

A NEW YEAR'S REFLECTION  
ON GX GREEN TRANSFORMATION

# Three opportunities for Japan in 2025

Japan has shown global leadership with its GX Transformation Plan.

A new leadership must now plan the next steps in this mission, against a backdrop of increased geo-political tensions, and the challenge of domestic regional revitalisation.

In this context, Climate Bonds sees three areas of policy opportunity for the coming year.

1. National energy security through (green) regional revitalisation.
2. Global leadership on transition solutions.
3. Make Tokyo Asia's transition finance capital.

## 1. National energy security through (green) regional revitalisation

In a world of severe geo-political instability, Japan's reliance on energy imports presents risks to national security.



The country currently depends on foreign sources for 99.7% of its oil, 97.7% of its liquefied natural gas (LNG), and 99.6% of its coal needs.<sup>1</sup>

The risks range from supply interruption to price volatility and industrial supply chain disruptions.

Japan has an opportunity to change this situation by supporting the rapid growth of clean energy. Multiple studies demonstrate that if challenges around grid connections and offshore wind power were addressed, Japan could quickly get to 60-70% by 2035.<sup>2</sup> This would require a huge effort by Japanese industry and capital, but it is possible.

Japan could grasp more leadership opportunities in floating offshore wind, perovskite solar, and many other technologies.

The country would still have to import some fuel for heat (such as hydrogen and ammonia), but volumes would be kept manageable.

Japan has nuclear; but even if all the plants were reopened it would still only meet 20% of the country's electricity needs.

However, there are massive untapped wind energy resources, especially

around Hokkaido and could mobilise its solar resources more effectively. At present, utilities are not required to prioritise solar inflows when available and as a result, a large proportion of solar already generated in Kyushu is wasted. Extra solar capacity from Kyushu, and wind power originating from Hokkaido cannot be sold to the Tokyo market because of inadequate grid connections.

A rapid upgrade of the national grid would unleash the power of renewable energy in Japan. Japan's Ministry of Economy, Trade, and Industry (METI) already has a plan to address this, and Japan has the capital for what would be very safe and long-term fixed income investments.

Japan's engineering firms are among the best in the world with the ability to build quickly. The missing piece is planning permission but policy could be introduced to fast track the relevant permits.

### Recommendations:

- 1.1.** Rapid implementation of METI and the Organisation of Cross-regional Coordination of Transmission Operators' (OCCTO) JPY 7 trillion 'Master Plan' to strengthen interregional transmission lines which support regional access to Tokyo's energy market. The plan includes a 6-8 GW transmission line to connect Hokkaido and Tokyo.<sup>3</sup>
- 1.2.** Rapid reform of renewable energy regulations to boost regional development. This would include revamping clean energy support policies to be in line with other G7 countries and fast-tracking wind and solar energy approvals.
- 1.3.** Shifting new energy intensive industries, such as artificial intelligence (AI) data centres, to regions with clean energy resources. Regional GX initiatives to enable green growth.
- 1.4.** Regions like Hokkaido can go faster than Japan's national transition and invite investment, such as data centres using renewable energy, also creating jobs and boosting industry.

As geo-political tensions are expected to grow, energy security is a critical issue.

The favourable economics of renewables present an opportunity for Japan to quickly establish energy security. This will build Japanese industries that will be in great demand globally while lowering energy costs and revitalising regional economies.<sup>4</sup>

## 2. Global leadership on transition solutions and finance

Governments globally, particularly those in ASEAN, are developing transition strategies to transform their industries and economies, and facilitate the achievement of net zero. Action on transition is accelerating in the region; the Indonesian President, for example, has recently announced an accelerated phase-out of its country's coal-fired power stations.



This is creating major opportunities for businesses well placed to respond to the transition in industrial, energy, and transport sectors.

The achievement of climate goals depends on access to available technologies and access to capital. Japan has both.

Domestically, Japan has already made major commitments to reduce emissions, reinforced through the Green Transformation (GX) Plan. It has issued the world's first sovereign climate transition bond, thereby creating a clear financing channel to support green expenditures.

Leadership will include embracing and promoting science-based pathways to transition. Japan's advocacy of (green) ammonia as a potential fuel source to meet emission reduction targets is an example of this. Research and development shows that this could be a useful part of the required decarbonisation, as defined in the International Energy Agency's (IEA) Net-Zero pathways.

However, LNG is a challenge because of the dangerous levels of methane leakage across supply chains which has been demonstrated by research and satellite monitoring. These fugitive emissions are very potent, so gas can no longer be easily considered as a transition fuel. Further detail is provided below.

Emissions reduction will not protect the ASEAN region from the impacts of climate change, which are already being widely felt. Countries are beginning to prepare for volatile weather events, which are expected to increase in both frequency and severity, by improving the resilience of infrastructure, economies and societies.

Disaster preparedness is an area where Japan has experience and expertise, and has developed strategies, from technology to insurance services, which will play an important role in the region.

Japan (along with other developed economies) can help ASEAN countries to green and grow in the next decade.

### Recommendations:

**2.1.** Ensure the credibility of Japan's transition measures by maintaining and promoting a science-based approach. For emissions reduction that should draw on the work of the Intergovernmental Panel on Climate Change (IPCC), working with international organisations agencies such as the International Energy Agency (IEA) and the Economic Research Institute for ASEAN and East Asia (ERIA). For resilience measures, collaborating with agencies like United Nations Office for Disaster Risk Reduction (UNDRR) and United Nations Development Programme (UNDP) will yield benefits.

**2.2.** Collaborate with agencies like the Asian Development Bank, to support country-specific and sector-specific transition and economic development for ASEAN countries.

This could include support to follow Japanese thermal power company JERA's model of consolidating fossil fuel energy assets and expertise to accelerate transition while ensuring energy security. This approach can be designed to be consistent with the IEA Net-Zero pathway for ASEAN countries, balancing affordability and decarbonisation.

**2.3.** Support resilience programmes in ASEAN countries by providing technical guidance and infrastructure solutions by expanding the mandates of international collaborations to address climate resilience.

Collaboration with Japan's world-class insurance sector could support regional preparation for climate risks.

## 3. Make Tokyo Asia's transition finance capital

Japan has three major strengths to support the global transition that is now underway:

- i.** A strong financial services sector that has global reach. Mitsubishi UFJ Financial Group (MUFG) is one of the ten largest banking holding companies in the world.
- ii.** Substantial pools of capital with the mandate to support a global transition that are permitted to invest internationally. As an example, see Nippon Life's Transition Finance Framework.<sup>5</sup>
- iii.** Emerging financial hubs across Japan, centred around Sapporo, Tokyo, Osaka, and Fukuoka, present a nationwide opportunity for economic growth and investment. A concerted effort to develop advanced grid infrastructure to harness the renewable energy potential of Hokkaido and Kyushu will create a more reliable and resilient energy network that can attract transition finance.



With the development of the GX Plan, the GX Acceleration Agency, the Asia GX Consortium, and Asia Zero Emission Community, Japan has a platform to connect capital with transition solutions across the region. These efforts not only drive emission reductions but also foster ASEAN's economic growth.

Enormous amounts of capital will be invested to achieve economic transition. If Tokyo can become a global centre for transition finance, it will be able to ride the wave of change to move up the global rankings of financial centres.

Climate Bonds encourages the fast implementation of the policy package announced to develop Tokyo's role as a financial capital, combined with measures to promote transition finance.

### Recommendations

**3.1.** Introduce supportive rules for fund management solutions focusing on transition investments.

The existing *Policy Plan for Promoting Japan as a Leading Asset Management Center* can be shaped to provide special support.

Tokyo can also serve as the connection between global markets and the green goals of regional finance centres, as supported by the *Policy Package to Achieve Special Zones for Financial and Asset Management Businesses*.

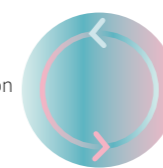
**3.2.** Create preferential arrangements for green and transition finance.

The Tokyo Metropolitan Government already provides partial support for the cost of thematic bonds.<sup>6</sup> It also has Green Finance Subsidy Program for Tokyo Market Entry, providing a subsidy for foreign financial companies engaged in green finance to set up operations in Tokyo.<sup>7</sup>

**3.3.** Further strengthen Tokyo's appeal to global investors by promoting the alignment of green and transition finance frameworks with international standards, such as that of the Climate Bonds Standard and Certification Scheme.

## Renewable energy can deliver energy security and regional revitalisation

Japan faces an urgent energy security challenge in an era of growing geopolitical tensions. With limited domestic energy resources, the country must transition towards greener, self-sufficient energy systems.



The real opportunity lies in maximising renewable energy potential while supporting regional revitalisation, particularly in poorly connected areas like Hokkaido and Kyushu.

Japan's Strategic Energy Plan is a blueprint for achieving considerable clean energy within the next decade. This requires bold investments in emerging technologies such as floating offshore wind, perovskite solar, and enhanced storage solutions.

## Science briefing: research about LNG methane leakage raises risk – it could be worse than coal

Previously, fossil gas was considered a transition fuel due to perceived lower direct emissions. There is a credible and growing body of evidence that methane leakage along the supply chain means gas power generation emissions are much higher than previously thought.



Methane is 80 times more potent at warming than carbon dioxide over a 20-year period.

The IEA assumes a global average methane leakage rate of 1.7%, which already suggests a much higher greenhouse gas profile for gas-fired power than generally calculated by industry.

A study updated and published in October 2024 found that the overall greenhouse gas (GHG) footprint for LNG from the USA as a fuel source is 33% greater than that for coal when analysed using GWP20. Japan imports 7% of its LNG from the USA.

Preventing and quickly addressing very large leaks is a key opportunity to rapidly reduce methane emissions. The United Nations Environment Programme (UNEP) recently launched the [Methane Alert and Response System](#), which uses satellites to detect very large leaks and provide timely alerts to operators and regulators.

However, very large leak events are only part of the picture. Globally, normal oil and gas operations emit the equivalent of a Nord Stream size event every single day on average. Efforts to stop very large leak events must therefore go together with measures to reduce emissions from normal operations, such as by replacing leaky equipment and installing emissions control devices.<sup>8</sup>

Japan has been working to address methane abatement through the Coalition for LNG Emission Abatement toward Net-zero (CLEAN) initiative,

1. Japan Bank for International Cooperation (2023), "Japan's Energy Supply and Demand in the 21st Century," [https://www.jbic.go.jp/en/information/today/today\\_202301/jtd\\_202301\\_sp3.html](https://www.jbic.go.jp/en/information/today/today_202301/jtd_202301_sp3.html).

2. While Japan's 6th Basic Energy Plan has a national renewable energy goal of 36% by 2030, studies have shown a more ambitious mix is possible. For example, LBNL'S 2035 Japan Report shows a path towards 70% renewable energy by 2035 is achievable through the expansion of solar and wind power combined with battery storage. Similarly, the IEA's Net Zero by 2050 report suggests that renewable energy could account for 61% of electricity generation by 2030 under a net-zero pathway. Additionally, the IGES 1.5°C Roadmap Report indicates that achieving 61% renewable energy by 2035 is feasible through energy-saving measures, electrification, and digitalization.

3. The Institute of Energy Economics, Japan (2024), "Chairman's Message," [https://eneken.iej.or.jp/en/chairmans-message/chairmans-message\\_202408.html](https://eneken.iej.or.jp/en/chairmans-message/chairmans-message_202408.html).

4. Lawrence Berkeley National Laboratory (2023) Energy Markets and Policy "2035 Japan Report: Plummeting Costs." <https://emp.lbl.gov/publications/2035-japan-report-plummeting-costs>.

5. Nippon Life Insurance Company(2024) "Nippon Life Transition Finance Framework" [https://www.nissay.co.jp/global/sustainability/esg/pdf/2024\\_transition\\_finance\\_framework.pdf](https://www.nissay.co.jp/global/sustainability/esg/pdf/2024_transition_finance_framework.pdf)

6. The program provides support for a portion of the costs required for the implementation of SLL, PIF, GL, and BL loans. <https://www.startupandglobalfinancialcity.metro.tokyo.lg.jp/gfct/initiatives/green-finance/sustainability-management>

7. Tokyo Metropolitan Government(2023) "Green Finance Subsidy Program for Tokyo Market Entry," [https://www.startupandglobalfinancialcity.metro.tokyo.lg.jp/gfct/initiatives/nurturing-players/attract-company/green\\_finance\\_subsidy](https://www.startupandglobalfinancialcity.metro.tokyo.lg.jp/gfct/initiatives/nurturing-players/attract-company/green_finance_subsidy)

8. International Energy Agency (IEA), "Global Methane Tracker 2023: Overview," [International Energy Agency, https://www.iea.org/reports/global-methane-tracker-2023/overview](https://www.iea.org/reports/global-methane-tracker-2023/overview)

## Climate Bonds

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