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MAKING THE GRADE

Why reforming Japan's 'GX Steel' label is essential for a competitive transition

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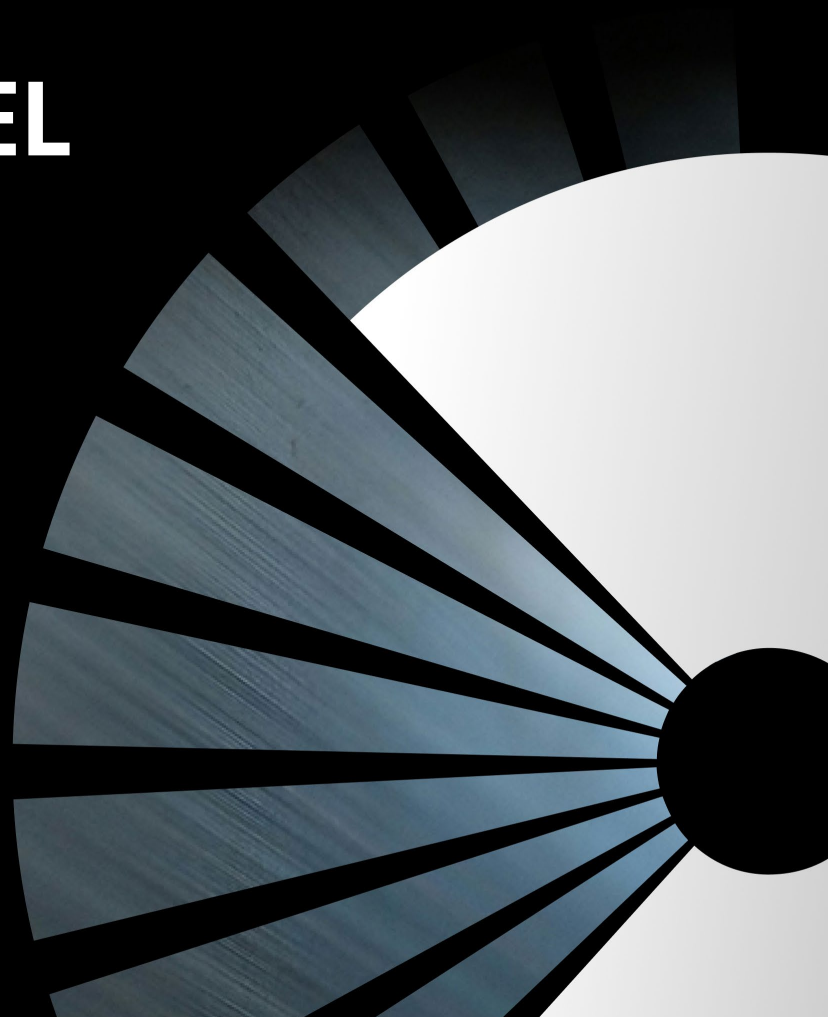
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EXECUTIVE SUMMARY

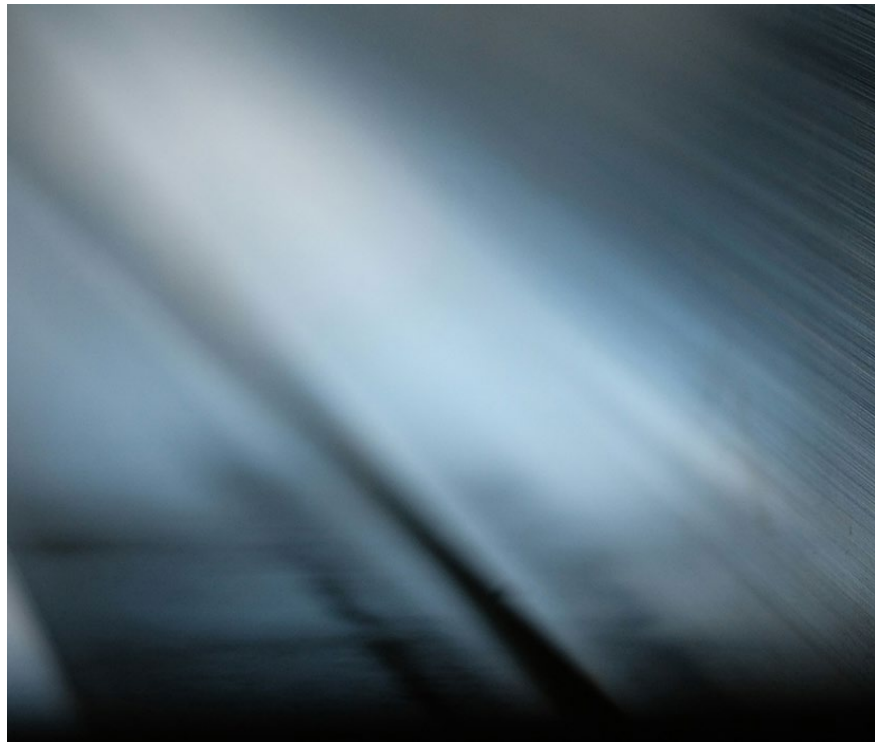
- **Japan needs a credible lead market for lower-emissions steel** to generate returns on new electric arc furnaces (EAFs) and other decarbonisation investments.
- **The GX Steel label does not reliably indicate lower embodied emissions**, as reductions can be pooled across different processes and sites, and there are insufficient guardrails to ensure additionality.
- **GX Steel is not interoperable with leading international standards**, which predominantly use product-level embodied emissions.
- **Concerns about GX Steel's robustness and interoperability risk limiting buyer confidence.** Under current policy settings, it is unclear whether Japan will meet its early 2030s lead market target. This could affect returns on decarbonisation investments and harm longer-term investment confidence.
- **Japan has an opportunity to phase in an approach which is interoperable with embodied emissions methodologies** while also providing clearer market targets, public-procurement plans and progress reporting.
- **Investors can engage steelmakers, buyers and policymakers now** to improve label integrity, international alignment and market formation.

JAPAN'S GX STEEL LABEL AND LEAD MARKET



JAPAN NEEDS TO DEVELOP A LEAD MARKET FOR LOWER-EMISSIONS STEEL

- Japan is the world's third largest steel producer. Steelmaking accounts for around 14% of its emissions.
- Steelmakers **want to deploy decarbonisation technologies commercially in the near term:** large scale EAFs from 2028 and hydrogen injection and CCS abatement for blast furnaces from 2030.
- A **lead market**, where lower-emissions steel is bought at a premium, is **needed to generate returns** on these initial investments.
- **Getting policy right is critical to shaping the economics** of the steel sector transition now and into the future.



JAPAN SUPPORTS STEEL DECARBONISATION AND LEAD MARKET FORMATION THROUGH ITS GX TRANSITION FINANCE PROGRAM

- ‘Green Transformation’ (GX) is Japan’s flagship transition finance program. It will provide ¥20 trillion in transition finance across the Japanese economy from FY2023-33.
- GX provides financial support for steel decarbonisation, including-technology R&D, blast furnace conversions to electric arc furnaces, and demand creation through public procurement and consumer subsidies.*
- The ‘GX Steel’ label determines which steel products are eligible for financial support and communicates emissions reduction information to lead market buyers.
- The government is targeting a 3 Mtpa lead market for GX Steel by the early 2030s.

*For more detail on GX support for steel, see Appendix slide 24 and ACCR, [Optimising Transition Finance in the Japanese Steel Value Chain](#)

GX STEEL USES A DISTINCT EMISSIONS ACCOUNTING APPROACH

GX Steel products can pool emissions reductions

- GX Steel can draw on emissions reductions from different processes and sites within a company, using accounting methodologies called ‘mass balance’ and ‘allocation method’.*
- These methodologies were developed by the Japan Iron & Steel Federation (JISF), the main industry association for blast furnace steelmakers in Japan.

Steel labelling outside Japan generally use embodied emissions

- Most international steel labels and taxonomies use embodied emissions, requiring a physical link between products and emissions reductions from particular processes and sites.¹

*See *Appendices* for more detail on how these methodologies work.

GX STEEL IS ELIGIBLE FOR SUBSTANTIAL POLICY SUPPORT

Supply-side support

Reduces the cost of converting blast furnaces (BF) to electric arc furnaces (EAF) and supports R&D into new emissions reduction technologies.

- Up to 1/3 of CAPEX for conversion of BFs to EAFs producing high-quality steel with at least 50% lower-emissions.
- 10 years of OPEX tax credits for the same EAFs, subject to plans to create at least 10% added value.
- Various R&D funding programs for emissions reduction technologies – primarily BF abatement, with a smaller amount-for EAF technology.

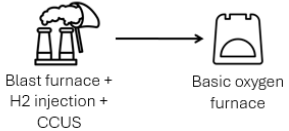
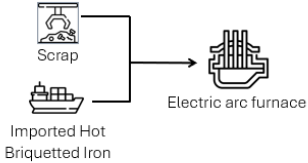
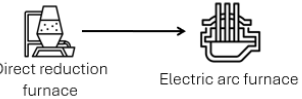
Demand-side support

Aims to increase market uptake of lower-emissions, premium-priced steel.

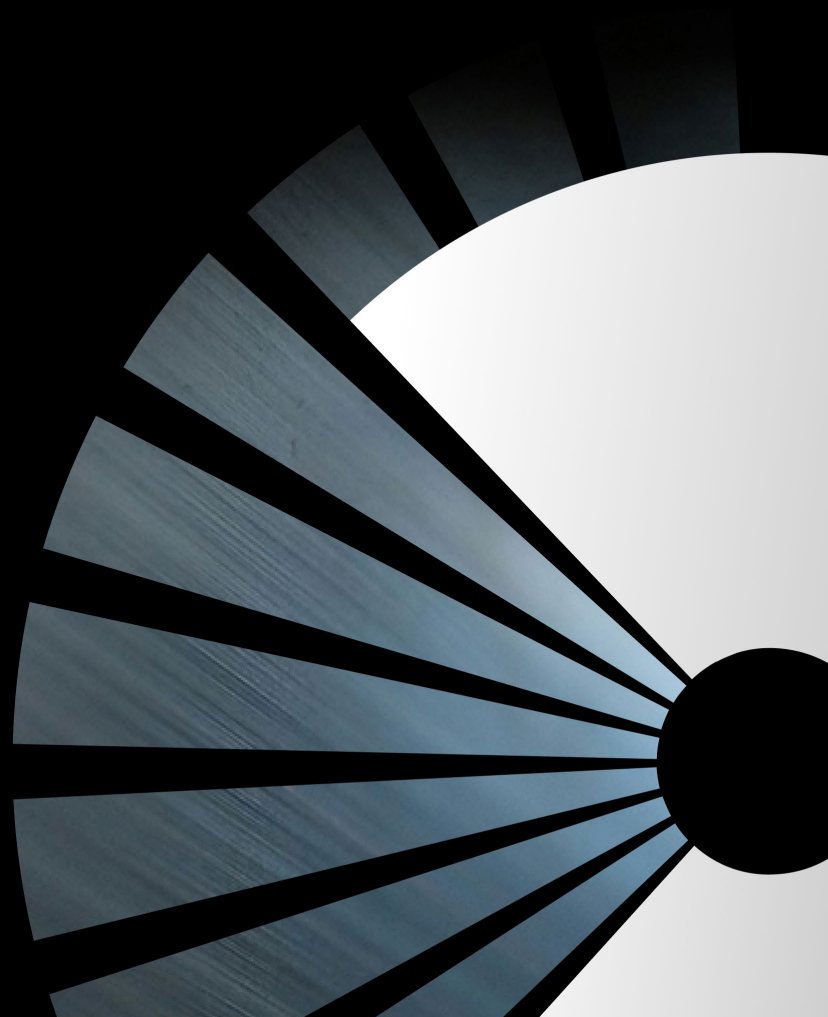
- Up to ¥50,000 in consumer subsidies per Clean Energy Vehicle* purchased.
- Priority procurement in public works (currently being piloted, reaching scale in 2030).
- GX Steel is included in zero-emissions building and shipbuilding subsidy programs.

EMISSIONS REDUCTIONS FOR GX STEEL CURRENTLY COME FROM BLAST FURNACE ABATEMENT AND NEW EAFs

Near-term decarbonisation will focus on blast furnace abatement and large-scale EAFs, while H₂-DRI-EAF remains a longer-term option.

Key technologies	Fossil fuel reliance	Decarbonisation potential	Technology maturity
BF with H₂-injection + CCUS ('COURSE50') 	High	30% in near-term 50%+ in long-term	Japan: R&D since 2008, 44.5% emissions reduction in 12m ³ experimental furnace, due for commercial deployment from FY2030. International: Limited pilots and early demonstration.
Large scale EAFs 	Low to Moderate	Over 50% in near-term	Japan: Under construction, due FY2028/29. R&D ongoing to ensure blast furnace product quality. International: Operating in various locations.
H₂-DRI-EAF 	Low	Near 100% in long-term	Japan: Under R&D, targeting maturity around 2040. International: Targeting commercial production in late 2026 or 2027.

KEY CONCERNS WITH GX STEEL



GX STEEL LABELLING DOES NOT RELIABLY INDICATE LOWER-EMISSIONS STEEL

GX Steel does not provide sufficient assurance of product-level emissions reductions

- **Not necessarily embodied emissions:** GX Steel products may not have lower embodied emissions because reductions can be pooled across different processes and sites.
- **Insufficient assurance for buyers:** GX Steel does not offer the transparency necessary to demonstrate that claimed emissions reductions are additional and result from credible decarbonisation investments.



The GX Steel 'mass balance' method differs from conventional mass balance approaches, which maintain a close link to physical material flows. The GX Steel method permits broader, less traceable pooling of emissions reductions.

GX STEEL IS NOT INTEROPERABLE WITH LEADING INTERNATIONAL STANDARDS

International standards are converging on embodied emissions approaches, not pooled emissions approaches

- Major international standards and emerging regulatory frameworks increasingly rely on **embodied emissions approaches**. Industry standards in Europe (LESS) and China (C2F), which cover 60% of global production, use embodied approaches. Emerging regulatory standards, such as CCTS in India and ESPR in the EU, use embodied approaches.
- GX Steel's **pooled emissions approach** is not widely recognised, including by the GHG Protocol or SBTi.

THIS LACK OF INTEROPERABILITY COULD LIMIT DEMAND FOR GX STEEL

Automakers, the largest potential customer group, have raised concerns about interoperability

“

Where GX Steel is incorporated into automotive policy measures or regulatory schemes, we request that implementation be aligned with internationally recognised rules and standards.

-- JAMA [Japan Automobile Manufacturers Association] [submission](#) to METI Environmental Technology and Policy Committee, May 2026 (machine translated from Japanese to English)



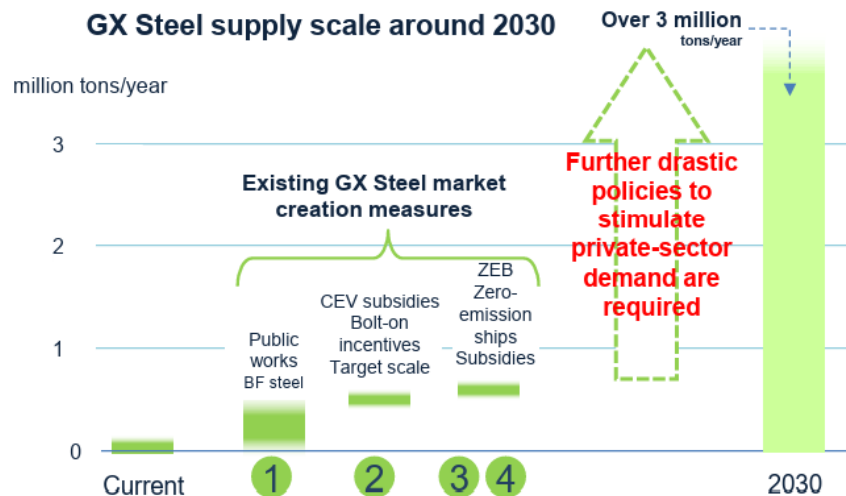
The Japan Iron & Steel Federation (JISF) is advocating for global adoption of GX Steel methodologies. This may be challenging given the prevalence of embodied emissions approaches.

CURRENT POLICY SETTINGS MAY BE INSUFFICIENT TO MEET THE GX STEEL TARGET

Nippon Steel estimates the GX Steel market will remain below 1 Mtpa in 2030, well short of the 3 Mtpa target

“ Further measures to drastically stimulate private-sector demand [are] required given the significant gap between future supply capacity and the foreseeable market size under current policies.

-- *Update on Developments, Investments and Market Creation*, May 2026



Source: Nippon Steel, *Update on Developments, Investments and Market Creation*, May 2026, p. 59

GREATER CLARITY ON GX STEEL TARGETS AND PROGRESS IS NEEDED

The government's GX Steel target appears to have been reduced...

- The [2023 GX Basic Policy](#) set a target-of 10 Mt green steel supply by FY2030.
- The [2026 Growth Strategy](#) instead sets a 3 Mt target for the domestic and international market for 'high-quality' green steel by the early 2030s, with no reference to the earlier 10 Mt target.

...and it remains unclear how the 3 Mt target can be achieved

- Policy roadmaps: limited information on how much demand will come from public and private procurement, or how much supply will come from blast furnaces and EAFs.
- Progress data: public information from the government and industry is insufficient for investors to independently assess progress.

THE GX STEEL APPROACH MAY DELAY THE STEEL TRANSITION

Weak lead market formation risks incentivising lower-impact investments while undermining higher-impact alternatives.

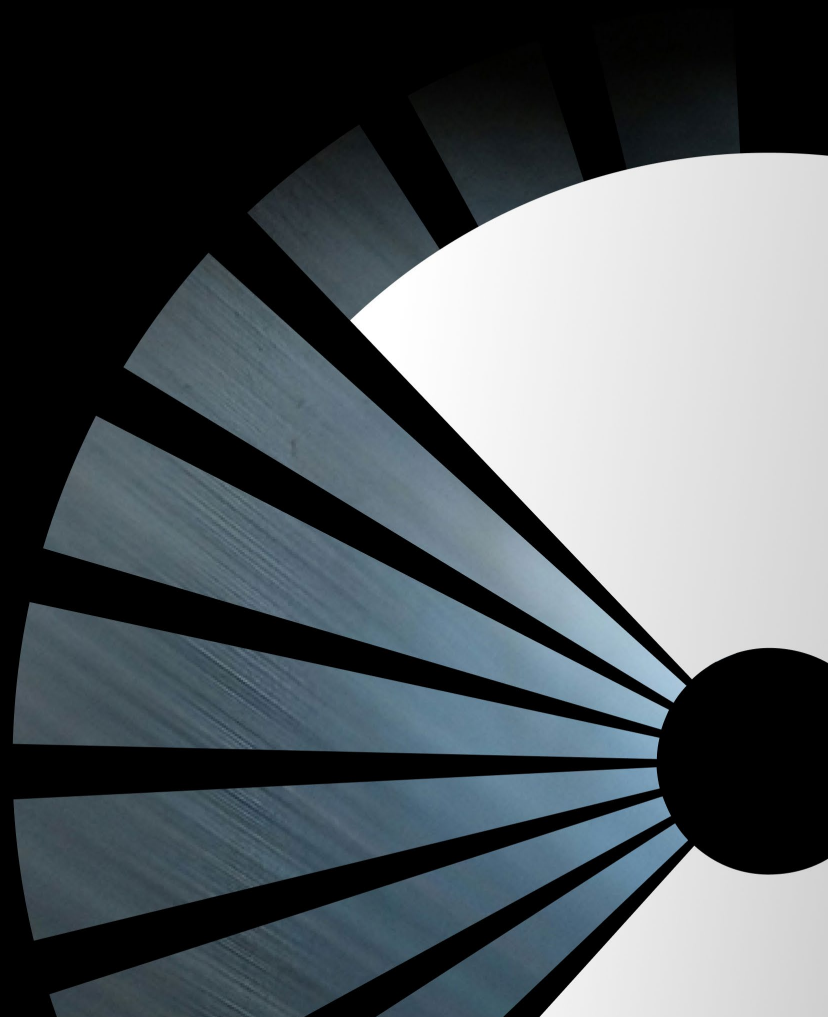
Risk of
incentivising
lower-impact
investment

- GX Steel may incentivise incremental improvements to existing blast furnaces. These investments face high technical and commercial barriers, and risk locking in coal use.
- They may also divert capital from technologies with greater decarbonisation and commercial potential, such as EAFs.

Risk of
undermining
higher-impact
investment

- EAFs due online in 2028 and 2029 **need sufficient demand at premium prices to achieve return on investment.**
- Low demand for premium-priced GX Steel **may also affect access to OPEX tax credits,** which are conditional on achieving 10% greater added value than a blast furnace.
- Insufficient returns on EAFs could **weaken confidence in future decarbonisation investment.**

IMPROVING GX STEEL



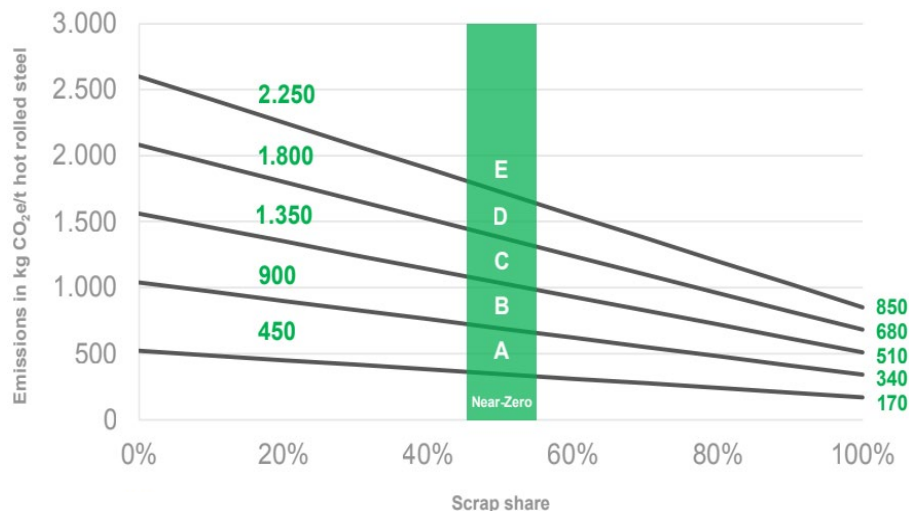
IMPROVING LABEL INTEROPERABILITY AND INTEGRITY

GX Steel should transition towards alignment with global embodied emissions standards.

- Japanese steelmakers and policymakers could develop a plan for creating and phasing in an embodied emissions methodology.
- Market and attribute-based methodologies (e.g. Book-and-Claim systems*), could complement a **foundational, embodied emissions approach**. These methods should be developed in consultation with international standard setters which are developing guardrails for such approaches.

*See RMI <https://rmi.org/resources/unlocking-low-emissions-steel-introducing-a-book-and-claim-framework-for-the-iron-and-steel-sector/>

Low Emissions Steel Standard (LESS) is an example of a leading steel label which uses embodied emissions and a sliding scale for scrap usage, to encourage decarbonisation investment



Source: [The Steel Decarbonisation Scale](#), Responsible Steel & Low Emissions Steel Standard (LESS)

STRENGTHENING THE ROADMAP FOR GX STEEL MARKET FORMATION

The Ministry of Economy, Trade and Industry (METI) could build market confidence by clarifying its plans for GX Steel.

- Targets: Confirming overall market formation targets and estimating the contribution of different support policies would help set expectations.
- Public procurement: Setting targets for public procurement of GX Steel would provide greater certainty about demand and expected premiums.
- Progress reporting: Tracking market development and policy impacts, including in the private sector, would support timely policy improvements.

JAPAN'S GROWTH AGENDA CREATES A ROLE FOR INVESTOR ENGAGEMENT ON GX STEEL

Japanese policy priorities support constructive engagement by long-term institutional investors

- A role for investors in Japan's renewed growth agenda: Prime Minister Takaichi is seeking to reinvigorate economic growth and capital productivity, and investors can play an important role in facilitating this through constructive dialogue with companies.
- GX Steel is an important engagement issue: GX Steel is a key part of Japan's new Growth Strategy. Investors have an interest in supporting a timely, robust GX Steel market that helps Japan's steel sector remain internationally competitive.

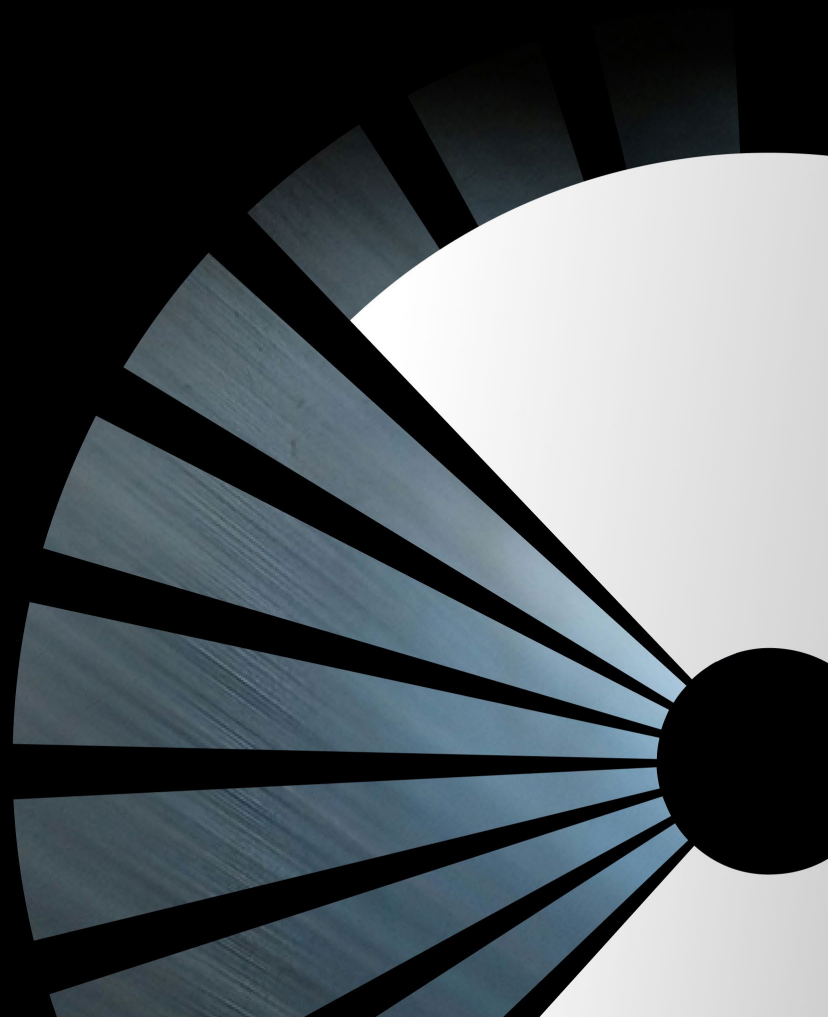
NOW IS A CRITICAL TIME TO ENGAGE, AS GX STEEL MARKET DEVELOPMENT AND STANDARDS ALIGNMENT ACCELERATE

- Industry and policymakers are focused on market formation. New EAFs need sufficient premium-priced demand to generate returns, while Japan is targeting a 3 Mtpa green steel market by the early 2030s.
- International standards are evolving. The EU will introduce embodied emissions steel labelling in early 2027, India is due to review its embodied emissions steel ratings in late 2027, and the GHG Protocol and ISO are developing an integrated corporate emissions accounting standard for 2027/28.

PRIORITY ENGAGEMENT APPROACHES FOR INVESTORS

Steelmakers	Ask Japanese blast furnace steelmakers and the Japan Iron and Steel Federation (JISF) to develop a plan to align GX Steel accounting with embodied emissions standards.
Steel buyers	Ask companies and industry associations in key Japanese demand sectors, e.g. automakers and construction, to identify the emissions information and policy support needed to scale GX procurement.
Policymakers	Engage METI on the need to align GX Steel with an embodied emissions approach, and improving transparency on market formation plans and progress.

APPENDICES



THE GX STEEL LABEL APPLIES ONLY TO NEW DECARBONISATION INVESTMENTS, NOT EXISTING LOW-EMISSIONS STEEL

To qualify for the GX Steel label, steel products must:

- Be produced by steelmakers that have invested in technologies to reduce scope 1 and scope 2 emissions, AND
- Have significantly higher production costs due to those investments.

 **Low-emissions steel from scrap EAF furnaces is not eligible for GX support**, because it does not result from new emissions reduction investments that increase production costs. The government recognises¹ the need to encourage purchases of non-GX, low-emissions steel, but has not yet-developed concrete measures for this.

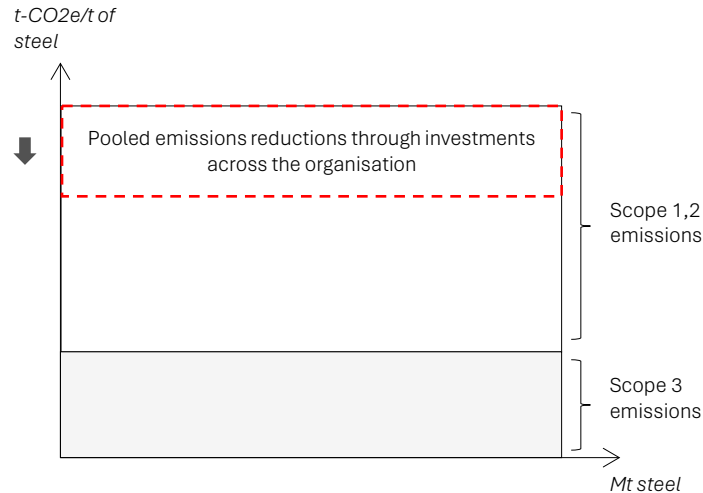
1. METI, Green Steel for GX, <https://www.meti.go.jp/files/900011785.pdf#page=33>

GX STEEL CAN BE SOLD WITH OR WITHOUT EMISSIONS REDUCTION CERTIFICATES

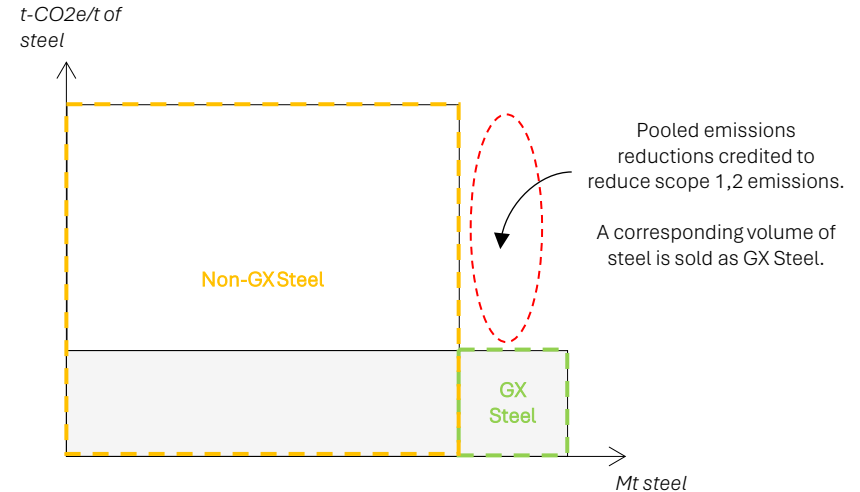
With emissions reduction certificates	Without emissions reduction certificates
<u>'Mass balance' method</u> • Full scope 1-3 data (i.e. Carbon Footprint of Product, CFP) before emissions reductions are applied is provided. <i>AND</i> • Certificates for pooled scope 1,2 emissions reductions (i.e. Reduced Emissions of Product, REP) are also provided.	<u>'Allocation' method</u> • Pooled emissions reductions are incorporated directly into CFP (i.e. CFP – REP) • No emissions reduction certificates are provided. • Full scope 1-3 data (CFP) is published separately.

EXAMPLE OF EMISSIONS POOLING UNDER GX STEEL

Scope 1,2 emissions reductions are pooled



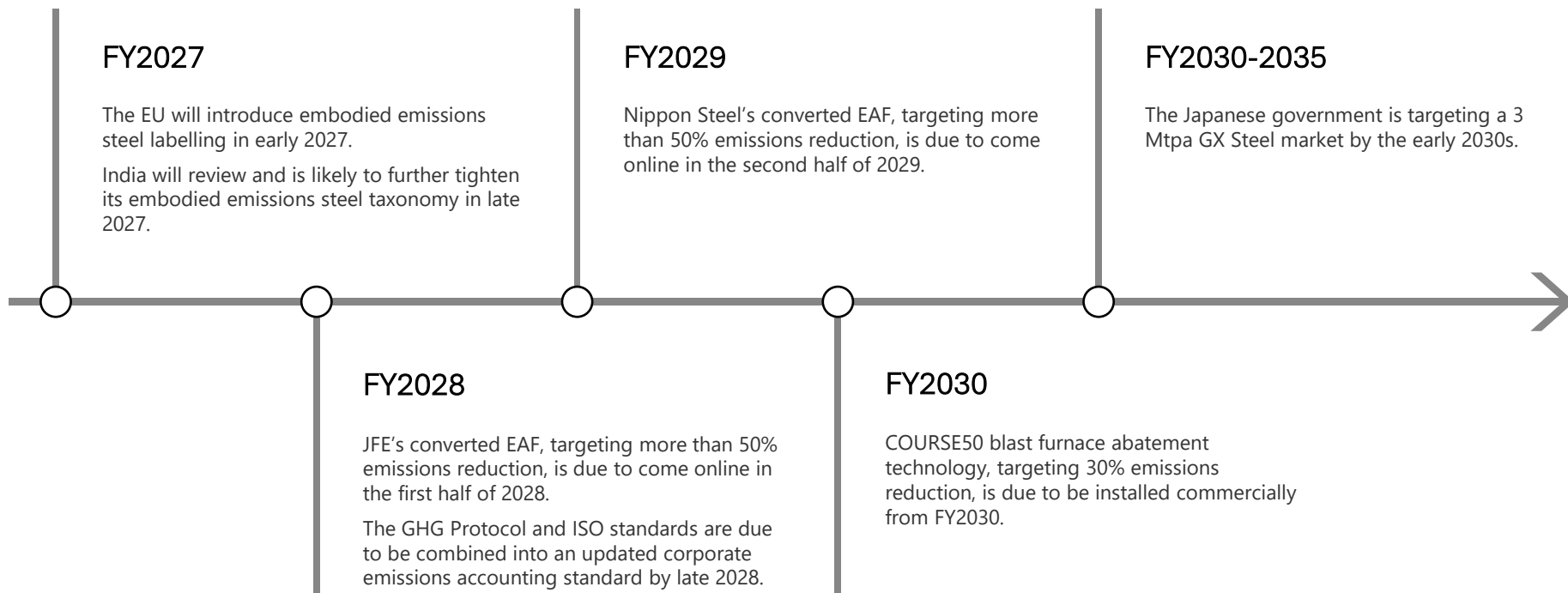
Reductions are credited to lower the reported emissions intensity of 'GX Steel'



Charts: Adapted from JISF, [English version of GX Steel Guidelines \(Revised January 2026\)](#), pp.3, 16

Note: The charts illustrate the 'allocation method', under which pooled emissions reductions are incorporated into product emissions data. Under the 'mass balance' method, the same pooling principle applies, but emissions reductions are instead reported through accompanying certificates.

THE LATE 2020S ARE A CRITICAL PERIOD FOR GLOBAL STEEL MARKET DEVELOPMENT



EXPANDED ENGAGEMENT APPROACHES FOR INVESTORS

Steelmakers	• <u>Transition to embodied emissions</u>: Ask for a plan to adopt embodied emissions accounting, starting with demonstrated transparency of emissions reductions sources in existing GX Steel products. • <u>International advocacy</u>: Ask for disclosure on whether the plan is consistent with international best practice and how companies are advocating internationally for embodied emissions approaches. • <u>Domestic advocacy</u>: Seek positive advocacy on clearer public procurement and GX Steel targets.
Steel buyers	• <u>Disclosure requirements</u>: Ask major steel-buying sectors (automotive, construction, etc.) to specify what information they require from suppliers on GX Steel – including product-level emissions and calculation methods. • <u>Public advocacy</u>: Request that purchasers take public positions on GX Steel labelling that reference embodied emissions and alignment with international standards. • <u>Procurement plans</u>: Request procurement plans that set targets for reducing procured steel emissions over time.
Policymakers	• <u>GXA</u>: Engage the GX Acceleration Agency on the need to align GX Steel with international standards. GXA is a cross-ministerial agency set up to engage stakeholders on GX-related topics. • <u>METI</u>: Request improved interoperability of GX Steel emissions accounting with embodied emissions standards; transparency on public procurement volumes and premiums; targets on GX Steel market formation; and reporting on progress of policy measures for private-sector purchasers (e.g. CEV steel subsidy).

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