TransitionAsia
ACCELERATING EAST ASIAN CORPORATE CLIMATE ACTION

JAPAN'S FY2024 CLIMATE ACTIONS: CORPORATE AND GOVERNMENT MOVES AS WELL AS URGENT PRIORITIES

Apr 2025

INTRODUCTION

Japan's fiscal year 2024 (April 2024 to March 2025) saw meaningful progress in the decarbonisation of its steel industry, with significant developments on both corporate and policy fronts. Corporations have increased their transparency via disclosures and made a number of notable official announcements. We are encouraged to see the government announce and implement several sets of subsidies to support the shift towards less carbon-intensive steelmaking processes. However, expedited efforts need to be seen from both.

KEY TAKEAWAYS

CORPORATE

- Increased disclosure and steps toward decarbonisation have occurred, but scalability and timelines need to be determined.
- Blast furnace (BF)-based steelmakers' investments in coal contradicts their carbon neutrality commitments, yet these investments continue.
- Electric Arc Furnace (EAF)-based steelmakers are forging ahead in producing low-emission steel, using renewable energy (RE) or renewable energy certificates (RECs) to support their decarbonisation efforts. However, stronger government support is essential to scale and sustain this progress.

GOVERNMENT/POLICY

- The transition away from excessive dependence on fossil fuels has been explicitly emphasised, with RE identified as the primary resource, but further RE installation is encouraged to ensure the stable and cost-competitive RE supply for the steel industry.
- The announced policy of financial support for steelmakers who are pivoting to low-carbon steel needs to be strengthened to fairly recognise EAF-based steelmakers, who have been producing lower carbon steel for decades.
- More progressive policies on increased scrap utilisation and incentives for demand-side buyers of low-carbon steel are needed to increase production.

BF STEELMAKERS: ENCOURAGING SIGNS WITH ROOM TO GROW

NIPPON STEEL: DECARBONISING AT A MODERATE PACE

i) Progress Made in Decarbonisation Technology, But Global and Domestic Peers Are Moving Faster

Nippon Steel has set out three decarbonisation programmes to achieve their climate commitments: 1) COURSE50 & Super COURSE50; 2) Hydrogen Direct Reduced Iron (H_2-DRI); and 3) EAF. All the three programmes have recorded some progress such as confirming more emission reduction efficiency in Super COURSE50, as well as completion of installment of a small-sized test EAF which is under a trial period from December 2024.[1] [2]

In March 2025, analysts from Transition Asia attended a plant visit hosted by Nippon Steel in Tokyo, where the Head of Decarbonisation Programmes shared that the company would give equal priority to all three decarbonisation pathways. While Nippon Steel has historically placed strong emphasis on its flagship projects, COURSE50 and Super COURSE50, this is a welcome signal that the company intends to increase its focus on DRI and, importantly, on EAF as well.

That said, progress on H_2-DRI appears to be lagging behind global competitors, such as European steelmakers and South Korea's POSCO, which plans to procure hot-briquetted iron (HBI) from Australia and is aiming for commercialisation by 2028.[3] [4] Domestically, JFE and Kobe Steel have already signed agreements to collaborate on HBI production with local authorities and iron ore businesses in the Middle East.[5] [6] If Nippon Steel intends to stay on par with both global and domestic competitors, more decisive action will be needed.

ii) Recent Coal Investments Raise Questions about Long-Term Climate Commitment

Nippon Steel made two significant announcements: the purchase of a stake in the Blackwater coal mine (Australia) in August 2024, followed by the purchase of a stake in the Kami iron ore project (Canada) to secure high-grade iron ore in December 2024.[7] [8]

It is understandable that the company aims to ensure the steady supply of high-quality metallurgical coal for use in COURSE50 and Super COURSE50 as well as securing access to higher-grade ore which will play a crucial role in high-grade steel production in all the three decarbonisation pathways. However, it is unclear from current disclosures how much coal is required to operate COURSE50 and Super COURSE50, and whether this would be compatible with Nippon Steel's commitment

1 https://www.nipponsteel.com/en/news/20241220_100.html
2 https://www.meti.go.jp/shingikai/sankoshin/green_innovation/energy_structure/pdf/028_05_00.pdf
3 https://www.prnewswire.com/apac/news-releases/posco-holdings-takes-first-step-in-developing-40-000-tons-of-green-hydrogen-production-in-western-australia-301959009.html
4 https://sustainability.posco.co.kr/S91/S91F10/eng/UI-PK_W009.do
5 https://www.kobelco.co.jp/english/releases/1211747_15581.html
6 https://www.itochu.co.jp/en/news/press/2022/220901.html
7 https://www.nipponsteel.com/en/news/20240822_100.html
8 https://www.nipponsteel.com/en/news/20241219_100.html

to achieving carbon neutrality by 2050. Analysis by Transition Asia has already demonstrated that the carbon intensity per USD1 in investment in this coal mine is more than double that of the company's equity investments on an annual basis.

JFE STEEL: UNSATISFACTORY DISCLOSURE CONTRADICTING PROGRESS

i) Progress on EAF and Carbon Recycling

JFE has outlined three pathways for achieving decarbonisation: 1) carbon recycling; 2) H_2-DRI; and 3) EAF. Carbon recycling is a technology to retrieve by-product gases and put them back into BFs after what is referred to as methanation processes that synthesise methane from those by-product gases and hydrogen. A 150m^3 pilot furnace is planned to be in operation from April 2025, with no detailed updates on the effectiveness of this approach and no updates on other DRI projects.[9] In April 2025, JFE made an epoch-making announcement regarding EAF, capitalising on government incentives. More of Transition Asia's views on this development are available here.

ii) Investment in Coal Casting Doubt on Achieving Carbon Neutrality by 2050

In August 2024, JFE announced the completion of its investment in the Blackwater coal mine.[10] However, the company has not disclosed further details such as how much coal will be supplied and over what period. This leads to concerns among a wide range of stakeholders such as financial institutions and shareholders who are closely looking at if this action truly would be aligned with JFE's own commitments to carbon neutrality by 2050, even how JFE plans to make it achieved while keeping consuming coal towards the future while no specific target for scope 3 and the groupwide target is disclosed yet.

EAF STEELMAKERS: TAKING THE LEAD IN LOW-CARBON STEEL

TOKYO STEEL: 0.1 TCO_2/T AND LOW PREMIUM VIA RE-POWERED EAFS

Tokyo Steel, the largest EAF steelmaker in Japan, launched the low-carbon brands "Enso" in June 2024 and "Hobo Zero" (meaning Nearly Zero in English) in July 2024. "Enso" is Tokyo Steel's global brand of low-carbon products distributed in collaboration with a world leading steel trader Stemcor.[11] "Hobo Zero" achieved a carbon intensity of 0.1t CO_2 per tonne of product through more procurement of RE to drive EAFs producing the product lineups.[12] Beyond this low intensity, the premium is also remarkably low at only JPY 6,000 (USD 42) per tonne which roughly equates to 6% of the original price.[13] This is extremely competitive in comparison to the mass balanced products which are defined as low-carbon steel by major BF steelmakers in Japan and is aligned with analysis on green steel economics by Transition Asia which demonstrated that green premiums would be lower than initially believed. Tokyo Steel is also increasing its share of the international market and received a large order from Singapore in February 2025.[14]

9 https://www.jfe-holdings.co.jp/en/common/pdf/sustainability/data/2024/sustainability2024e_A3.pdf
10 https://www.jfe-steel.co.jp/en/release/2025/03/250331.html
11 https://www.tokyosteel.co.jp/assets/docs/top/top_20240608-01.pdf
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14 https://www.tokyosteel.co.jp/assets/docs/top/top_20250206-01.pdf

YAMATO STEEL: STEPPING FORWARD WITH A COMBINATION OF OFFSETS & RE CERTIFICATES

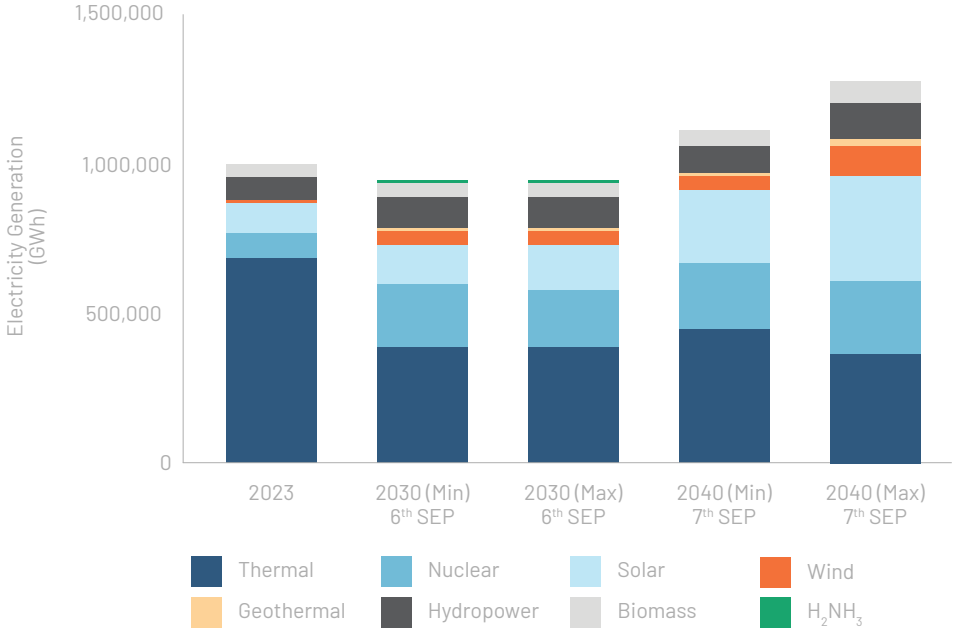
Another independent EAF steelmaker, Yamato Steel, also placed its low-carbon steel brand "+Green" on the market in May 2024.[15] +Green is a low-carbon steel brand utilising mainly offsets in addition to RE certificates, therefore it is another type of low-carbon steel different from Tokyo Steel's "Hobo Zero".[16] Even so, this is a positive step as one of EAF steelmakers who have less room to lower the volume of emissions due to the fact that emissions from EAF facilities are already fairly small.

POLICY DEVELOPMENTS

THE 7TH STRATEGIC ENERGY PLAN: FOCUS ON RE, BUT NEEDS OUTPACE PLANS

The 7th Strategic Energy Plan (7th SEP) which outlines the overall direction Japan will aim for in its energy policy was officially adopted by the Cabinet in February 2025. The key feature is the fact that RE is positioned as the top choice and dominant resource in Japan's policy for the very first time in its history. The 7th SEP made a clear commitment to reduce its dependence on fossil fuels which accounts for over 70% in Japan's energy mix. In the revised outlook for energy mix, fossil-fuel-based thermal power is projected to account for just 30–40% by 2040, while RE will become the largest source, making up 40–50%.

Figure 1. Projections of Japan's Energy Mix



Source: Agency for Natural Resources and Energy[17]

15 https://www.yamatokogyo.co.jp/en/news/news-408/
16 https://www.yamatokogyo.co.jp/en/steel/plusgreen/
17 https://www.enecho.meti.go.jp/committee/council/basic_policy_subcommittee/2024/067/067_006.pdf

Increasing RE will have significant impacts on emissions from the country's most polluting industries that rely on electricity. Steelmaking facilities driven with electricity instead of coal (i.e. EAF) requires a huge amount of electricity and therefore it is crucial to ensure a steady supply of RE at competitive costs.

THE GX2040 VISION: HOW SHOULD THE DEMAND FOR "GREEN STEEL" BE BOOSTED?

Another policy which was officially adopted by the Cabinet in February 2025 is the GX2040 Vision (simply "Vision" hereafter) which prescribes practical and specific measures to implement the directions set forth in the 7th SEP. The essence of the Vision is structured around three pillars as explained below.

i) Energy Policy: Improved But More Is Needed

The Vision commits to new emission reduction targets of 60% by fiscal year 2035 and 73% by fiscal year 2040. The steel industry also will be required to align their strategies with these targets. However, these targets are unambitious. In fact, even some business coalitions in Japan claim that these numbers are not aligned with the 1.5°C scenario and call on the government to set more ambitious targets.[18] [19]

ii) Industry Restructuring and Relocation: May Bring More EAF Steel Production

The government, led by PM Ishiba who heavily weighs "revitalisation of the rural", plans to promote industry relocation, including moving production facilities that require large amounts of electricity to regions being rich in RE resources. For EAF-based steel production, this type of policy may bring more benefits in regard to more stable RE supply with more reasonable prices.

iii) Green Product Market Creation: Support for All Types of Low-Carbon Steel

Green product market creation is expected to have significant impacts on Japan's steel industry. In response to signals on this from the government, the steel industry has been driving new "reduced emission product" programmes including products produced based on the mass balance method. However, the mass balance method faces criticism for its limited effectiveness as it will not lead to direct emission reduction in most cases at the global level.

While it is expected that the government will develop an incentive scheme describing what exactly applies, various technological and policy experts expect EAF-based low-carbon steel to be included. For now, while its larger effectiveness has been proved in the real industry scenes, EAF-based steel is not incorporated into the series of governmental financial support in an explicit way, such as in the Act on Green Procurement ("the Act").

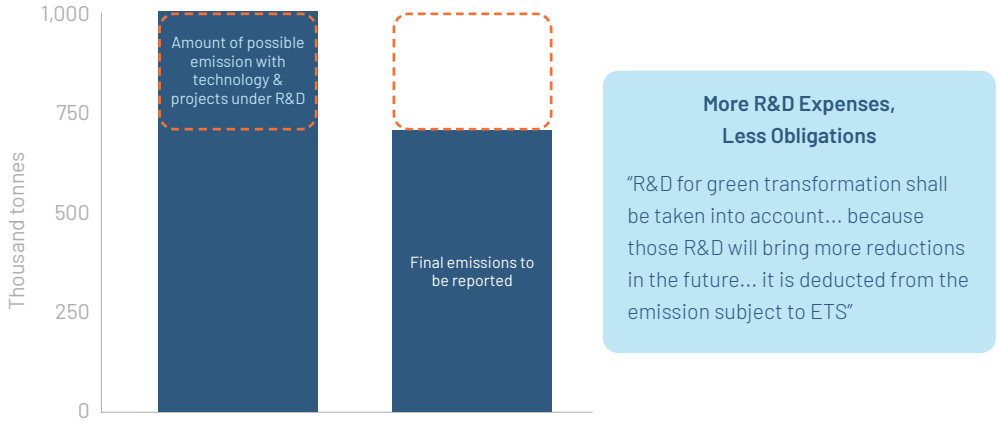
In regard to market creation, the carbon pricing initiative will be the most crucial policy in the Vision because it will provide incentive for decarbonisation. The

18 https://japanclimate.org/english/news-topics/jci-message-2035ndc-release/
19 https://japan-clp.jp/archives/16437

emission trading scheme (ETS) which is set to be launched in 2026 in Japan is likely to have a large impact on the steel industry because of the high level of greenhouse gases (GHG) the sector emits. This is evidenced by the latest government disclosure showing three of the top five emitters in the fiscal year of 2022 were BF steelmakers.[20] Notably, the majority of its emissions are direct emissions that are categorised as Scope 1 in the GHG Protocol and will fall under the regulation of the ETS.

However, it is expected that the major hard-to-abate industries are likely to enjoy free allocations from the beginning of ETS's implementation, in addition to exemptions depending on how much they spend on R&D projects (Figure 2). Expenses for R&D are likely to be taken into account in the process of figuring out quotas for each company.

Figure 2. Expenses to R&D Are Likely to Be Deducted



Source: Cabinet Secretariat[21]

NEW PROCUREMENT AND INCENTIVE POLICIES: EAF STEELMAKING LEFT ON THE SIDELINES

i) GX率先実行宣言 or "GX Leadership Declaration": Good Direction, Poor Coverage

The first incentive scheme for the demand side players has been implemented. The targets are consumers of designated products including steel, e.g. automakers, home appliances manufacturers and engineering companies in the construction sector. These incentives include:

- Advantages given in the governmental subsidy application processes
- Public promotion of companies that adopt green credentials

The overall direction is positive; however, it is unclear if EAF-based steel is covered by the incentive scheme.

20 https://www.env.go.jp/press/110542_00007.html
21 https://www.cas.go.jp/jp/seisaku/gx_jikkou_kaigi/carbon_pricing_wg/dai5/siryou2.pdf

ii) Act on Promoting Green Procurement: Raising Concerns over EAF-based Steel

The Act officially approved the amendment in February 2025 and defines what green products are and outlines how public bodies should prioritise those defined green products in their procurement processes. However, the Act has raised concerns due to its prioritisation of mass balanced steel in procurement, while low-carbon steel produced by EAF-based steelmakers using scrap is not explicitly included.

The Act requires all the steelmakers to align with guidelines of the Japan Iron and Steel Federation (JISF) whose board has many representatives from BF-based steelmakers.[22] [23] The validity of a definition of "green steel" by JISF is therefore under question, and should be overseen by the government with broader stakeholder consultation, including inputs from NGOs, academia and EAF-based steelmakers.

Additionally, the JISF's guideline which was amended in February 2025 bans certificates as a means to prove emission reductions.[24] This poses a serious challenge to EAF-based steelmakers because their emission reductions only happen in RE procurement de facto, which falls under Scope 2 and no flexibility to reduce Scope 1 emissions exists for them.

SUPPORT FOR EAF INSTALLATION BY METI: EXISTING EAF STEELMAKERS OUTCASTED

i) Tax Credit: Eyeing only BF steelmakers

In September 2024, the Act on Strengthening Industrial Competitiveness was officially amended.[25] This amendment determines that a tax credit of JPY 20,000 (USD 130) is given per tonne of low-carbon steel production. However, according to the ministerial orders defining the conditions over the tax credits, only steel produced with newly installed plants in conversion of production processes from BF-BOFs to EAFs.[26] [27] In other words, existing EAF steelmakers are not eligible for the subsidy, even if there is sufficient technological level of quality control or desire to upgrade their technology.

22 https://www.env.go.jp/content/000287536.pdf
23 https://www.jisf.or.jp/about/officer/documents/20250401yakuinmeibo.pdf
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27 https://www.meti.go.jp/policy/economy/kyosoryoku_kyoka/250084.pdf

ii) Subsidy for Clean Energy Vehicle (CEV) Using "Green Steel": Not Applied to Low-Cost Steel?

This scheme came out in January 2025 and states that JPY 50,000 (USD 330) will be given to each vehicle using "green steel", under various conditions.[28] [29] METI disclosed an overview of the subsidy scheme over CEVs on 31 March 2025, the very last day of the fiscal year of 2024.

The subsidy is to be given separately when CEVs utilise "green steel to drive GX", in addition to subsidies provided based on scoring in several other conditions. The point we should note here is what "green steel to drive GX" means. According to the definition set by the Study Group under the Japanese government, it means "steel produced in the process with additionality which leads to substantial emission reductions and significant price rises will be brought when those associated costs are added on".[30] That is, the subject steel which brings that JPY 50,000 is likely to be steel produced with the mass balance methods requiring around 30–40% or even a 100–200% premium in some cases, and EAF scrap-based steel is less likely to be accredited because those scrap-based steel has no significant price rise.[31] [32]

CONCLUSION

Welcome moves have been witnessed on the corporate side in FY 2024. Increased scope and disclosure on target setting, as well as lobbying activities, have been announced in the last 12 months. While technological advances will take time to mature, the immediate priority lies in responding effectively to growing demand for low-carbon steel. EAF-based steel, already recognised globally for its lower emissions and cost efficiency, remains a key solution. In the near term, how steelmakers unlock the full potential of the EAF pathway and how the government supports this transition will be critical.

On the policy side, recent initiatives such as tax credits and subsidies for new EAF installations are welcome signals. However, the details of these programmes reveal clear gaps. Existing EAF steelmakers are often excluded, despite their vital role in the sector's decarbonisation. In addition to supporting new EAF installations by BF steelmakers, it is equally important for the government to incentivise upgrades or replacements of existing EAFs with newer, more efficient models.

The same applies to support for operation costs and demand creation too; The tax credit scheme and the public procurement policy must incorporate EAF-based steel. A more inclusive and effective policy landscape—one that supports both new entrants and existing players is essential to accelerating the decarbonisation of Japan's steel industry. Achieving this will require decisive leadership from the government, in addition to strong partnership with corporations.

28 https://www.meti.go.jp/policy/mono_info_service/mono/automobile/cev/r6CEV.pdf
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32 https://www.nikkei.com/article/DGXZQOUC175TI0X11C23A0000000/

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