JETCA Brief

Strategic Role of Green Public Procurement in Decarbonizing Indonesia's Iron and Steel Sector

The Habibie Center

MAY 2026

The Habibie Center
Just Energy Transition and Climate Action Program

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Acknowledgements:
This brief benefited from inputs from stakeholders across goverment, industry, and partner institutions.

Published in May 2026

Cover image source: ey.com

Executive Summary

Indonesia's steel sector is becoming increasingly important not only for industrial growth but also for trade competitiveness in a global market where carbon performance is a key factor. As carbon-linked trade measures such as the European Union's Carbon Border Adjustment Mechanism (CBAM) take effect, and as buyers increasingly seek lower-emission materials, Indonesia faces both risk from continued reliance on high-emission production and opportunity for early movers in lower-carbon steel.

This policy brief examines how Green Public Procurement (GPP) can help accelerate steel decarbonization in Indonesia. It draws on stakeholder interviews and consultations with government, industry, and relevant institutions, as well as secondary research and modelling of different technology pathways.

The brief finds that substantial emissions reductions are technically achievable. The main challenge, however, is not technological feasibility alone but the lack of a sufficiently strong and credible market signal to support investment at scale, given producers' large upfront capital requirements.

In this context, GPP stands out as the most practical demand-side policy instrument currently available to the government. By embedding carbon-intensity criteria into public procurement for infrastructure and construction, the government can create an early domestic market for green steel, stimulate investment, and help align public spending with industrial and climate objectives.

The brief, therefore, argues that GPP should be understood not simply as a procurement reform, but as a strategic market-creation instrument. If designed well, it can help Indonesia crowd in private investment, support industrial upgrading, and better position domestic producers for emerging global demand for lower-emission steel. To operationalize this, the brief proposes a five-pillar framework covering: a stronger policy and legal basis for GPP; a robust technical foundation and green steel classification system; capacity development for procurement actors and suppliers; supplier selection strategies that give greater weight to environmental performance; and demand-side innovation to create early market demand for lower-carbon steel.

Introduction

The iron and steel sector is central to Indonesia's industrial development, with steel serving as a key input for infrastructure, construction, transport, and manufacturing, and demand expected to keep rising alongside infrastructure expansion and industrial downstreaming. Over the past decade, Indonesia's steel industry has grown significantly. Crude steel production reached approximately 16.8 million tonnes in 2023, making Indonesia one of the largest steel producers in Southeast Asia (World Steel Association, 2024). The country is also the world's fourth-largest exporter of iron and steel, with exports valued at around USD 27.5 billion in 2023 (CREA, 2024). This expansion has been supported by large-scale investment in the basic metals industry, which increased from USD 14.8 billion in 2020 to USD 37.7 billion in 2023, reflecting the government's emphasis on downstreaming and industrial value addition (CREA, 2024).

Steel decarbonization is therefore not only a climate imperative, but also a growing economic, trade, and industrial competitiveness issue. Measures such as CBAM, together with rising demand for lower-emission materials, are reshaping market conditions. However, the transition remains constrained by a classic market coordination problem. Although lower-carbon steel production is technically feasible, producers and investors still lack sufficient demand certainty and policy clarity to justify the required scale of investment.

GPP offers a practical policy response. By leveraging government purchasing power, particularly through infrastructure spending, GPP can help create an early domestic market for green steel, reduce investment risks, and strengthen the case for industrial decarbonization. Indonesia already has a legal basis for sustainable procurement under Presidential Regulation Number 46 of 2025. Still, the current framework does not yet include specific carbon-intensity criteria for construction materials. Strengthening GPP in this area could play an important role in supporting a competitive, low-carbon steel industry in Indonesia.

Indonesian steel producers are already receiving signals from foreign buyers and development finance institutions that carbon performance will increasingly determine access to markets and capital. Producers who delay investment in lower-carbon technologies risk finding themselves locked out of premium markets at precisely the moment when Indonesia's production capacity is large enough to compete in them. The question is not whether decarbonisation will reshape the industry, but whether Indonesian producers will be positioned to benefit from that shift or absorb its costs.

The Case for Decarbonising Indonesia's Steel Sector

Indonesia's steel sector has the potential to become a significant contributor to the country's climate objectives while strengthening its export competitiveness. Realising this potential requires a clear understanding of the investment environment, the trajectory of international trade policy, and the scale of emissions reduction that different technology pathways can deliver.

Global trade exposure and opportunities

Indonesia's growing position as a steel exporter creates both exposure and opportunity as global trade policy increasingly reflects carbon performance. The total export of Indonesian steel to the European Union reached 1.2 million tonnes or around 5.6% of total Indonesian steel export in 2024, according to the Indonesian Iron and Steel Industry Association (IISIA) (CNN Indonesia, 2026).

The European Union's CBAM, fully operative from 2026, applies a carbon price to imports based on their embedded emissions. Iron and steel are among the sectors covered from the outset, meaning that carbon intensity will directly affect the cost competitiveness of Indonesian steel in European markets going forward.

Conventional BF-BOF production generates approximately 2.2–2.5 tonnes of CO_2 per tonne of steel, which is significantly higher than the benchmarks used to calculate CBAM costs. With EU carbon prices projected to rise in the coming decade, producers that continue to rely on coal-based technology will face increasing cost disadvantage in this market (European Commission, 2023). This trajectory reflects a durable shift in how major economies are structuring trade policy around carbon performance.

The OECD has noted that carbon border provisions are an accelerating feature of global trade governance more broadly, with carbon-linked procurement requirements also emerging in Japan, South Korea, and the United States (OECD, 2024). Major industrial buyers in these markets are incorporating carbon intensity criteria into their supply chain decisions. The direction of trade is consistent: carbon performance is becoming a precondition for market access rather than a differentiating attribute.

For Indonesia, this creates a genuine strategic opportunity. Producers who invest now in lower-carbon production technologies will be positioned to access and compete in premium export markets, attract buyers seeking to decarbonise their supply chains, and avoid the cost penalties that carbon border measures will impose on high-emission producers. Therefore, early action on decarbonisation is an investment in Indonesia's export competitiveness.

Industry Signal

"Export markets are increasingly demanding proof of low-carbon production, and this trend will likely intensify in the coming years." — Ministry of Industry Representative, 2025

Emissions Reduction Potential

To illustrate the scale of the decarbonisation opportunity available to Indonesia's steel sector, four technologies were projected across the country's major facilities, using Global Energy Monitor plant-level data and the ISO 14404 emissions methodology. Each technology assumes full sector-wide adoption of the specified technology, providing a consistent basis for comparing emissions outcomes. The results are presented as indicative scenarios rather than forecasts; in practice, transition is likely to involve a combination of pathways deployed over time.

Business as Usual

Under the BAU scenario, Indonesia's steel sector continues to rely on coal-based BF-BOF production. Total annual emissions from the major plants analysed reach approximately 48.0 million tonnes of CO_2, with an average carbon intensity of 1.46 tCO_2 per tonne of steel. Maintaining this trajectory while tightening national climate targets would see the steel sector account for an increasing share of allowable industrial emissions, making transition planning a near-term priority.

Technology 1
Scrap-Based EAF

Transitioning to scrap-fed electric-arc furnace (EAF) production delivers the most immediate emission reduction available, cutting sector emissions to approximately 12.6 million tonnes of CO_2, a 74 per cent reduction and reducing carbon intensity to 0.38 tCO_2 per tonne. These gains reflect the elimination of iron ore reduction processes. Domestic scrap availability remains a constraint, but it represents a strong near-term complementary measure that can be deployed alongside longer-term investments in primary steelmaking.

Technology 2
Natural Gas DRI-EAF

Natural gas-based direct-reduction iron (DRI), combined with EAF steelmaking, reduces total emissions to approximately 21.5 million tonnes of CO_2, a 55 per cent reduction, with an average carbon intensity of 0.66 tCO_2 per tonne. This pathway reduces coal dependency but retains reliance on fossil fuels, making it insufficient as a long-term decarbonization destination. It may serve as a transitional configuration where gas infrastructure already exists, subject to eventual substitution with hydrogen.

Technology 3
Hydrogen DRI-EAF

Substituting green hydrogen for fossil fuels in the ironmaking process effectively eliminates direct process emissions, as hydrogen reduction produces water vapour rather than CO_2. Total sector emissions fell to approximately 2.5 million tonnes, a 94 percent reduction, with carbon intensity declining to 0.09 tCO_2 per tonne. This pathway represents the principal long-term decarbonization route for primary steelmaking and the technology benchmark against which future investment should be evaluated.

Technology 4
Hydrogen DRI with Renewable-Powered EAF

The fourth technology combines hydrogen-based ironmaking with renewable electricity for EAF operations, eliminating both direct (Scope 1) and energy-related indirect (Scope 2) emissions across the full production process. Total emissions approach zero. This represents the ceiling of decarbonization potential in the sector and the reference point for long-term policy ambition.

Table 1. Comparative Emissions Across Decarbonisation Technology for Indonesian Steel Sector[1]

Technology Pathway	Total Emissions (tCO_2/yr)	Carbon Intensity (tCO_2/t steel)	Reduction vs BAU	Feedstock
Business as Usual	48,021,312	1.46	—	Coal
Technology 1: Scrap-EAF	12,558,132	0.38	–74%	Scrap
Technology 2: Natural Gas DRI-EAF	21,536,480	0.66	–55%	Gas
Technology 3: Hydrogen DRI-EAF	2,495,080	0.09	–94%	H_2
Technology 4: Hydrogen + Renewable EAF	~0	0.00	–100%	H_2+RE

Source: Modelling based on Global Energy Monitor plant data and ISO 14404 emissions methodology.

Transitioning to hydrogen-based DRI-EAF production could reduce Indonesia's steel sector emissions by up to 94 per cent compared with current technology. The full combination of green hydrogen and renewable electricity brings sector emissions to near-zero. The modelling results confirm that the technical pathway to deep decarbonisation is within reach. What is needed is a market signal and an enabling environment to make investment in that pathway commercially viable.

[1] Global Energy Monitor (GEM) data is used because it provides detailed information on metallurgical processes—such as BF-BOF or EAF—by facility, making it crucial for accurately calculating baseline emissions for the iron and steel sector. In comparison, the Ministry of Industry's Green Industry Roadmap presents macro-level data to align with economic policy targets and national industrial standards. Therefore, GEM's periodic data updates, which focus on climate mitigation, provide a more reliable foundation for developing technical models, conducting project feasibility studies (Pre-FS), and calculating carbon credits.

Navigating between the technological and investment landscape

There are roadmaps which can guide Indonesia's steel decarbonisation trajectory, and while they share the same destination, full phase-out of coal-based BF-BOF production, scale-up of Scrap-EAF and DRI-EAF routes, deployment of green hydrogen. The Net Zero 2050 Industrial Roadmap, led by the Ministry of Industry, takes an ambitious path: mandating DRI-EAF adoption for all new facilities from 2027, requiring full transition of existing plants by 2030, and targeting a 2050 production mix of 60 percent DRI-EAF and 40 percent Scrap-EAF. The Net Zero Roadmap 2060 for Indonesia's steel industry, developed by Global Efficiency Intelligence and the ASEAN Centre for Energy, adopts a more gradual approach, using natural gas DRI as a bridge technology until 2035, scaling green hydrogen thereafter, and arriving at a 2060 landscape dominated by Scrap-EAF with a 10 percent share of hydrogen-based DRI.

The NZE 2050 pathway assumes that renewable energy supply, hydrogen cost reductions, scrap availability, and capital mobilisation can all be achieved on a compressed timeline, a scenario that is technically possible but operationally demanding. The NZE 2060 pathway builds in more time for these conditions to develop, accepting a longer transition in exchange for a lower risk of implementation shortfall. For Indonesia, the choice between them is less a question of which technologies to pursue than of how much transition risk is acceptable, and what level of near-term policy intervention in procurement, financing, and infrastructure would be required to make the faster pathway viable.

The emerging standard, across development finance institutes, is that steel companies seeking concessional or development finance must demonstrate credible decarbonisation plans, including emissions-intensity reduction targets, technology-transition roadmaps, and alignment with international benchmarks. Replacing or retrofitting a conventional BF-BOF facility with a hydrogen-based DRI and EAF configuration requires an investment of USD 1–2 billion per facility (Mission Possible Partnership, 2022), with additional costs for hydrogen production capacity and renewable electricity infrastructure. Transitioning to low-carbon steel production is capital-intensive thus, require careful consideration when designing the transition strategy.

Many major facilities were built within the past decade as part of the government's mineral downstreaming programme, which has delivered significant industrial capacity. Blast furnaces typically operate for 30–40 years (IEA, 2023), and the question of transition timing becomes important where the goal is to establish a clear low-carbon trajectory while phasing investment in a way that maximises the value of existing assets and avoids unnecessary cost. This is a planning challenge that international experience in industrial transition has shown to be manageable with appropriate policy support.

Supporting infrastructure, particularly renewable electricity and hydrogen supply, is also a factor. Green hydrogen production requires approximately 50–55 MWh of clean electricity per tonne (IRENA, 2023), and Indonesia's current electricity mix remains heavily weighted toward fossil fuels. Indonesia's renewable energy potential, solar, geothermal, and hydropower, is among the largest in the region. Investments in the energy transition and in industrial decarbonisation are therefore mutually reinforcing.

Table 2. Key Investment Considerations to Decarbonize Indonesia's Steel Sector

Consideration	Context	Implication	Potential Solutions
Scale of capital investment	DRI-EAF conversion requires USD 1–2 billion per facility (Mission Possible Partnership, 2022), plus costs for hydrogen production and renewable energy infrastructure	Delays private investment; increases reliance on concessional finance	Sustainable finance mechanisms (e.g. SDG Indonesia One, Green Bonds) are structured around low-carbon steel public procurement to mobilise private capital alongside government demand
Long asset lifetimes	Blast furnaces operate for 30–40 years (IEA, 2023); several Indonesian plants have been built recently under the downstreaming programme	Risk of carbon lock-in; premature retirement generates significant stranded asset costs	A call to stop building new BF-BOF. Early retirement incentives and stranded asset compensation schemes to accelerate transition away from high-carbon assets; mandatory retrofit or phase-out schedules aligned with national climate targets
Renewable electricity constraints	Green hydrogen electrolysis requires approximately 50–55 MWh of clean electricity per tonne; Indonesia's grid currently generates over 60% from fossil fuels	Energy system transformation must accompany or precede steel sector transition	Dedicated pilot green industrial zones with integrated renewable energy deployment to co-locate clean power supply with steel production facilities
Hydrogen supply infrastructure	Domestic hydrogen production, storage, and distribution capacity is at an early stage of development, consistent with the global state of the industry	Technology deployment delays; limits near-term availability of hydrogen-based steelmaking	Incremental transition pathway: prioritise energy-efficiency improvements and increased scrap utilisation via EAF, followed by natural-gas-based DRI, before scaling up hydrogen infrastructure. Public-private partnerships to share risk and accelerate hydrogen deployment
Market and demand uncertainty	Limited confirmed buyers for green steel; the green premium makes low-carbon products less price-competitive under current market conditions	Investment coordination failure between producers and buyers	GPP mandates to anchor early and credible domestic demand for low-carbon steel, providing producers with the revenue certainty needed to justify investment
Policy and regulatory uncertainty	An industrial decarbonisation roadmap has been published by the Ministry of Industry. This is a promising start. A policy roadmap is planned for publication, and carbon-intensity standards for steel need to be established.	Investor hesitation; long-term capital commitment remains difficult to justify	Fully published National Steel Decarbonisation Roadmap with clear milestone targets and timelines, integrated into the National Medium-Term Development Plan (RPJMN)

Stakeholder Perspective

"Steel producers will not invest in green technologies unless they can see a reliable market willing to pay for low-carbon steel." — KADIN Representative, 2025

Understanding the Green Premium

The additional production cost associated with low-carbon steel relative to conventional steel, commonly referred to as the 'green premium', is an important factor in the green steel transition landscape. When only looking at crude steel, current estimates place the premium at approximately 20–40 percent above conventional BF-BOF costs, or USD 100–200 per tonne of steel (Mission Possible Partnership, 2022; IEA, 2023), depending on electricity prices, hydrogen costs, and the specific production configuration.

However, studies by ACE and GEI suggest that if we look beyond crude steel to the end product, the premium would have a negligible impact on end users, adding only roughly USD 300 to the cost of a passenger car or USD 830 to the cost of a residential building unit.

This premium is best understood as a transitional condition rather than a permanent feature. It reflects the current early stage of green steel technologies, the relatively high cost of renewable electricity in some contexts, and the absence of a carbon price that would otherwise narrow the cost gap between high- and low-emission production.

The International Renewable Energy Agency projects that green hydrogen costs could fall by up to 70 percent by 2050 as electrolysis capacity scales and renewable electricity becomes cheaper (IRENA, 2024). As carbon pricing rises and hydrogen costs fall, traditional steel will eventually become the more expensive option.

Table 3. Key Drivers of the Green Premium in Steel Production

Cost Driver	Outlook and Policy Relevance
Hydrogen price	The largest cost component of hydrogen-DRI steelmaking is directly tied to renewable electricity prices and electrolyser efficiency. Costs are expected to fall substantially as both improve
Renewable electricity cost	Critical input for EAF operations and green hydrogen production. Indonesia's significant renewable potential supports a competitive long-term cost outlook.
Capital expenditure	New plant, electrolysers, and associated infrastructure require a large upfront investment. Costs are expected to decline as technology matures and supply chains develop.
Technology maturity	Green steel technologies are at an early commercial stage. Unit costs remain elevated compared to mature coal-based processes, but are on a well-documented downward trajectory.
Carbon pricing policies	Without a domestic carbon price, coal-based steel does not face the cost of its emissions. A carbon pricing mechanism or an equivalent policy signal would narrow the competitive gap.

Source: Authors' analysis based on IEA (2023), IRENA (2023), and Mission Possible Partnership (2022).]

In a globally competitive steel market with thin profit margins, individual producers cannot unilaterally absorb the green premium without losing price competitiveness. This is the structural basis for the market gap that government action can address, not through open-ended subsidy, but through demand signals that provide sufficient revenue certainty to justify investment.

Stakeholder Perspective

"Producers cannot justify investing billions of dollars in new technologies unless there is guaranteed demand for low-carbon steel." — IISIA Representative, 2025

Strategic and early demand signals for steel decarbonisation

Indonesia's steel producers are under growing pressure from multiple directions simultaneously. On the export side, carbon-linked trade measures are beginning to attach a cost to high-emission production. On the financing side, development finance institutions are tightening requirements around emissions performance as a condition of concessional lending. And domestically, the absence of a carbon price means that the cost advantage of coal-based production persists which makes it commercially rational to delay investment even as the window for transition narrows.

Steel markets have structural characteristics that make voluntary transition by individual producers very difficult. Buyers who commit to paying a green premium face cost disadvantages relative to competitors sourcing conventional steel. Neither party has sufficient incentive to move first, even when both would benefit from a transition that happened at scale.

This is a coordination challenge, and one that governments are well placed to resolve. The government can act as an anchor buyer for low-carbon steel, committing to demand at a scale and over a timeframe that gives producers the confidence to invest. In doing so, it does not simply support a niche market: it creates the conditions under which the broader market can reorient, and the financing ecosystem can engage. The mechanism is a targeted demand signal that compresses the investment risk term long enough for the market to take over.

The role of early demand signals

Early demand signals serve a critical function in industrial transformation. They compress the investment risk horizon by making future market conditions visible and credible to producers today. Governments can take part in this transformation through procurement commitments, offtake guarantees, or mandatory content requirements. Those mechanisms create a revenue stream that can anchor project finance, and they communicate a regulatory direction that reduces uncertainty for investors planning over decade-long horizons.

For Indonesia, the scale of public infrastructure investment planned under the National Medium-Term Development Plan (RPJMN) creates a substantial and predictable source of steel demand. Directing even a portion of this demand toward low-carbon steel through explicit carbon-intensity requirements embedded in procurement regulations would constitute a material and credible market signal that could shift producers' investment calculations.

By committing to support and procure green steel at specified volumes and carbon-intensity standards across multi-year infrastructure programmes, the government signals to the market that demand will exist before production is scaled. This is the essential precondition for private investment decisions in plant conversion, hydrogen infrastructure, and renewable energy development.

Policy instruments for early demand creation

Several demand-side policy instruments are available to the government, each with different reach, implementation speed, and signalling strength. These are not mutually exclusive, and a sequenced combination is likely to be more effective than any single measure in isolation.

Among these instruments, GPP is the most immediately deployable, which operates through existing procurement channels without requiring new legislative frameworks or carbon pricing systems. By embedding carbon-intensity standards into government steel procurement across infrastructure ministries, state-owned construction enterprises, and public works programmes, the government becomes an anchor buyer for low-carbon materials. Indonesia's Presidential Regulation No. 46 of 2025 already provides a legal basis for sustainable procurement; extending it to include carbon-intensity criteria for construction steel would enable its application at scale.

Other than GPP itself, there are also important mechanism that needs to be included in order to achieve the overall steel decarbonisation goals:

1. **Green Industrial Standards and Labelling:** This standard complements procurement requirements, mandatory carbon intensity disclosure and labelling for steel products, creating transparency across the supply chain. This enables private-sector buyers to make carbon-informed procurement decisions and creates a framework for defining and enforcing GPP thresholds.

2. **Offtake and Blended Finance Instruments:** Green bonds, concessional credit facilities, and risk-sharing instruments can reduce the cost of capital for green steel investment by improving the risk-return profile of projects. These instruments are most effective when paired with demand-side signals where GPP establishes the market; blended finance enables producers to enter it by making the investment more financially viable.

3. **Long-term Industrial Decarbonisation Roadmap:** The roadmap published by the Ministry of Industry was an important first signal for policy certainty. A government-endorsed trajectory for the steel sector, including technology milestones, carbon intensity targets, and policy timelines that provide the planning horizon that long-cycle investment decisions require. It also reduces the regulatory uncertainty that currently makes it difficult for investors to commit capital with confidence.

GPP is not a subsidy for green technology. They are the mechanism by which the government converts its own purchasing power into a market signal that can unlock private investment at scale. The question is not whether the government should pay a green premium, but whether the cost of doing so is lower than the cost of delayed decarbonization, which can turn into stranded assets, trade exposure, and missed climate targets.

Why Green Public Procurement?

"*Industry is basically ready, but if there is no guarantee of absorption through procurement, the risk is too large*." This assessment, offered by an official from the Ministry of Public Works during stakeholder consultations, captures the GPP rationale more precisely than any analytical argument. The constraint is not technical readiness. Instead, this is to demand certainty, and GPP addresses this directly.

When the government commits to sourcing steel that meets specified carbon-intensity thresholds for public infrastructure, a set of enabling conditions follows simultaneously. Producers gain a confirmed revenue stream against which to structure financing for technology investment. Banks and development finance institutions gain a visible offtake market that reduces project risk and

lowers the cost of lending. Private sector buyers gain a reference standard and a regulatory signal they can use to justify their own green procurement commitments, and the government aligns its capital expenditure with its stated climate and industrial objectives, creating policy consistency across domains.

Stakeholder interviews conducted as part of this research confirm that demand visibility is the critical variable. As one industry representative observed, the industry tends to delay investment in the absence of a clear demand signal from the government (KADIN, interview, 2026). The current procurement framework, while well-intentioned, has not yet generated this signal with sufficient force. As a policy stakeholder from LKPP noted, sustainable procurement regulations exist, but flexible formulations such as 'and/or' weaken the coercive pressure on procurement implementers (LKPP, interview, 2025). An official from the Ministry of Industry reinforced this: if the Green Industry Standard (SIH) is only an additional attribute, the industry has no strong incentive to invest (Ministry of Industry, interview, 2026).

Indonesia's trade strategy

There is an important dimension to GPP that makes it strategically valuable beyond its domestic market function. The EU CBAM and analogous measures in other markets are establishing a global carbon performance standard against which exported steel will be assessed. By calibrating Indonesia's GPP carbon intensity thresholds in alignment with CBAM benchmarks, the government enables producers to treat domestic compliance as preparation for export-market eligibility.

A steel producer that meets Indonesia's GPP carbon-intensity standards will already be well positioned to export to European markets without significant additional compliance costs. GPP, when designed with this alignment in mind, becomes not only a domestic industrial policy tool but also a component of Indonesia's green trade strategy, reducing the cost burden of market access for producers and turning a regulatory development that creates risk of inaction into an opportunity for producers who move early.

Table 4. Design Principles for a Green Public Procurement Framework

Design Principle	Rationale and Application
Tiered carbon thresholds	Set progressively stricter carbon intensity limits over defined timeframes, providing producers with an immediate market and a credible long-term investment horizon. A phased approach allows the domestic industry to build capacity progressively rather than face abrupt transition costs.
Credible measurement	Base requirements on internationally recognised lifecycle assessment standards (e.g. ISO 14404) to ensure that procurement claims are auditable, defensible to trading partners, and trusted by private sector buyers who may adopt equivalent standards.
Whole-of-government scope	Embed criteria across all ministries and state-owned enterprises procuring steel for infrastructure, construction, and public works. Breadth of application determines the scale of the demand signal; isolated pilots have limited investment leverage.
Complementary supply measures	Pair GPP with concessional financing, renewable energy expansion, and hydrogen infrastructure investment. Demand signals are most effective when producers have the practical means to respond; thus, supply-side measures enable entry.
Alignment with export standards	Calibrate thresholds against EU CBAM benchmarks and major market procurement criteria. This positions domestic compliance as de facto export readiness, reducing the administrative costs of market diversification for Indonesian producers.

Source: Authors' analysis.

The government should introduce a phased GPP framework for steel used in public infrastructure projects, establishing binding carbon intensity standards that create immediate, credible, and sustained demand for low-carbon steel. This should be designed in conjunction with a long-term industrial decarbonisation roadmap, supported by blended finance instruments, and calibrated against CBAM thresholds to simultaneously serve domestic climate goals and international export strategy.

Policy Recommendations

The analysis presented in this policy brief demonstrates that decarbonizing Indonesia's steel sector requires more than technological innovation. The deployment of these low-carbon technologies remains constrained by high investment costs, market uncertainty, and the absence of stable demand signals.

The interviews consistently emphasize that industry actors require stronger demand commitments before undertaking large-scale investments in green steel production. To address these barriers, Indonesia should operationalize GPP through a structured policy framework based on five key pillars (See Table 5 on the next page).

Table 5. Strategy for Integrating Green Iron and Steel into GPP in Indonesia

GPP Pillar	Key Challenges	Strategic Objective	Proposed Policy Instruments	Relevant Stakeholder
Pillar 1: Policy and Legal Framework	The GPP mandate is normative and voluntary; there is no leading sector; incentives are not linked to procurement.	Shift GPP from normative recognition to a binding operational mandate through several ways: • Embedding minimum green steel utilization requirements within the National Medium-Term Development Plan (RPJMN) • Revising the Omnibus Law on Job Creation and its derived regulations to obligate compliance with minimum Green Domestic Component Level thresholds (TKDN), • Amending Presidential Regulation No. 46/2025 on Government Procurement, alongside its derived regulations, to mandate a minimum threshold of green materials within the government's procurement or the national strategic projects	• Designation of priority sectors/ materials (iron & steel) in derivative PBJP regulations • Appointment of a national coordinating actor across ministries/agencies • Integration of GPP with fiscal/ non-fiscal incentives	• Ministry of Finance (MoF) – fiscal incentive regulations • Ministry of Public Works (PUPR) – procurement mandate regulations of national strategic infrastructure projects • LKPP, DPR, Ministry of State Secretariat – regulatory framework & government goods/services procurement derivatives • Bappenas and Ministry of Home Affairs – national coordination & planning with local governments • Coordinating Ministry for Infrastructure and Regional Development – cross-ministry coordination; to lead the sector in governing GPP policies across ministries that are closely related to the procurement of green steel
Pillar 2: Technical Foundation and Green Classification	No steel classification based on emission intensity; standards not yet integrated into the procurement system	Provide a measurable, verifiable, and operational technical foundation.	• Development of green steel classification based on emission intensity • Recognition of LCA, LCC, and EPD as evaluation bases • Integration of the classification into the LKPP e-catalogue	• LKPP – e-catalogue & e-procurement integration with environmental evaluation tools • Ministry of Industry – green steel classification standards (SIH) • Ministry of Environment – emission measurement & LCA frameworks

GPP Pillar	Key Challenges	Strategic Objective	Proposed Policy Instruments	Relevant Stakeholder
Pillar 3: Capacity and Human Resource Development	Limited capacity of PPK/Pokja; non-tiered training; high audit risk.	Increase technical capacity of procurement actors and supplier readiness in ministries developing public infrastructures or other sectors closely related to steel use (e.g, Ministry of Public Works, Ministry of Industry, etc)	• Mandatory and tiered GPP training (basic–technical–sectoral) • Specific modules for construction and steel • Technical assistance for steel suppliers	• LKPP – procurement training & certification for all PPK/Pokja • Ministry of Public Works – construction sector capacity building • Ministry of Industry – supplier technical assistance
Pillar 4: Supplier Selection Strategy	Green criteria are only additional attributes; selection is based on the lowest price.	Make environmental criteria decisive selection factors. The environmental criteria can adopt SIH as a requirement and selection factor to enhance the likelihood of bidders being selected in government procurement. SIH, therefore, can set emission thresholds to determine which iron and steel products are eligible for government use. The SIH can utilize life-cycle-based evaluation tools such as LCA and LCC to strengthen the supplier selection mechanism	• Gradual establishment of green criteria as prerequisites • MEAT- and LCC-based evaluation weighting • Pilot projects for green supplier selection	• LKPP – procurement evaluation methodology that embeds environmental considerations such as LCA, LCC, MEAT, etc • Ministry of Public Works – pilot national strategic infrastructure projects (e.g, Nusantara Capital City, 3 Million Housing program, etc) • BP BUMN/Danantara – SOE procurement alignment with GPP/minimum percentage/quota of green steel utilization
Pillar 5: Demand-Side Innovation	No green demand targets; fragmented demand; high investment risk.	Use public spending as a market-creation instrument for green steel.	• Establishment of minimum targets for low-carbon steel use • Medium-term public contracts/ offtake • Consolidation of demand across ministries/agencies and central–regional levels	• Bappenas – national green demand targets & infrastructure pipeline included in the national medium development planning document (RPJMN) • Ministry of Finance (MoF) – APBN budget allocation & green budgeting • Ministry of Public Works – set the minimum percentage/quota of green steel utilization in some national infrastructure projects • BP BUMN/Danantara – Set the utilization of green materials (green steel) as the key performance indicator (KPI) to create demand consolidation from SOE • Local governments (Pemda) – APBD-level demand aggregation

Source: The Habibie Center, 2026.

Pillar 1
Strengthening the Policy and Legal Framework

Indonesia already possesses a foundational framework for sustainable procurement under *Presidential Regulation of the Republic of Indonesia Number 46 of 2025 concerning Government Procurement of Goods/Services.* However, current provisions remain largely normative and do not establish specific environmental performance standards for construction materials such as steel.

To address this gap, the government should introduce binding carbon-intensity criteria for steel used in public infrastructure projects, supported by clear regulatory mandates within national procurement frameworks. These reforms would transform sustainable procurement from a voluntary principle into an enforceable policy instrument capable of shaping industrial demand.

In line with this, the TKDN framework itself can incorporate a "green material content" dimension whereby domestically produced goods that meet certain emission standards or hold green certifications receive a higher value weighting in public procurement. This approach would transform TKDN from merely an instrument for boosting local product competitiveness into a driver of industrial transformation.

These mandates can be implemented by establishing phased targets for the use of low-emission steel in national strategic infrastructure projects (e.g, Nusantara Capital City, 3 Million Housing Program, Giant Sea Wall, etc), thereby creating a transitional and stable initial demand for domestic producers.

Mainstreaming GPP within the legislative and regulatory framework will be important, for instance, by:

- Embedding minimum green steel utilization requirements within the National Medium-Term Development Plan (RPJMN)
- revising the Omnibus Law on Job Creation and its derived regulations to obligate compliance with minimum TKDN, and
- Amending Presidential Regulation No. 46/2025 on Government Procurement alongside its derived regulations to mandate minimum threshold of green materials within the government's procurement or the national strategic projects.

Collectively, these reforms carry legally binding authority over all government institutions, transforming sustainable procurement from a voluntary principle into an enforceable policy instrument capable of shaping industrial demand at scale.

Effective implementation of such policies would benefit from strong inter-ministerial coordination, with the Coordinating Ministry for Infrastructure and Regional Development positioned as the leading actor to align cross-sectoral priorities and synchronize regulatory frameworks across relevant ministries.

Pillar 2
Establishing a Technical Foundation and Green Classification

Indonesia should therefore develop a national green classification system for steel, based on internationally recognised methodologies, such as life cycle assessment (LCA) and carbon intensity benchmarks. For a case study, India's Green Steel taxonomy, introduced by the Bureau of Energy Efficiency in 2024, offers a practical model. The system classifies steel into four star tiers based on carbon intensity, with thresholds that tighten over time to drive continuous improvement rather than lock in current performance as a ceiling. Importantly, the star ratings are linked directly to government procurement specifications, creating a live connection between product classification and market access. Indonesia's national green steel classification under SIH could adopt the same tiered architecture, calibrated against ISO 14404 benchmarks and updated on a defined schedule.

Existing certification initiatives, such as the SIH, represent an important starting point. Interviews suggest that certification systems must be integrated into procurement criteria to influence industry behavior. Currently, information on green labels in the e-catalogue remains descriptive and has not been used as a basis for binding evaluation (LKPP, interview, 2025). This condition causes the available standards, including SIH, to be insufficient market signals.

Lessons from Canada show that technical standards are effective only when they are directly linked to tender requirements and evaluation weightings, rather than merely serving as additional attributes (IISD, 2022).

Indonesia should integrate green classifications and technical standards into LKPP's e-procurement and e-catalogue systems, enabling iron and steel products to be categorised by emissions performance. This would allow procurement officials to compare bids objectively and reduce reliance on individual discretion — a long-standing barrier to implementation. Embedding these classifications directly into procurement standards ensures environmental performance becomes a meaningful determinant of supplier selection, while SIH can serve as a guarantor mechanism that helps bidders access government projects and strengthens industry incentives.

Pillar 3
Capacity Development and Human Resources

Transitioning to GPP requires procurement officials with the technical expertise to evaluate environmental performance in tender processes. Capacity development programs should include:

- Training procurement officers in lifecycle assessment methodologies.
- Developing technical guidance for evaluating carbon intensity in infrastructure projects.
- Integrating sustainability indicators into procurement evaluation systems.

Such initiatives would enable procurement authorities to shift from purely price-based procurement toward value-based procurement that incorporates environmental performance.

Pillar 4
Reforming Supplier Selection Strategies

Procurement decisions in many infrastructure projects remain heavily price-driven, which disadvantages suppliers investing in greener production technologies. Integrating carbon performance criteria into supplier selection processes would allow procurement authorities to reward environmental innovation. Possible mechanisms include:

- Scoring systems that award additional points for low-carbon materials.
- Lifecycle carbon thresholds for construction materials.
- Environmental disclosure requirements for steel suppliers.

For instance, in Canada, vendors and their subcontractors are expected to familiarize themselves with the Policy on Green Procurement. This procurement code of conduct uses a holistic, life-cycle-based approach that considers multiple environmental impacts (Government of Canada, 2025). Suppliers are encouraged to use third-party certifications to highlight (in their bids) mitigation actions that address the life-cycle impacts of their goods and/or services; environmental footprints of their organizations; and relative environmental benefits associated with their offerings, such as clean technologies.

Pillar 5
Leveraging Demand-Side Innovation

Governments represent major consumers of steel through infrastructure projects, creating opportunities to influence market demand. International experience demonstrates that procurement policies can serve as lead-market mechanisms for green materials.

For example, interview insights from Responsible Steel highlight the significant role of government demand in shaping steel markets: “About 25 percent of national steel demand in Canada comes from government infrastructure projects.” (ResponsibleSteel, interview, 2026).

By similarly leveraging public procurement, Indonesia can create a stable domestic market for green steel. Such demand signals can reduce investment risks, encourage industrial innovation, and help domestic producers adapt to emerging global trade dynamics such as carbon border adjustment mechanisms.

Demand-side innovation through procurement, therefore, represents a critical mechanism for aligning Indonesia’s industrial policy with its long-term climate and economic objectives.

Taken together, these five pillars form an integrated framework for turning GPP from a normative sustainability principle into an operational instrument for market creation and industrial decarbonization. Their effectiveness will depend not only on the strength of each pillar, but also on how fully they are implemented in a coordinated, mutually reinforcing manner.

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