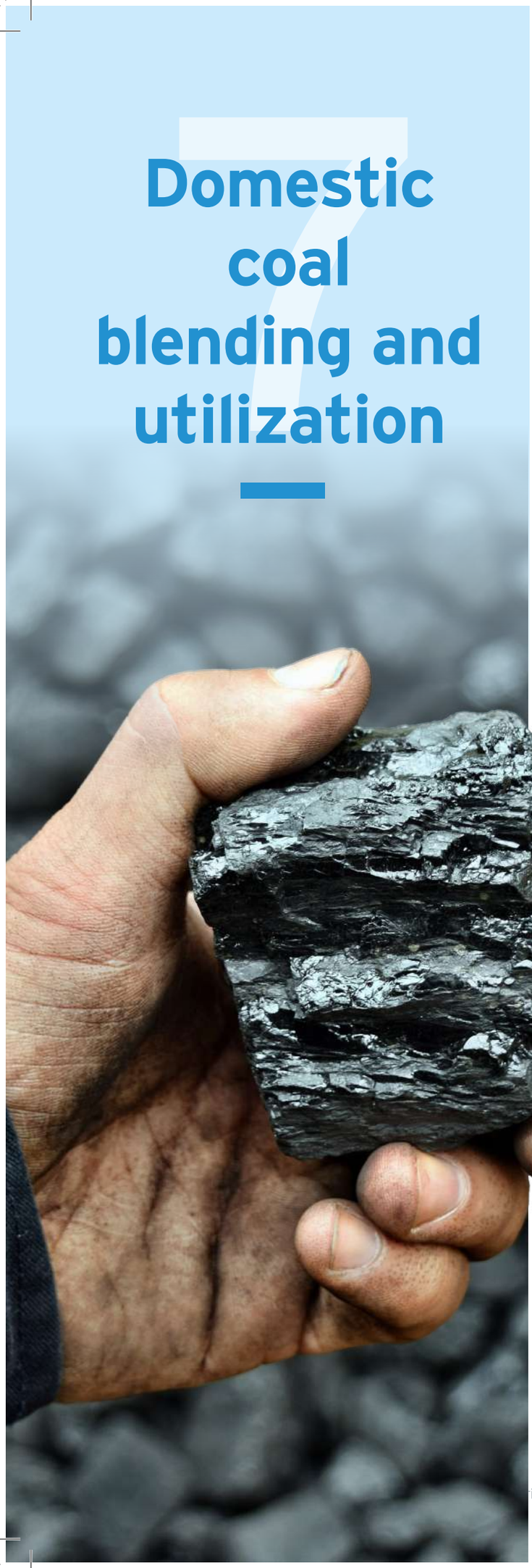
CBAM's near-term significance is best assessed beyond the tons exported to Europe. Its larger impact is the standard it sets for proving the carbon content of steel. Companies that establish verified, product-level emissions data early are better positioned to defend market access, demonstrate performance and convert lower-carbon production into commercial value.

Implication

For an exporter shipping 100,000 metric tons annually to the European Union, the indicative annual difference in importer-side certificate cost between the stated default-value and actual-emissions cases is **~€18-€25 million per year.** Indian steelmakers can build installation-level monitoring, reporting and verification once and use it across CBAM, domestic carbon targets and the Green Steel Taxonomy. **Verified emissions data is no longer only a compliance requirement; it is becoming a commercial asset that can protect margins, sustain market access and support differentiated pricing.**



7 Domestic coal blending and utilization



India's coking coal problem is a processing problem disguised as a volume problem.

7.1
Domestic coal adoption: Moving from technical potential to plant-level proof

Domestic coal currently accounts for only ~10% of coke-oven blends because high ash can weaken coke quality and increase blast-furnace coke consumption. However, the technical potential for higher utilization exists. Stamp charging, together with coal washed to 16%-18% ash, could increase the domestic share to as much as 35% while maintaining acceptable coke strength.4,67

The principal barrier is therefore not only coal chemistry, but qualification risk. Steel plants are unlikely to materially alter blends without staged evidence that the coal can meet coke-quality, operating-stability and hot-metal-cost requirements.

Plant evidence suggests that the ceiling is technical but the ramp-up is commercial. JSW Steel has said that all its batteries are stamp-charged and that its evaluation supports 25%-30% domestic coking coal in the feed, even though it had not yet consumed any;112 Steel Authority of India Limited (SAIL) is pairing new stamp-charge batteries at the IISCO Steel Plant in Burnpur with two 130 t/h coke dry quenching units that recover heat and cut emissions.113 Battery technology therefore sets how much domestic coal a plant can take, while trials and delivered cost per ton of hot metal (Table 13) decide how much it does, and each battery rebuild is a window to lock in a higher share.

A structured acceptance pathway can progress from washability testing and pilot-oven trials to plant-scale trials, coke validation and blast-furnace assessment. Each stage can have explicit exit criteria covering yield, CSR/CRI, oven stability, coke properties, productivity and cost per ton of hot metal.

Domestic adoption can be scaled only when technical performance and quality-adjusted economics are demonstrated at the plant level.

Table 13: Staged acceptance pathway for domestic coking coal

Stage	Purpose	Exit criterion (illustrative)
1. Washability testing	Establish ash-yield curve per seam or block	Viable yield at 16%-18% ash
2. Pilot oven	Test coke quality in candidate blends	CSR/CRI within plant specification
3. Plant trial	Run blend in commercial batteries	Stable oven operations
4. Coke validation	Confirm coke properties at scale	CSR, ash and size within tolerance
5. Blast-furnace assessment	Measure coke rate, productivity and cost per ton of hot metal	Neutral or better US$/t hot metal

7.2
Washeries and logistics: Converting installed capacity into bankable supply

Beneficiation capacity remains the critical link between domestic resource availability and steel-plant adoption. Only five of Coal India's 13 washeries meet the 95% efficiency benchmark, while several private washeries remain underutilized because suitable long-term coal linkages are unavailable. Locating washeries away from pitheads further adds road, rail and handling costs.8

BCCL's 2 million metric tons per annum (Mtpa) Bhojudih washery began operations on 26 May 2026 under a build-operate-maintain model. Yet BCCL produced only ~0.13 Mt of washed coking coal in September 2026, illustrating the gap between commissioned capacity and dependable output.46,68

Three conditions are especially important for improving washery bankability: assured long-tenor feedstock, quality-linked pricing for washed coal and committed offtake from steelmakers. Private capacity can therefore be mobilized before new assets are built, provided quality, recovery and delivery performance can be contractually enforced.

Logistics needs to be designed with beneficiation rather than added afterward. Pithead washing, dedicated evacuation capacity and grade-segregated movement can reduce avoidable transport of ash and improve consistency at the steel plant.

Imports are concentrated on a few east-coast gateways: in 2025, Paradip handled more than 12 Mt of coking coal, Dhamra 8.2 Mt and Gangavaram 6.4 Mt,92 and coking coal traffic through major ports rose ~12% in FY26.103 Domestic evacuation is being built in parallel, with 102 first-mile connectivity projects planned by FY2029-30 and 33 critical rail lines planned for coal evacuation.104,8

What is missing between these flows is a place to hold and blend. A shared stockyard and blending hub that receives washed domestic coal and imported grades, tests them and blends to a plant's specification before dispatch could carry the grade mix that individual plants cannot economically stock, extend consistent blends to smaller coke makers and soften the logistics penalty of washeries located away from pitheads. It needs a neutral operator, independent testing and anchor offtake, and a pilot at a receiving port or washery cluster would test the model before it is scaled.

The domestic-coal opportunity is not unlocked at the mine alone. It requires an integrated chain from washability and beneficiation to logistics, plant qualification and commercial acceptance. The priority is therefore not simply more coal or more washeries, but more usable tons delivered at a demonstrably competitive cost per ton of hot metal.

7.3
Gasification: Another route for high-ash Indian coal

Blending and washing make some high-ash coal usable in the coke oven; gasification offers a route for coal that is unlikely to be washed to coking grade, converting it into syngas that can act as a reducing agent in DRI production and, to a limited extent, in blast furnaces.111 The Government has made this a national program: 100 Mt of gasification is targeted by 2030, coal companies have been advised to plan to gasify at least 10% of their output, gasification coal carries a 50% revenue-share rebate, and a ~75 Mt incentive scheme drew applications in September 2026.109,111 Production agreements signed in April 2026 were the first to carry gasification provisions.111

Steel is already part of the program. Jindal Steel operates a coal-gasification-based DRI plant at Angul in Odisha, gasifies about 4.5 Mt of coal and plans ~11 Mt by 2030, and further gasification-based DRI projects, including Greta Energy in Maharashtra and a Coal India and SAIL venture in West Bengal, are in the pipeline.110,111 About 80% of India's DRI is already coal-based,111 so the route builds on existing industrial capability.

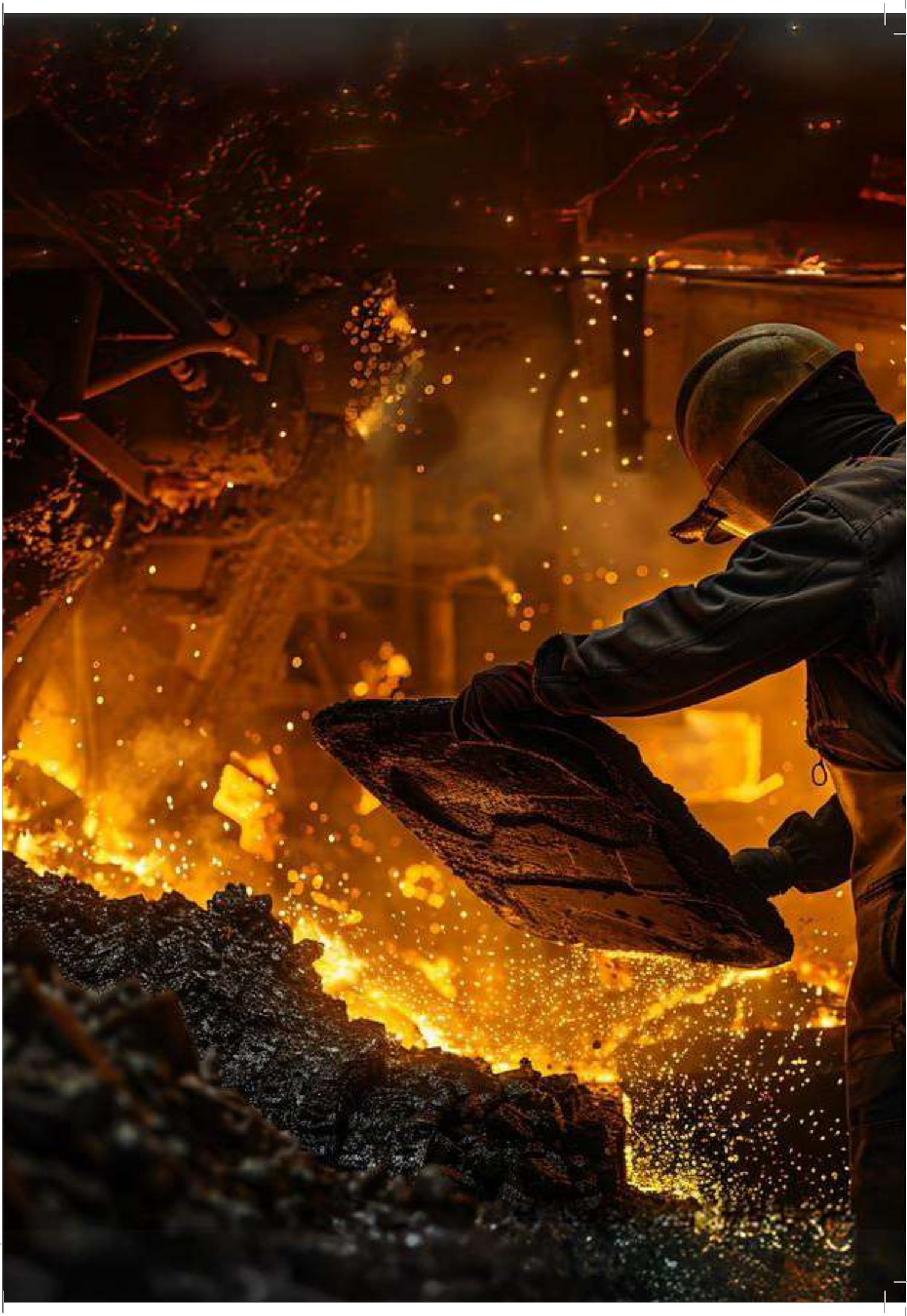
The effect on coking coal is specific. Each ton of steel that moves from the blast furnace to gasification-based DRI removes its coking coal demand, but blast furnaces still dominate planned additions: ICRA expects the BF-BOF share of capacity to rise from ~45% to ~51% by 2030-31.116 The trade-off is carbon. Roadmap ranges cited by the Observer Research Foundation put syngas-based DRI at 2.50-2.90 tCO2 per ton of crude steel against 2.20-2.60 for BF-BOF,111 so security gained on coal can

be lost on carbon unless capture is effective, and CBAM and the CCTS put a price on the difference. Gasification passes the TL's first test, usable domestic supply, but it still has to pass the tests of delivered cost and verified carbon. It complements blending rather than replacing imports in the base case, and the scenarios do not assume it.

Implication

For an exporter shipping 100,000 metric tons annually to the European Union, the indicative annual difference in importer-side certificate cost between the stated default-value and actual-emissions cases is **~€18-€25 million per year.**
Indian steelmakers can build installation-level monitoring, reporting and verification once and use it across CBAM, domestic carbon targets and the Green Steel Taxonomy. **Verified emissions data is no longer only a compliance requirement; it is becoming a commercial asset that can protect margins, sustain market access and support differentiated pricing.**





8 AI and digital transformation



Digital is the lowest-regret capacity India can add if it is deployed end-to-end rather than mine by mine.

8.1
Digital mining: Converting technology deployment into operating value

Coal India has established a meaningful digital foundation through Project Digicoal, including drone-based surveying, artificial intelligence (AI)-enabled drill-and-blast design, connected fleet management, preventive maintenance and integrated command centers with video analytics.69

Additional applications include fatigue monitoring, proximity alerts, automated fire detection and satellite-based mine and environmental monitoring. CMPDI's 5G test laboratory also provides a platform for testing digital twins and automated vehicles.70,71

The next priority is not to add more technologies but to convert existing data and pilots into measurable improvements in equipment availability, safety, recovery, coal quality and delivered cost.

8.2
Digital control tower: Connecting procurement decisions to furnace economics

For steelmakers, the highest-value digital opportunity lies beyond the mine. An end-to-end raw-material control tower can connect mine and port data, vessel movements, stockpile quality, blend planning, inventory positions and blast-furnace performance.

With coking-coal prices moving between approximately US$175/t and US$270/t over about 19 months, relatively small improvements in purchasing timing, vessel planning, inventory deployment and coal blending can have a material effect on hot-metal cost.7,72

The control tower can be designed as a decision engine, not merely a visibility dashboard. Its value can be measured through quality-adjusted cost per ton of hot metal, inventory days within defined bands, demurrage, blend performance and furnace outcomes.

Public evidence does not yet quantify realized savings in India. The proposed value is therefore a design principle that can be validated through controlled use cases and plant-level benefits tracking.

The control tower is only as good as the market data behind it. Grade-level stock data are not published (Section 3.3), and the Coal Controller's Organisation does not monitor washery production or coal quality.8 A shared market-intelligence layer could reconcile raw, washed and delivered coal with import, port and price data, including delivered assessments such as CFR India (Paradip), and tie demand forecasts to hot-metal output, with the signposts in Table 16 as alerts. Steelmakers can contribute plant-level demand and stock bands in aggregate form.

8.3
Digital MRV: Creating one auditable data backbone

The same underlying data architecture can support CBAM, the domestic carbon market, the Green Steel Taxonomy and methane monitoring, reporting and verification.

A single auditable data layer can trace coal quality from the mine through logistics, blending, coke production and steelmaking to the embedded emissions of the final coil. This can reduce duplicate measurement and create the evidence base increasingly required by regulators and premium customers.

Digital monitoring, reporting and verification can therefore be designed as shared commercial and compliance infrastructure rather than as a stand-alone reporting system.

8.4
Adoption maturity

India's coking-coal digital ecosystem appears concentrated in the digitized and connected stages, with selected predictive applications being piloted. The immediate opportunity is to scale proven use cases across assets before investing heavily in autonomous operations.

Three decisions can anchor the roadmap; each is defined in the table below with its owner, KPI and scale-up condition.

Each use case can have a clear business owner, measurable KPI and explicit scale-up condition. Technology can progress from digitized to connected, predictive and ultimately orchestrated operations once each stage demonstrates measurable value.

Exhibit 13: Digital adoption maturity ladder for the coking coal value chain: Indian coking coal miners are mostly at Stages 1-2, with Stage 3 pilots

1. Digitized	2. Connected	3. Predictive	4. Autonomous/orchestrated
Drones, e-surveillance, digital land records, command centers	Internet of Things (IoT) fleet management, 5G test lab, sensorized equipment, dispatch automation	AI drill-and-blast design, predictive maintenance, blend and coke-quality machine learning	Digital twins, remote operations, end-to-end control tower, automated MRV
Current position: Most miners	Current position: Most miners	Current position: Selected pilots	Current position: Not yet at scale

Note: Author's framework. Stage placement is a qualitative judgment based on Ministry of Coal and Coal India public statements (2024-September 2026); no audited maturity data are publicly available.69,70,71

Table 14: Priority digital use cases

Use case	Decision	Data required	Owner	KPI	Scale-up condition
Blend planning	Which coals, in what proportions, at what price	Coal quality, coke tests, furnace data	Head of raw materials	US$/t hot metal; CSR	Model validated against plant trials
Vessel and inventory planning	When to buy, ship and draw stock	Vessel tracking, port queues, stocks, prices	CPO and logistics	Days of cover in band; demurrage	Integrated port-plant data feed
Digital MRV	What emissions to certify and sell	Fuel, material and production data by process	CSO and CFO	Share of volume with verified data	Verifier acceptance of data trail

Note: CFO = chief financial officer; CPO = chief procurement officer; CSO = chief sustainability officer; CSR = coke strength after reaction; KPI = key performance indicator; MRV = monitoring, reporting and verification.

India's digital opportunity lies in orchestration, not experimentation. The strategic advantage comes from connecting existing technologies and data across mining, logistics, procurement and steelmaking, turning fragmented visibility into faster, economically superior decisions.

Implication

Prioritize use cases where data already exist and value can be measured: predictive maintenance for critical mining and coke-oven assets, blend-to-coke quality prediction, vessel and inventory planning and automated emissions reporting.
Scale proven applications across the value chain before investing heavily in autonomous technologies. **The objective is not more digital activity but better decisions measured through hot-metal cost, asset availability, inventory discipline and verified emissions data.**





9 Risks and outlook



Supply concentration, Chinese policy swings and carbon-border exposure dominate the risk map to 2030.

9.1
Key risks: Concentration remains the dominant exposure

India's most consequential coking-coal risks remain concentrated on the supply side. Disruptions and underinvestment in Queensland could constrain premium coal availability, while shifts in Chinese production and Mongolian rail flows can rapidly alter seaborne market balances and prices.17,20,21,22,36

Geopolitical and logistics risks add a second layer of exposure. Scaling alternative origins depends on reliable term contracts, payment channels, shipping routes and rail and port capacity at origin, while Middle East disruption and volatile Panamax freight rates can materially change delivered costs. Domestic substitution can provide partial protection while raw-coal output, washery performance and steel-grade availability scale toward ambition.7,8,9,18,25,76

Carbon-border requirements and methane-data standards are also moving from compliance considerations to market-access risks. Indian steelmakers increasingly need verified emissions and supplier data to preserve access to premium markets.55,60,73

The risk portfolio can therefore be managed across four linked dimensions: supply concentration, domestic substitution, inventory and logistics resilience and carbon-data readiness.

Exhibit 14: Risk map: Supply-side concentration and carbon-border risks dominate

Impact on Indian steelmakers	Likelihood: Low	Likelihood: Medium	Likelihood: High
High	-	3, 10	1, 4
Medium	7	2, 6	5, 11
Low	8	9	-

Risks: 1 Queensland weather and mine incidents; 2 Alternative-origin scale-up (contracts, payments and logistics); 3 China demand and Mongolia supply swing; 4 CBAM and EU 50% tariff-rate quota (TRQ) duty; 5 Domestic Mission ramp-up pace; 6 Freight and foreign exchange (INR); 7 Methane MRV and buyer standards; 8 Faster cost decline of hydrogen-based DRI; 9 Mine-safety events (all origins); 10 Energy shock (Strait of Hormuz) and freight; 11 Queensland under-investment.

Note: Author's qualitative assessment based on evidence cited in Chapter 9; not a probabilistic model.

Table 15: Key risks, evidence and mitigation

Risk	Evidence	Mitigation
Queensland disruption and under-investment	Grosvenor offline to late 2027; Saraji South in care and maintenance; royalty regime20,21,22	Diversification; equity offtake; buffers
China/Mongolia swing	Mongolian rail ~91 Mt in 2026; Chinese supply recovering17,36	Index-aware hedging; flexible tenders
Energy shock and freight	Middle East conflict; Panamax freight US$19-26/t18,25	Freight hedges; CFR/FOB optionality
Alternative-origin scale-up: Contracts, payments and logistics	US, Russia and Mozambique supplied ~33% of coking coal imports in 2025, with smaller export capacities than Australia76	Structured term contracts; payment and logistics channels; origin concentration limits
Domestic ramp-up pace	CIL −2.4%, BCCL −13.4% (FY26); 25 Mt washed gap7,8	Washed-ton KPIs; private washeries
Inventory timing	Port traffic +10.1%, metallurgical coal imports -7.6% vs. hot metal +2.7% (H1 FY27)28,75,88	Inventory bands; staggered contracts
Carbon and methane rules	CBAM; EU 50% out-of-quota duty; EU methane MRV 202755,60,73	Verified MRV; supplier data clauses

9.2
Outlook and signposts: Manage the range, not a single forecast

The base case indicates coking-coal imports of **~86 Mt by FY30.** Imports could decline to ~57 Mt if domestic substitution succeeds and steel growth is slower but could rise to ~112 Mt under a blast-furnace-heavy National Steel Policy pathway (Exhibit 7).

Prices are expected to moderate and stabilize in real terms through 2031. For planning purposes, **US$200-US$260/t FOB Australia** provides a practical operating range, but supply disruptions could still cause temporary movements above that band.9

Management can therefore monitor a focused set of leading indicators rather than anchor plans to one forecast; the table below links each to a change in view.

These signposts can trigger predefined changes to sourcing, inventory and capital plans rather than serve only as market-monitoring indicators.

Table 16: Signposts and triggers

Signpost	Why it matters	Shift in view if...
Monthly washed coking coal output	The real test of substitution	>1 Mt/month nationally Scenario A
Hot metal/crude steel ratio	Determines coal intensity of growth	>0.60 Scenario C
Import trend vs. hot-metal growth	Inventory and timing risk	Gap persists into H2 FY27
Queensland royalties/BMA volumes	Supply response	Relief or BMA >43 Mt softer premium
Final CCTS steel targets	Domestic carbon cost	Stringent faster coke-rate investment
Coke imports vs. hot-metal growth	Coke feeds coal demand	Import share rising requirement below base case; falling above

Four disruption cases show where the signposts matter most (author's arithmetic from the figures above). A Queensland interruption: Australia supplied ~54% of coking coal imports in 2025, so each 10% of Australian supply lost is ~3.6 Mt on FY26 volumes, about 5% of the ~74 Mt requirement. A China or Mongolia swing: seaborne prices move first and Indian cost follows, as in 2026. A freight or Hormuz shock: freight of US$18.9-26.1/t is ~6%-9% of a CFR cost of ~US$288-295/t, enough to move landed cost but not to remove supply. A domestic shortfall: Scenario C assumes 10 Mt of usable domestic coal against 15 Mt in the base case, a 5 Mt swing. The response can be tiered: at the alert stage, company inventory bands and spot cover; at the disruption stage, grade-specific drawdown and re-routing between origins; at the severe stage, the sector-level emergency release (Section 3.3), each with a named trigger, owner and replenishment rule.

India's coking-coal outlook is manageable, but not passive. The better positioned steelmakers are those that diversify physical supply, prove domestic substitution, maintain disciplined inventories and build verified carbon data before market or regulatory pressure forces action.

Implication

Plan around **~86 Mt of imports by FY30,** while maintaining operational readiness for a **~57-112 Mt range, with ~140 Mt as an NSP-era outer bound.** Use US$200-US$260/t as a planning band, but stress-test procurement, liquidity and inventory above that range.

Link each market signpost to a predetermined management response covering supplier diversification, inventory bands, domestic-coal qualification, freight protection and carbon investment.

Resilience comes not from predicting the market precisely, but from recognizing changes early and adjusting the portfolio before they reach the furnace and P&L.



10 Strategic recommendations



One integrated program, a short list of no-regret moves and named owners.

10.1
India Coking Coal Security Program: One mandate, five workstreams and a single scorecard

India's coking-coal challenge cuts across mining, beneficiation, steelmaking, logistics, trade and carbon compliance. Addressing these issues through separate policies and institutions risks fragmented execution and diluted accountability.

Rather than establish another organization, the existing Mission Coking Coal can be expanded into a joint government-industry program led by the Ministry of Coal and Ministry of Steel, supported by a single quarterly scorecard.

The program can align five interdependent workstreams:

1. Usable domestic supply: Modernize washeries, scale stamp charging and institutionalize a staged coal-acceptance pathway, and test gasification as an outlet for high-ash coal that washing cannot upgrade.
2. Overseas sourcing and ownership: Combine diversified procurement with selective equity participation and long-term offtake, backed by fit-for-purpose financing.
3. Logistics and strategic inventories: Accelerate rail evacuation, segregate port stocks by grade, pilot shared stockyards and blending hubs and establish emergency drawdown protocols with a public tier for severe disruptions.
4. Carbon and methane data: Create one verified monitoring, reporting and verification architecture across domestic and international requirements.
5. Market intelligence and procurement: Strengthen CFR India price discovery, build a shared market-intelligence layer and institutionalize value-in-use purchasing on index-aware contracts.

The program can be evaluated by usable tons delivered, quality-adjusted hot-metal cost, supply resilience and verified emissions data, not by announced capacity or policy activity.

10.2
Action roadmap: Start with transparency, economics and resilience

The immediate agenda can prioritize actions that improve transparency, operating economics and resilience regardless of how demand, technology or prices evolve.

Within the first 12 months, government and industry can reconcile raw, washed and delivered-coal reporting; publish monthly washery performance; introduce value-in-use procurement metrics and review contract and index design; establish grade-specific inventory bands and clarify coking coal's place in the national stockpile framework; and mobilize underutilized private washeries through feedstock and offtake reform.

In parallel, steelmakers can build verified carbon data for European Union volumes, while mine operators establish methane baselines at major underground coking-coal assets. Over the medium term, stamp charging can be incorporated into coke-battery rebuilds, critical rail links can be completed, a shared stockyard and blending hub can be piloted, gasification of high-ash coal can be tested with verified carbon data and selective overseas equity or long-term offtake can be pursued where it offers genuine security of supply.

Each action can have a named owner, defined start window and measurable outcome. Success can be tracked through delivered tons, washery efficiency, domestic blend share, inventory discipline, verified emissions coverage and secured long-term supply.

Table 17: Action roadmap

Action	Owner	Start	Success measure
No-regret: Publish a reconciled raw/ washed/delivered coking coal series	MoC, CCO, MoS	0-6 months	Quarterly series published
No-regret: Monthly washery performance reporting; modernize or monetize laggards	CIL, BCCL	0-12 months	Washeries at ≥95% efficiency: from 5 of 13
No-regret: Value-in-use procurement on US$/t hot metal	Steelmaker CPO and CFO	0-6 months	Landed cost per t hot metal vs. plan
No-regret: Grade-specific inventory bands and port segregation	Steelmaker COO	0-3 months	Days of cover within band by grade
No-regret: CBAM-grade verified MRV for EU volumes	Steelmaker CSO	Before Feb 2027	Share of EU volume on verified data
Stamp-charging at every coke-battery rebuild; run the acceptance pathway	MoS, steelmakers	0-36 months	Domestic blend share: from ~10% toward 20% by FY29
Unlock idle private washeries through linkage reform	MoC, CIL	0-12 months	Utilization of private washery capacity
Complete critical coal-evacuation rail lines	MoC, Railways	0-36 months	Lines commissioned of 33 planned
Seek recognition of CCTS carbon prices in the CBAM dialogue	MoCI, MoEFCC, MoS	0-18 months	Deduction mechanism agreed
Methane baseline at major underground coking mines	MoC, CMPDI	0-18 months	Mines with measured intensity
Selective overseas equity and long-tenor offtake	Steelmaker boards	12-48 months	Share of volume under equity or ≥5-year contracts
Investors: Back beneficiation and logistics platforms; stress-test 57-140 Mt import range	Investors, lenders	Ongoing	Projects reaching financial close
Review contract mix and index design	Steelmaker CPO and CFO	0-12 months	Share of volume on index-aware or delivered-index terms
Clarify coking coal in the national stockpile framework; define emergency-release rules	MoS, Ministry of Mines, MoC	0-12 months	Framework published
Pilot a shared stockyard and blending hub at a receiving port or washery cluster	MoS, MoC, Railways, port operators, steelmakers	12-36 months	Pilot operating; grade-consistency measure
Test gasification of high-ash coal for steel-grade syngas, with verified carbon data	MoC, steelmakers, gasification developers	12-48 months	Verified coal use, cost and tCO2 per ton of DRI

Note: CCO = Coal Controller's Organisation; CFO = chief financial officer; CMPDI = Central Mine Planning and Design Institute; COO = chief operating officer; CPO = chief procurement officer; CSO = chief sustainability officer; MoC = Ministry of Coal; MoCI = Ministry of Commerce and Industry; MoEFCC = Ministry of Environment, Forest and Climate Change; MoS = Ministry of Steel.

POV: What distinguishes this program is its sequencing and its measure of success. We recommend starting with what India controls - reconciled data, washery performance, value-in-use buying and verified emissions data - before committing capital overseas, because the cases in Section 2.5 suggest that equity and offtake complement, rather than replace, a usable domestic base and credible measurement. Nippon Steel took a 20% stake in Elk Valley Resources with offtake rights but as a minority holder alongside Glencore's 77%; China's net imports are close to one-fifth of its coking-coal supply; and the emissions-trading and methane-reporting experience in China and Australia shows that measurement methods shape reported results and need verification. The test of the program is therefore delivered usable tons, quality-adjusted hot-metal cost and verified emissions coverage, tracked quarterly on one scorecard.

Closing perspective

India's steel ambition is likely to remain dependent on imported coking coal for at least the next decade. The strategic objective is therefore not import elimination but disciplined management of that dependence.

Leading steelmakers can procure on value-in-use, convert more domestic coal into usable tons, fine-tune blends and inventories, secure selected upstream positions, test gasification for the high-ash remainder and establish credible carbon and methane data.

Coking-coal security is ultimately defined not by ownership of resources alone, but by the ability to convert a volatile global commodity into reliable, competitive and lower-emissions steel production.



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Annexure: Glossary of key terms

Terms	Definition
ADD	Anti-Dumping Duty. US$42.95–128.83/t duty on low-ash met coke imports since July 2026.
Ash	Incombustible mineral matter; domestic coking coal has 25%–45% vs ~16%–18% after washing.
Basis Risk	Risk that the benchmark or hedge price diverges from actual delivered cost.
Beneficiation	Washing of raw coal to cut ash and make it usable in coke ovens.
BF-BOF	Blast Furnace-Basic Oxygen Furnace. Coal-based integrated route; drives coking coal demand.
Care and Maintenance	Status of an idled mine preserved for restart, e.g., Saraji South since December 2025.
CBAM	Carbon Border Adjustment Mechanism. EU carbon price on embedded emissions of imports.
CBAM Certificate	Surrendered per chargeable tCO2e; 2026 prices €75.36 (Q1), €75.28 (Q2), €82.32 (Q3).
CBAM Factor	Free-allocation phase-out factor: 97.5% in 2026, 51.5% in 2030, zero in 2034.
CCO	Coal Controller's Organisation. Covers reject disposal, not washery output or coal quality.
CCTS	Carbon Credit Trading Scheme. Draft plant-level targets for 255 steel units from FY27.
CCUS	Carbon Capture, Utilization and Storage. Captures CO for underground storage or reuse.
CDQ	Coke Dry Quenching. Inert-gas coke cooling that recovers heat and cuts emissions.
CMPDI	Central Mine Planning and Design Institute. Coal India's planning body; runs a 5G test lab.
Coal Gasification	Converts coal to syngas; outlet for high-ash coal; 100 Mt target by 2030.
Coke Battery	Bank of coke ovens; each rebuild is a window to raise the domestic coal share.
Coke / Met Coke	Metallurgical coke. Blast furnace fuel and reductant; India made ~51.7 Mt in FY26.
Coke Rate	Coke used per ton of hot metal; a lower rate cuts coal use and CO2.
Coking Coal	Coal that forms coke when heated without air; excludes PCI coal in this report.
Coking Coal per t Hot Metal	~0.76 t in FY26 calibration; 0.75–0.80 t in FY30 scenarios.
CRI	Coke Reactivity Index. How readily coke reacts with CO2 at high temperature.
Critical and Strategic Mineral	Status given to coking coal on 29 January 2026; does not by itself cut imports.
Critical Mineral Mission	Provides for a national mineral stockpile program.
CSR	Coke Strength after Reaction. Low CSR reduces furnace permeability and productivity.
Default Value (CBAM)	EU-assigned emissions when actual data is missing; 4.28 tCO2e/t for Indian HRC.
Demurrage	Charge payable when a vessel is delayed at port beyond the agreed time.
DGTR	Directorate General of Trade Remedies. Recommends anti-dumping duties.
Digital Control Tower	Decision engine linking mine, port, vessel, blend and furnace data.
Digital Maturity Ladder	Four stages: digitized, connected, predictive, autonomous/orchestrated.
Digital MRV	One auditable emissions data layer serving CBAM, CCTS and methane reporting.
Domestic Blend	Domestic coal share in coke-oven blends: ~10% today, 30% proposed.
Drainage Gas / VAM	Methane captured from coal seams (drainage) or diluted in ventilation air (VAM).
DRI	Direct Reduced Iron. Iron ore reduced without melting; ~80% of India's DRI is coal-based.
DRI-IF	DRI melted in induction furnaces; a route needing no coking coal.
EAF	Electric Arc Furnace. Melts scrap or DRI using electricity.
East-coast Ports	Paradip, Dhamra and Gangavaram; main gateways for coking coal imports.
Embedded Emissions	Emissions released in producing a good; the basis of the CBAM charge.
EU Methane Regulation	Requires MRV-equivalence for relevant coal supply contracts from 1 January 2027.
FOB	Free on Board. Seller loads; buyer pays freight. PHCC was US$269/t on 16 Oct 2026.
Free Allocation	Free EU emission allowances that CBAM progressively withdraws.
FTA (India-EU)	Concluded 27 Jan 2026; 1.64 Mt annual steel quota but no CBAM exemption.
GEI	Greenhouse Gas Emission Intensity. The metric for CCTS steel targets.
Green Steel Taxonomy	Classifies steel below 2.2 tCO2e/t as green steel.
HCC	Hard Coking Coal. Australian FOB reference grade.

Hot Metal	Liquid iron from blast furnaces; the driver of coking coal demand.
Hot Metal / Crude Steel Ratio	0.54–0.60 in FY30 scenarios; above 0.60 signals Scenario C.
Hydrogen-based DRI	Hydrogen reduction of iron ore; at pilot stage in India.
ICCSP	India Coking Coal Security Program. Expands Mission Coking Coal; five workstreams.
Index-linked Pricing	Price set off spot indices; premium coking coal priced this way since 2017.
Installation-level Data	Plant-level, verifier-ready emissions data required for CBAM.
Inventory Band	Grade-specific range of days of cover held by a steelmaker.
Jharia	India's principal prime coking coal field; INR5,940.47 crore revival program.
Landed Cost	FOB plus freight, port, inland logistics, financing, FX and quality adjustments.
MdR	Minas de Revuboè. Mozambique coking coal project; phase one targets 2.4 Mt/yr.
Met Coal	Metallurgical coal. Coking coal plus PCI coal.
Methane (Coal Mine)	~43 Mt a year from coal operations; priority at underground coking mines.
Mission Coking Coal	Government program targeting 140 Mt raw coking coal by FY30.
Mongolian Rail	Overland Mongolia–China coal supply; ~91 Mt in 2026F.
MRV	Monitoring, Reporting and Verification of greenhouse gas emissions.
NSP	National Steel Policy. 300 Mt capacity and 255 Mt production by FY31; draft Vision 2047.
Offtake Agreement	Long-term purchase commitment, often tied to equity stakes or washery feedstock.
OOQ	Out-of-Quota. Steel above the EU quota faces a 50% duty from 1 July 2026.
Panamax	Bulk carrier class; Hay Point–Paradip freight was US$18.9–26.1/t in Mar–Jul 2026.
PCI Coal	Pulverized Coal Injection coal. Replaces part of the coke; not coking coal.
PHCC	Premium Hard Coking Coal. Australian FOB reference grade; US$187/t average in 2025.
Planning Band	US$200–260/t FOB Australia for 2027–30; a management range, not a forecast.
Planning Bridge	Imports = hot metal × coal per t hot metal − usable domestic coal.
PLV	Premium Low-Volatile. Premium coking coal reference grade for Australian FOB pricing.
Port Traffic	Major-port cargo data (IPA); differs in coverage and timing from customs imports.
Precursor	Upstream input (sinter, pig iron, crude steel) traced under CBAM.
Private Coking Coal Blocks	Sixteen private blocks; first output expected only by 2028-29.
QR	Quantitative Restriction. Quotas on low-ash met coke were lifted in January 2026.
Queensland Royalty Regime	State royalty that BHP says does not support long-term investment.
Raw Coking Coal	Run-of-mine coking coal with 25%–45% ash; must be washed.
Recovery (Washery Yield)	Washed coal per 100 t of feed; ~37 t in FY25.
Safeguard Duty	Finished-steel duty: 11.5% until April 2027, 11% until April 2028.
Scenarios A / B / C	FY30 coking coal imports of ~57 Mt, ~86 Mt and ~112 Mt.
Seaborne	Traded by sea, as against overland flows such as Mongolian rail.
Semi-Soft Coking Coal	Lower-grade coking coal used in smaller blend shares.
SGX	Singapore Exchange. Coking coal futures peaked at US$282/t in August 2026.
Shanxi	Chinese province supplying over half of China's coking coal.
Signposts	Leading indicators that trigger predefined changes to sourcing and inventory plans.
Stamp Charging	Compacts coal before oven charging; can lift domestic coal share to ~35%.
Standing Committee	Lok Sabha committee on Coal, Mines and Steel; 27th Report (July 2026).
TRQ	Tariff-Rate Quota. Lower duty up to a set volume, higher duty beyond it.
TRT	Top-pressure Recovery Turbine. Recovers energy from blast furnace top gas.
Usable-ton Gap	140 Mt raw target yields ~48–52 Mt usable; 23 Mt planned, 5.9 Mt delivered in FY25.
Value-in-Use (VIU)	Compares coals by effect on hot metal cost, not price per ton of coal.
Verified Emissions Data	Third-party-checked plant emissions data; treated as a commercial asset.
Volatile Matter	Gas-forming fraction of coal; determines coke yield.
Washability	Ease of separating ash from coal; first stage of domestic coal acceptance.
Washed Coking Coal	Coal beneficiated to ~16%–18% ash for coke-oven blends.
Washery	Plant that washes raw coal; only 5 of 13 Coal India washeries meet the 95% norm.
WHR	Waste Heat Recovery. Reuses process heat to cut fuel use and emissions.

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Tel: + 91 80 6727 5000

3rd & 4th Floor
MARKSQUARE
#61, St. Mark's Road
Shantala Nagar
Bengaluru - 560 001
Tel: + 91 80 6727 5000

1st & 8th Floor, Tower A
Prestige Shantiniketan
Mahadevapura Post
Whitefield, Bengaluru - 560 048
Tel: + 91 80 6727 5000

Bhubaneswar
8th Floor, O-Hub, Tower A
Chandaka SEZ, Bhubaneswar
Odisha – 751024
Tel: + 91 674 274 4490

Chandigarh
Elante offices, Unit No. B-613 & 614
6th Floor, Plot No- 178-178A
Industrial & Business Park, Phase-I
Chandigarh - 160 002
Tel: + 91 172 6717800

Chennai
6th & 7th Floor, A Block,
Tidel Park, No.4, Rajiv Gandhi Salai
Taramani, Chennai - 600 113
Tel: + 91 44 6654 8100

Delhi NCR
Aikyam
Ground Floor
67, Institutional Area
Sector 44, Gurugram - 122 003
Haryana
Tel: + 91 124 443 4000

3rd & 6th Floor, Worldmark-1
IGI Airport Hospitality District
Aerocity, New Delhi - 110 037
Tel: + 91 11 4731 8000

4th & 5th Floor, Plot No 2B
Tower 2, Sector 126
Gautam Budh Nagar, U.P.
Noida - 201 304
Tel: + 91 120 671 7000

Hyderabad
THE SKYVIEW 10
18th Floor, "SOUTH LOBBY"
Survey No 83/1, Raidurgam
Hyderabad - 500 032
Tel: + 91 40 6736 2000

Jaipur
9th floor, Jewel of India
Horizon Tower, JLN Marg
Opp Jaipur Stock Exchange
Jaipur, Rajasthan - 302018

Kochi
9th Floor, ABAD Nucleus
NH-49, Maradu PO
Kochi - 682 304
Tel: + 91 484 433 4000

Kolkata
22 Camac Street
3rd Floor, Block 'C'
Kolkata - 700 016
Tel: +91 33 6615 3400

6th floor, Sector V, Building
Omega, Bengal Intelligent Park,
Salt Lake Electronics Complex,
Bidhan NagarKolkata - 700 091
Tel: +91 33 6615 3400

Mumbai
14th Floor, The Ruby
29 Senapati Bapat Marg
Dadar (W), Mumbai - 400 028
Tel: + 91 22 6192 0000

5th Floor, Block B-2
Nirlon Knowledge Park
Off. Western Express Highway
Goregaon (E)
Mumbai - 400 063
Tel: + 91 22 6192 0000

3rd Floor, Unit No 301
Building No. 1
Mindspace Airoli West (Gigaplex)
Located at Plot No. IT-5
MIDC Knowledge Corridor
Airoli (West)
Navi Mumbai - 400708
Tel: + 91 22 6192 0003

Altimus, 18th Floor Pandurang
Budhkar Marg Worli, Mumbai -
400 018 Tel: +91 22 6192 0503

Pune
C-401, 4th Floor
Panchshil Tech Park, Yerwada
(Near Don Bosco School)
Pune - 411 006
Tel: + 91 20 4912 6000

10th Floor, Smartworks
M-Agile, Pan Card Club Road
Baner, Pune - 411 045
Tel: + 91 20 4912 6800

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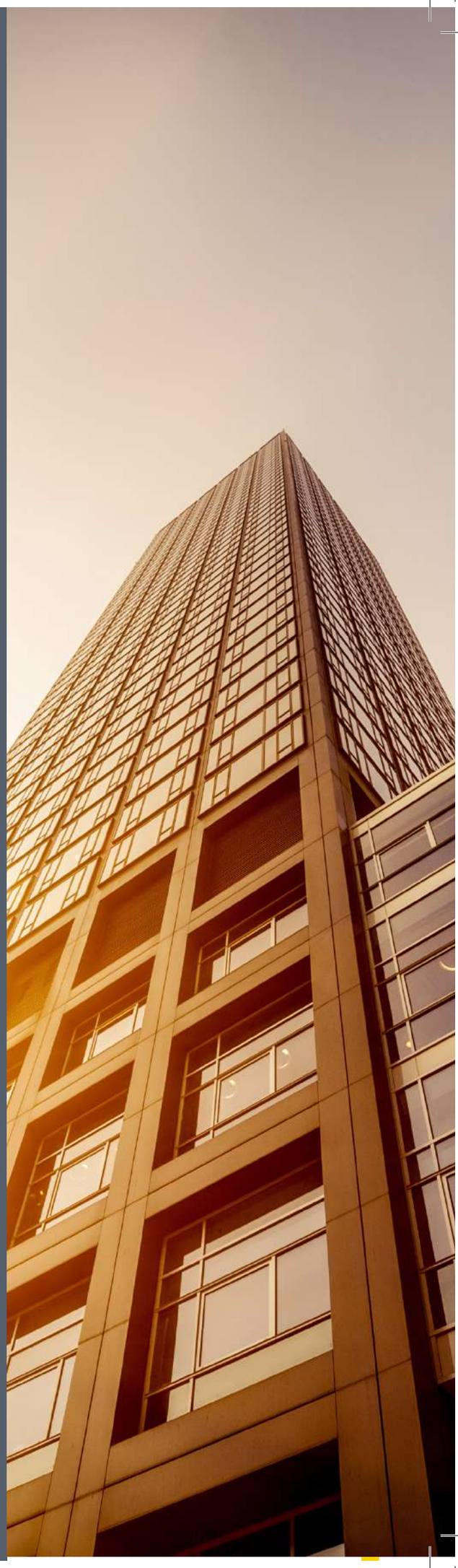
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