TransitionAsia
ACCELERATING EAST ASIAN CORPORATE CLIMATE ACTION

KEY POLICY DEVELOPMENTS IN JAPAN FOR THE STEEL INDUSTRY

Feb 2025

At the end of 2024, the Japanese government released several new policy documents. These policy documents have significant importance for Japan's energy strategy through 2030 as well as driving decarbonisation of the industry with a goal of carbon neutrality by 2050. This document summarises the key points of these policies that are likely to have the greatest impact on the industry. It also explores their potential implications and provides policy recommendations, particularly in the context of the steel industry.

While the **7th Strategic Energy Plan (SEP)** does not specifically address the steel industry—or any other sector—it outlines overarching frameworks rather than industry-specific strategies. This document focuses on the key aspects that are most relevant to steel decarbonisation while demystifying the 7th SEP, the **GX2040 Vision** and relevant policies such as the **GX Leadership Declaration** and the **Act on Promoting Green Procurement**.

KEY TAKEAWAYS

- The Japanese government's priorities clearly reflect global trends, demonstrating that energy and decarbonisation policies are closely integrated with the industrial policies which are indispensable for Japan's overall economic growth.
- The transition away from excessive dependence on fossil fuels is explicitly emphasised, with renewable energy (RE) identified as the primary resource, nevertheless, further RE installation is encouraged to ensure the stable and cost-competitive RE supply for the steel industry, which will demand a greater volume of decarbonised power.
- The Japanese government has outlined its target for hydrogen pricing and availability, but it lacks ambition in addressing costs and supply challenges, which remain significant barriers to its practical commercial use, especially in the steel industry.
- The announced policy drafts, the amendment to the Public Procurement Act, needs to be strengthened to fairly recognise and incentivise electric arc furnace (EAF) steelmakers, who have been producing low-carbon steel for decades.
- More progressive policies are needed for the decarbonisation of the steel industry, including increased scrap utilisation and incentives for demand-side actors committed to procuring low-carbon steel.

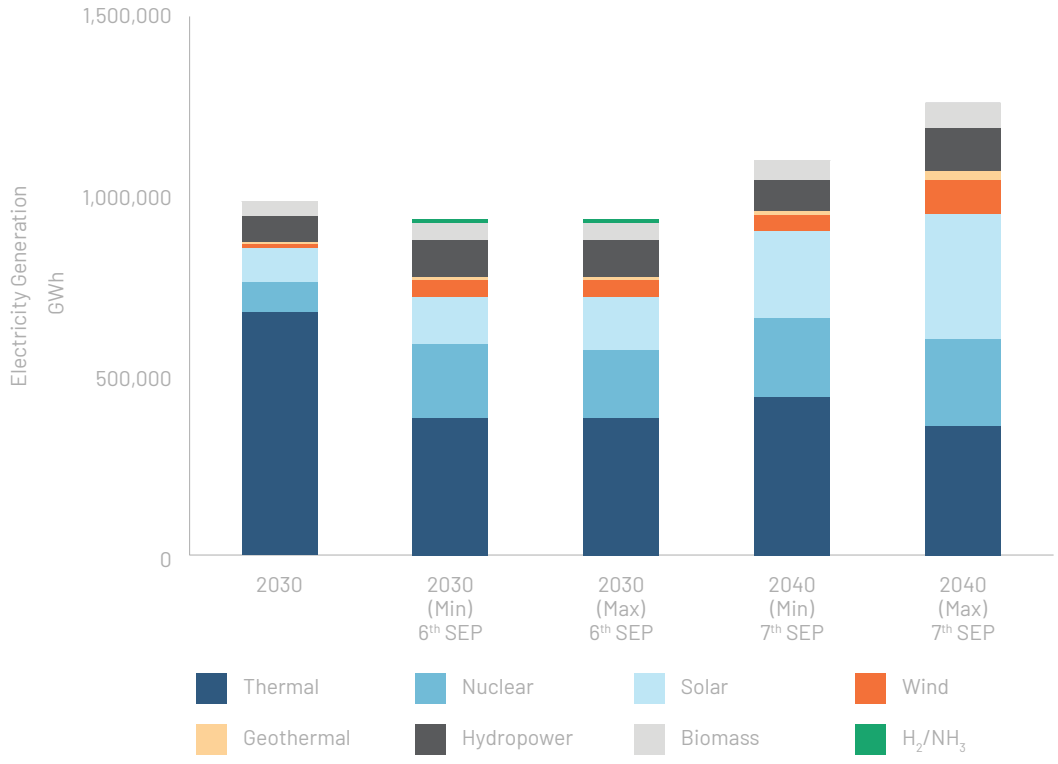
THE 7TH STRATEGIC ENERGY PLAN

MORE RE TO BE INSTALLED TO ENSURE THE COMPETENCY

The SEP is the foundation of Japan's energy policy, revised every three years. The draft of the 7th SEP, released at the end of 2024, outlines energy policy directions and projections for the energy mix, guiding public and private organisations for the next three years. It emphasises the close connection between energy and industrial policy to maintain and enhance Japan's competitiveness.

One of the key highlights of the 7th SEP is Japan's clear commitment to reducing its dependence on fossil fuels. Fossil fuels currently account for over 70% of the electricity supply in Japan.[1] Within this draft, fossil-fuel-based thermal power is projected to account for just 30–40% by 2040, while renewable energy (RE) will become the largest source, making up 40–50% of Japan's energy mix. This is the very first time in history that RE is positioned as the top choice and the dominant resource in Japan's policy. This priority change will have significant impacts on emissions from the country's most polluting industries that rely on electricity, including automotives, electronics, and steel.

Figure 1. Projected Energy Mix



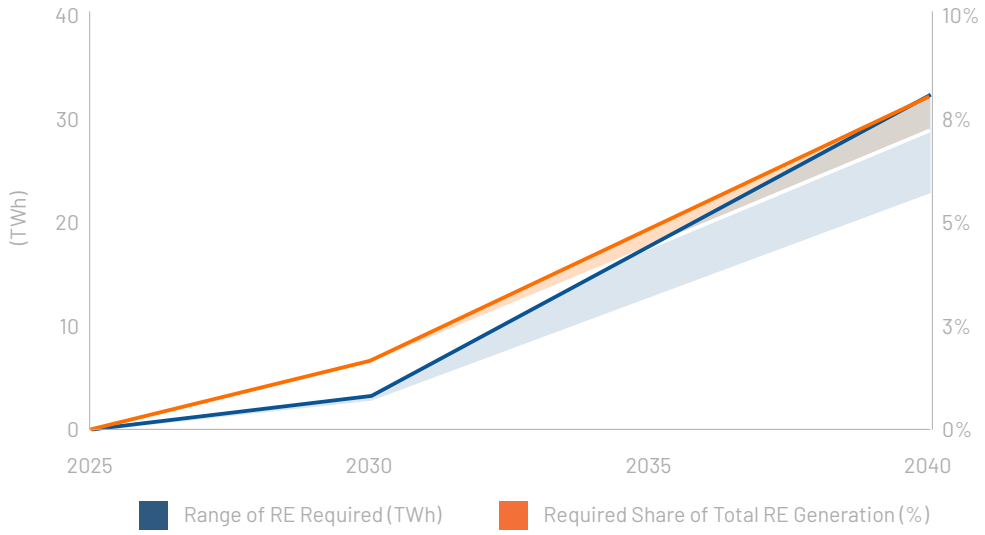
The total electricity generation in 2040: Approximately 1.1–1.2 trillion kWh

Source: Agency for Natural Resources and Energy [2]

1 https://www.enecho.meti.go.jp/about/whitepaper/2024/pdf/whitepaper2024_all.pdf
2 https://www.enecho.meti.go.jp/committee/council/basic_policy_subcommittee/2024/067/067_006.pdf

One of the most effective and quickest solutions for decarbonisation of the steel industry is electrification of the production process which is realised through more installation of electric arc furnaces (EAF) that are driven by electricity instead of blast furnaces (BF) reliant heavily on fossil fuel. According to our analysis, decarbonising the steel industry through shifting to EAF-based pathways will require an additional 3TWh of RE or 0.5% of Japan's total electricity generation by 2030 and 5–7% by 2050 to reach near zero emissions steel production. This translates to 7–8% of total RE generation in 2040 being allocated to the steel sector, a realistic and achievable target that will ensure the industry's competitiveness even without fossil fuels as the primary resource.

Figure 2. RE Required for Steel Sector Decarbonisation



Source: Transition Asia

HYDROGEN SUPPLY AND PRICE TARGETS FALL SHORT OF INDUSTRY NEEDS

The 7th SEP outlines hydrogen (H_2) availability and cost targets too, but these appear insufficient for the decarbonisation of the steel industry. H_2 is used in the steel industry as an alternative to fossil fuels in reducing iron ore to iron (DRI), which is then made into steel in a process called H_2-DRI. The plan targets 12 million tonnes of H_2 by 2040 and
20 million tonnes by 2050. However, Japan Hydrogen Association (JH2A), a leading national business organisation representing the H_2 supply chain, with members ranging from the largest banks to automakers, estimates that the steel industry alone requires 20 million tonnes of H_2 by 2050 and the total H_2 demand in all the industries will reach
at almost 70 million tonnes at least.[3] Furthermore, the 7th SEP aims for JPY 30/Nm^3 or JPY 333/kg (approximately USD 2.14) by 2030 and JPY 20/Nm^3 or JPY 222/kg (approximately USD 1.43) by 2050, but Japan's largest steelmaker, Nippon Steel, said that the required price level needs to be as low as JPY 8/Nm^3 or JPY 88.8/kg (approximately USD 0.57) for large-scale adoption.[4] More ambitious targets and practical government-driven measures are needed to meet these demands.

3 https://fc-cubic-event.jp/wp-sympo/wp-content/uploads/2023/12/12th-sympo-pot-doc2.pdf
4 https://www.meti.go.jp/shingikai/enecho/shoene_shinene/suiso_seisaku/pdf/005_01_00.pdf

THE GX2040 VISION: MARKET CREATION IS THE KEY, BUT HOW?

The draft of the GX2040 Vision ("Vision") was another policy document released at the end of last year, prescribing practical and specific measures to implement the directions set forth in the 7th SEP.

The essence of the Vision is structured around three pillars; 1) energy policy, 2) industry restructuring and industry relocation, and 3) market creation. The energy policy is not discussed in detail here, as it has already been addressed in other policy sets and is summarised and reaffirmed in the Vision (key points of Japan's energy policy are summarised in this report by Transition Asia). While the steel industry does not feature prominently in the GX2040 Vision, several key points relevant to the sector are highlighted below.

ENERGY POLICY

More Ambitious Emission Targets Needed

The Vision sets emission reduction targets of 60% by fiscal year 2035 and 73% by fiscal year 2040. All industries, including the steel industry, will align their strategies with these targets. However, even some business associations claim that these numbers are not aligned with the 1.5°C scenario and call on the government to set more ambitious targets.[5] [6]

INDUSTRY RESTRUCTURING AND RELOCATION

Relocation May Unlock More EAF Steel Production

In the industry restructuring section, the Vision highlights that the green transformation is a significant opportunity to overcome stagnation and foster innovative businesses. This includes comprehensive management of the entire supply chain, giving priority to high value-add intermediate goods, and effective strategies for end-market sales, for instance. The government also plans to promote industry relocation, such as moving production facilities that require large amounts of electricity to regions rich in RE resources. While no visible nor tangible moves have been made yet, the steel industry's EAF- that rely on a lot of electricity should be prioritised in this effort. EAF-based steel emits significantly less emissions compared to traditional steelmaking facilities, BF, that rely on fossil fuels (the effectiveness of EAF is demonstrated in another report by Transition Asia).

GREEN PRODUCT MARKET CREATION

All Types of Low-carbon Steel Must Be Supported

Regarding market creation, which is expected to have significant impacts on the steel industry, the Vision emphasises the importance of "visualising the value of green products". This involves quantifying aspects such as the carbon footprint (CFP) of products, emission reductions achieved during production, and contributions to societal decarbonisation, such as potential emissions reductions during product usage. The steel industry in Japan has been pushing forward with new "reduced emission product" programmes in response to these initiatives. However, these programmes have faced criticism for their limited effectiveness in achieving actual emission

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

reductions, and more claims that EAF-based low-carbon steel also should be incorporated explicitly into the incentive schemes are coming up, as detailed in the "New Procurement and Incentive Policies" section below. Additional discussions, including labelling and certification schemes, as well as carbon pricing mechanisms related to market creation, are currently underway and will be explored further.

CARBON PRICING INITIATIVE

Emission Trading Scheme a Prime Opportunity to Target Heavy Emitters

The most critical component of the pillar of market creation and even the Vision as a whole is the carbon pricing initiative. The emission trading scheme (ETS) will be launched from 2026 in Japan, and it will give huge impacts to the steel industry because the steel industry is one of largest GHG emitters. Notably, the majority of its emissions are direct, which will fall under the regulation of the ETS. The details of the Japanese ETS are still at the discussion stage and have not yet been officially approved. A deeper analysis will be provided in a forthcoming report, which will be made available on our website.

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

GX率先実行宣言 "GX LEADERSHIP DECLARATION"

On the Right Track, But the Scope of Covered Products Should Be Expanded

The policy worth analysing first is the GX率先実行宣言, which can be translated into English as "GX Leadership Declaration".

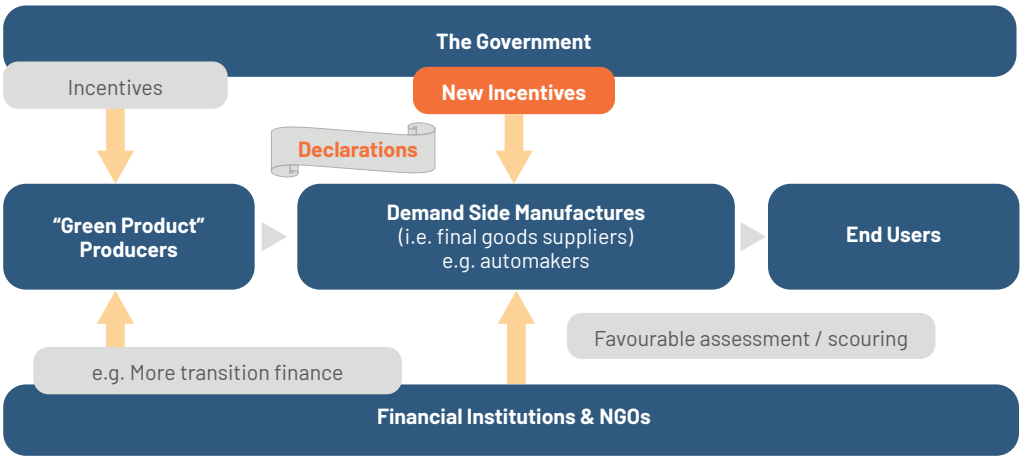
Subject	The Declaration is voluntary and can be arbitrarily made by demand-side companies (final goods suppliers).
Content	Describing procurement programmes for the specified "green products*" with no restriction on types or volumes.
Structure	"Gold", "Silver", "Bronze" are awarded based on the specificity of the programmes, and incentives are provided to companies making declarations.
How to Ensure the Effectiveness	The Secretariat discloses the companies' names and the contents of their declarations, and will conduct follow-ups with the companies.

Source: Cabinet Secretariat[7]

** The products subject to the Declaration are prescribed in another policy. It includes EV (and relevant ones), green steel, green chemicals, sustainable aviation fuel (SAF) and semiconductors. Importantly, the mass-balanced products are likely to be incentivised whereas it is unclear if scrap-based low-carbon steels will be so too.*

As the table above illustrates, the initiative is the policy giving incentives to the demand side companies who procure "green products" including low-carbon steel. This is a welcome signal in a general sense because the market creation never will go successful without incentivising the consumers of the green products. The incentives in this case will be some favourable evaluations in application processes of the governmental subsidy, in case that companies who made declarations seek for, and disclosure by the government of the names of companies making declarations so that the general public can select the products supplied by those companies, according to the disclosed materials for now. The overall structure is mapped out in the diagram below.

7 https://www.cas.go.jp/jp/seisaku/gx_jikkou_kaigi/carbon_pricing_wg/dai5/siryou2.pdf



Source: Cabinet Secretariat[8]

However, the initiative seems good in a general sense though, the problem for the steel industry will be the fact that scrap-based low-carbon steel produced by EAF steelmakers may be made to remain out of the scope of the initiative. Scrap-based low-carbon steel has already proven its reduction effectiveness for decades and is widely recognised for its decarbonisation potential. Besides, the additional costs on top of the mass-balanced products, the 'emission reduced products' that are produced with the BF pathway, are at least 30–40% and reach at 100–200% in some cases although the additional costs of scrap-based steel products are only a few percent (See our note in this report for a clearer explanation of mass-balanced products). The government should expand its coverage of priority to scrap-based steel too, not only the mass-balanced products in a view of emission reduction effectiveness and costs both. Again, scrap-based low-carbon steel does exist, be distributed and be used widely everywhere at every corner in the world. Its emission reduction effectiveness has already been scientifically affirmed; its emission intensity is 0.4 t-CO_2/t at the average against over a 2.0 t-CO_2/t of the conventional BF-based iron and steel making process which consumes a huge volume of coal. Although this initiative is still in discussion and not officially approved yet, the government has to ensure that scrap-based low-carbon steel also is incorporated into the product lineup subject to the incentives.

ACT ON PROMOTING GREEN PROCUREMENT AND THE GREEN STEEL STUDY GROUP

More explicit prescriptions are encouraged to drive decarbonisation of the wider industries

In addition to all the policies explored above, another key policy to be implemented is the Act on Promoting Green Procurement. The Act defines green products and outlines how public bodies should prioritise those defined green products in their procurement. At the end of 2024, a draft amendment to the Act was released, followed by a public consultation. However, the draft has raised concerns due to its prioritisation of mass-balanced steel in procurement, while low-carbon steel produced by EAF steelmakers using scrap is not explicitly included.

In fact, some suppliers to the public sector are already facing confusion and concerns because their products use scrap-based low-carbon steel, which helps reduce their own emissions. The government must explicitly prescribe scrap-based low-carbon steel as a priority in the public procurement processes. Without this, scrap-based low-carbon steelmakers will be put into unfair positions and goods suppliers also can not procure those low-carbon steel with confidence. This will be counterproductive to the decarbonisation effort of both the public sector and even private

8 https://www.cas.go.jp/jp/seisaku/gx_jikkou_kaigi/carbon_pricing_wg/dai5/siryou2.pdf

manufacturing industries who are striving to procure EAF-based, low-carbon steel to achieve their own decarbonisation goals.

A study group of green steel under the Ministry of Economy, Trade and Industry (METI) which has been leading Japan's green transition policies disclosed the final policy recommendations in January 2025. However, the recommendations paper states that the study group understands that some claims were made calling for incorporating EAF-based low-carbon steel into the governmental support schemes, nevertheless, that type of discussion should be carried out on other occasions in line with the national energy policies. This is because this study group's primary focus has been on how to reduce direct emissions from the BF-based iron and steel making processes, the final disclosure explains.[9]

The examples above clearly show, the Japanese government's focus has been, and continues to be, on BF-based steel, leaving EAF-based low-carbon steel entirely out of scope - not even at the fringe of discussions. Some favourable policies have been discussed and will be implemented to promote low-carbon steel production by the steelmakers and procurement by the demand side. For instance, the amendment of the act on strengthening industrial competency which gives a tax credit of JPY 20,000 (approximately USD 130) per tonne of low-carbon steel production,[10] [11] as well as a direct financial support up to JPY 50,000 (approximately USD 320) per clean energy vehicle (CEV).[12] However, the crucial issue which should be noted here is that it is unclear if scrap-based low-carbon steel may be listed up as one of the subject materials. Japan has a fairly advantageous position in terms of EAF-based steel production for its costs, for instance, even in a global comparison (the cost analysis by Transition Asia demonstrates remarkable results). Policies must be designed to ensure fair evaluations and adequate incentives for EAF steelmakers, alongside larger BF steelmakers, to enable all industries to contribute meaningfully to the nation's decarbonisation targets.

9 https://www.meti.go.jp/shingikai/mono_info_service/green_steel/pdf/20250123_2.pdf
10 https://www.meti.go.jp/english/press/2024/0902_001.html
11 https://www.meti.go.jp/policy/economy/kyosoryoku_kyoka/senryaku_zeisei.html
12 https://www.meti.go.jp/policy/mono_info_service/mono/automobile/cev/r6CEV.pdf

DATA AND DISCLAIMER

This analysis is for informational purposes only and does not constitute investment advice, and should not be relied upon to make any investment decision. The briefing represents the authors' views and interpretations of publicly available information that is self-reported by the companies assessed. References are provided for company reporting but the authors did not seek to validate the public self-reported information provided by those companies. Therefore, the authors cannot guarantee the factual accuracy of all information presented in this briefing. The authors and Transition Asia expressly assume no liability for information used or published by third parties with reference to this report.

OUR TEAM

Head of Impact
Lauren Huleatt lauren@transitionasia.org
Japan Analyst
Kenta Kubokawa kenta@transitionasia.org
ESG Junior Research Fellow
Akira Kanno akira@transitionasia.org

ABOUT TRANSITION ASIA

Founded in 2021, Transition Asia is a Hong Kong-based non-profit think tank that focuses on driving 1.5°C-aligned corporate climate action in East Asia through in-depth sectoral and policy analysis, investor insights, and strategic engagement. Transition Asia works with corporate, finance, and policy stakeholders across the globe to achieve transformative change for a net-zero, resilient future. Visit transitionasia.org to learn more.