PRI Principles for Responsible Investment

POLICY BRIEFING

DELIVERING NET ZERO IN JAPAN

POLICY IMPERATIVES AND INVESTOR PRIORITIES

December 2023

To inform this briefing, the following investor groups have been consulted: PRI Regional Policy Reference Group for Japan; PRI Global Policy Reference Group. This consultation is not an endorsement or acknowledgement of the views expressed in this briefing.

UN environment programme finance initiative | United Nations Global Compact

An investor initiative in partnership with UNEP Finance Initiative and UN Global Compact

ABOUT THE PRI

The Principles for Responsible Investment (PRI) works with its international network of signatories to put the six Principles for Responsible Investment into practice. Its goals are to understand the investment implications of environmental, social and governance (ESG) issues and to support signatories in integrating these issues into investment and ownership decisions. The PRI acts in the long-term interests of its signatories, the financial markets, and economies in which they operate and, ultimately, the environment and society as a whole.

The six Principles for Responsible Investment are a voluntary and aspirational set of investment principles that offer a menu of possible actions for incorporating ESG issues into investment practice. The Principles were developed by investors, for investors. In implementing them, signatories contribute to developing a more sustainable global financial system.

ABOUT THIS POLICY BRIEFING

Investors are urgently seeking to manage their exposure to climate risks and take advantage of investment opportunities in a climate resilient, net zero transition. Effective policies, in line with limiting global warming to no more than 1.5ºC, are essential for accelerating and scaling up private capital flows needed to achieve Paris Agreement goals.

This briefing presents recommendations for Japanese policy makers to clarify policy detail and provide information needed by investors to navigate the risks, seize the opportunities, and support Japan's objective to decarbonise the energy sector and deliver a net zero economy by 2050. Japan has the opportunity to lead on a global and regional level in creating ambitious policies regarding the transition to net zero. Investors will play a key role in decarbonisation and the economic transition and require clear policy signals to make investment decisions in line with national and international net zero goals.[1]

Previous policy analysis for Japan can be found here, and net zero analyses and recommendations for the UK, EU and other jurisdictions can be found here. All PRI policy research and positions can be found here. This briefing has been informed by engagement with investors, policymakers and regulators in Japan.

For more information, contact:

Daniel Wiseman	Tatsuro Yuzawa	Aina Urano Menneken
Head of APAC Policy	Head of Japan	Policy Specialist
daniel.wiseman@unpri.org	tatsuro.yuzawa@unpri.org	aina.menneken@unpri.org

[1] The policy briefing is anchored in PRI's priorities and builds on a body of existing work:
- PRI's ten-year Blueprint for Responsible Investment, published in 2017, identified championing climate action, including meeting the Paris Agreement targets and working with policymakers to remove barriers to the scale-up of clean energy investment, as an organisational priority.
- As part of the multiannual Inevitable Policy Response (IPR) project, the PRI commissioned an analysis from Vivid Economics to identify climate policy action levers at the sectoral level to align with the IPR scenario in five markets (EU, UK, US, Japan, and China).
- The first Japan climate policy report was published in February 2021. It was followed by a briefing note on Japan's power sector and net zero in March 2022.

EXECUTIVE SUMMARY

Worsening climate change impacts are threatening human livelihoods, disrupting global markets, and increasing global instability. Japan, alongside other countries, recognises these threats and has set a target of reaching net zero emissions by 2050 to mitigate the impacts of climate change and meet its commitments under the Paris Agreement. Alongside risk mitigation, full implementation of the Paris Agreement will create significant investment opportunities in clean technologies, green infrastructure and assets, and products and services needed in the new economy.

Japanese and international investors increasingly recognise these risks and opportunities, and the importance of reducing greenhouse gas emissions in line with the goals of the Paris Agreement. Managing exposure to climate (transition and physical) risks and increasing capital allocations to meet the Paris Agreement goals will contribute to systemic risk reduction, protect long-term returns and create new opportunities associated with the shift to a net zero economy.[2]

The Japanese Government has already introduced a number of policies to support the achievement of these goals, including the Green Transformation (GX) Basic Policy and GX Promotion Bill. These are intended to help generate over 150 trillion yen of public and private GX investment over ten years.[3]

However, the GX Basic Policy does not include sufficient information to clarify how it and related policies will enable the economic transition required to reach the Paris Agreement goals and address the interrelated energy and climate crises. It does not include a strategy on how to decarbonise the power sector by 2035, and fossil fuels are still a significant proportion of the proposed energy mix.

Investors require information regarding assumptions on cost, feasibility and emissions profiles of fossil fuel-based technologies underpinning the current energy strategy in order to evaluate policy strategy against current market norms and international targets. Quantitative pathways and targets for priority technologies as well as clarity on the energy mix beyond 2030 may assist in understanding how current GX policies will achieve the stated net zero goal, given there might be feasible alternative pathways[4] which prioritise renewable energy and non-fossil fuel-based technologies.

Alongside the provision of further information, current and planned implementation mechanisms could be further adapted to build capacity and support investors to efficiently allocate capital toward the economic transition. Strong policy signals in line with latest science and consistent with national and international climate commitments will be essential to create an enabling environment for Japan to attract lower cost capital, increase private investment and strengthen its economic resilience to external shocks.

Accordingly, PRI recommends a greater level of transparency from the Ministry of Economy, Trade and Industry (METI) and coordination across relevant ministries on the current assumptions underpinning the GX Policy to ensure alignment with the stated net zero by 2050 goal. Additionally, the Japanese government should ensure economic and energy policies (such as the GX transition bonds) support the achievement of these objectives and provide investors with sufficient clarity on proposed pathways. This will be critical, considering the upcoming submission of the next Nationally Determined Contribution (NDC) in 2025[5], and the review of the Strategic Energy Plan ahead of publishing the 7th version in 2024[6].

This briefing sets out why these issues are important to investors, notes Japan's current achievements and policies to date, and discusses areas for policy enhancement. A summary of our proposed policy recommendations to address the identified issues follow.

---

[2] 2022 Global Investor Statement to Governments on the Climate Crisis
[3] Japan Ministry of Environment (2023) https://www.env.go.jp/en/focus/statement/statement_20230320.html
[4] E.g., Lawrence Berkeley National Laboratory (LBNL) research included analysis of seasonal Japanese power demand, solar + wind resource potential (accounting for land cover, elevation, slope and national parks). See pgs60-71 of "The 2035 Japan Report" (2023)
[5] Nationally Determined Contributions (NDCs), UNFCCC
[6] 「エネルギー基本計画の概要と今後のエネルギー政策の方向性」METI (2022) (only available in Japanese)

SUMMARY OF POLICY RECOMMENDATIONS

PRI recommends that the Japanese government[7]:

Net Zero Pathway

- Publish quantitative information on the assumptions used in the GX Basic Policy as well as regulatory frameworks for the current strategic energy plan and pathways to net zero.
- Ensure the 7th Strategic Energy Plan (to be published in 2024 by METI) includes an energy policy roadmap post-2030, with mid-term sector targets for 2035 and beyond that are aligned with the national 2050 net zero goal. Include credible and up-to-date assumptions about feasibility, scalability, and the costs of electricity generation from various technologies including solar, wind, ammonia co-firing and fossil fuel-fired plants with CCS.
- Clarify how Japan intends to meet its G7 commitments on reducing fossil fuel usage and ending financing for international unabated[8] fossil fuel expansion, including the 2023 commitment[9] to achieve a 'fully or predominantly decarbonised power sector by 2035'.
- Update the NDC with greater clarity on its alignment with international commitments, including long-term goals and achieving the purpose of the Paris Agreement. Show how current GX Policy will contribute to the NDC.

Financing Net Zero

- Ensure that public-private finance proposed through the GX Policy, including the government-issued green transformation transition bonds, are invested transparently and in line with net zero goals.
- Ensure that financing through the Asia Energy Transition Initiative (AETI) is also in line with net zero goals and does not rely on the use and expansion of thermal power generation to improve energy security across Asia.

Enabling Net Zero

- Update the proposed carbon pricing regime, starting with the GX ETS, to demonstrate consistency with the net zero by 2050 goal. Ensure that mechanisms are in place that prioritise direct decarbonisation efforts and incentivise them, rather than relying on offsets. Consider putting a cap on offsets.
- Ensure internationally aligned climate-related disclosure is useful for investment decision-making.
- Establish an expert advisory body which provides independent opinions on climate change for target setting, progress monitoring and policy recommendations appropriate to the institutional architecture of Japan's policy making process.

[7] Where relevant, we have addressed our recommendations to a specific regulatory or policy-making body. Where one is not specified, we address the Japanese government and all relevant regulators.
[8] See Policy Recommendations below for definition of 'unabated'. If proposed investment in fossil fuel projects is reliant on current or future abatement of greenhouse gas emissions as a basis for Paris Agreement goal alignment, this must be supported by robust evidence for commercial and technological feasibility.
[9] This commitment was also included in the 2022 G7 communique.

BACKGROUND

Worsening climate change impacts are threatening human livelihoods, disrupting global markets and increasing global instability, driven by rising global temperatures and manifesting in rising sea levels, increased flood risks, and worsening and more extreme heat waves.[10] Like all nations, Japan faces direct and second-order impacts, from the increasing frequency and severity of extreme weather events to risks to food security and disruptions to trade, cutting across many sectors of the Japanese economy.

The Japanese Government, alongside other major economies, has recognised these threats and have set policies and targets to address climate-related risks and advance a transition to a low carbon economy. Targets include Japan's commitment under the United Nations Framework Climate Change Convention (UNFCCC) to reduce greenhouse gas (GHG) emissions by 46% from 2013 levels by 2030[11], and the target to achieve net zero greenhouse gas (GHG) emissions by 2050.[12]

More detail on how these targets are expected to be reached have followed in policy discussions since the announcements, including on an international stage. As hosts of the G7 summit in 2023, Japan agreed to a renewed commitment to achieve a 'fully or predominantly decarbonised power sector' by 2035.[13] Electrification and decarbonisation of the power sector are an important pillar to achieve carbon neutrality.

NET ZERO'S RELEVANCE TO INVESTORS

Investors globally and in Japan increasingly recognise the urgency and importance of acting to deliver reductions in GHG emissions in line with the goals of the Paris Agreement. Legal analysis finds that in some cases, investor duties may even require them to actively consider pursuing climate goals if it is relevant to protecting long-term financial returns.[14]

The Global Investor Statement 2022[15] (signed by 602 investors representing USD $42 trillion in assets under management, including over 20 of the largest Japan-based asset owners and managers) outlines that managing exposure to climate risks and increasing the contribution that investments make to Paris Agreement goals will not only help to generate long-term returns but will also allow investors to benefit from the opportunities associated with the shift to a net zero economy.

Many investors have thus set their own targets for decarbonisation, as well as net zero goals in line with national targets. In order to meet these targets, and due to the generally longer-term nature of their holdings, institutional investors derive more confidence from a stable policy environment. Where governments are seeking to attract investment into decarbonisation, transition, and the development of net zero technologies, having targets with a legal basis and a clearly defined policy and expenditure plan to achieve them provide greater stability and certainty for capital allocators. However, sovereign targets are weaker in terms of this market signal if they are framed exclusively as ambition (or considered overly ambitious without adequate supporting evidence), do not affect real policy or market change, or are not substantiated with clear economy-wide plans.

In addition to an absolute emissions reduction goal on a national level, sectoral-specific or other more detailed targets are also critical in guiding investment. These are further strengthened when they are embedded in clear sectoral pathways and policy measures.

---

[10] Intergovernmental Panel on Climate Change (2023) "AR6 Report"
[11] METI (2022) Japan Energy
[12] METI (2021) Japan's Roadmap to "Beyond-Zero" Carbon
[13] G7 (2023) Leader's Communique
[14] PRI (2023) Japan: Integrating sustainability goals across the investment industry (A Legal Framework for Impact)
[15] 2022 Global Investor Statement to Governments on the Climate Crisis

CURRENT ACHIEVEMENTS AND POLICIES

Policies that clarify the Japanese government's outlook on net zero pathways

Japan's net zero by 2050 pledge, and the ensuing GHG reduction targets, indicate a strong commitment to addressing climate change risks and working towards the internationally accepted Paris Agreement and UN Sustainable Development Goals. Accordingly, Japan has implemented policies to enable all stakeholders, including investors and corporations, to take necessary actions to reach these targets.

PRI welcomes the implementation of specific policies which aim to contribute to achieving net zero, such as the Green Growth Strategy (Jun 2021) and the Green Transformation (GX) Basic Policy (Feb 2023).

Both the Green Growth Strategy[16] (industrial policies such as regulatory reform and tax incentives) and the GX Basic Policy[17] (initiatives to generate JPY150 trillion of public-private investment over 10 years) will influence the proposed energy mix beyond 2030, and the ability to reach net zero. The increased ambition on renewable energy such as in the 6th Strategic Energy Plan is also welcomed (e.g., the 30-45GW target for offshore wind in Japan by 2040 – up from less than 100MW in 2021[18]).

Japan was also the first country to create a national hydrogen strategy, and the 2023 updated version has a target to increase hydrogen consumption to 12 million tons per year (inc. ammonia) by 2040[19], as well as plans to set a target for carbon intensity of hydrogen/ammonia to steadily promote carbon neutrality.

Japan's international commitments also indicate strong intent on climate and energy policy, such as the 2023 G7 statement to achieve a 'fully or predominantly decarbonised power sector by 2035'. This follows on from the 2022 Commitment to stop overseas financing of unabated fossil fuel projects.[20]

Policies that enhance capital flow to economic activities that lead to GX

The focus on transition bonds[21] in the GX Basic Policy shows the importance of financing for net zero. The Basic Guidelines on Climate Transition Finance[22] and its related Transition Finance Follow-up Guidance[23] provide criteria for credible transition finance as "supporting the fundraiser who have set their targets consistent with the Paris Agreement and satisfied the elements set forth in these Guidelines".

Other examples include financial policy support for detailed pathways to net zero for specific hard-to-abate sectors, Roadmaps for Promoting Transition Finance by METI[24] – a useful first step to indicate the direction that investors should take. The Government of Japan has also announced the 'Asia Energy Transition Initiative (AETI),' which includes a variety of support for achieving 'sustainable growth and carbon neutrality in Asia.'[25]

Policies that embed climate priorities across financial and economic systems

Carbon pricing is an important mechanism as planned to be introduced gradually through the GX Promotion Bill (part of the GX Basic Policy) alongside a voluntary emissions trading scheme (ETS) with participants accounting for over 40% of Japan's emissions (set to be fully operational from FY2026).[26]

Market infrastructure to support and guide investors also continues to improve, for example on corporate disclosure the Financial Services Authority (FSA) has instated statutory reporting rules requiring mandatory corporate reporting on sustainability topics since February 2023.[27]

---

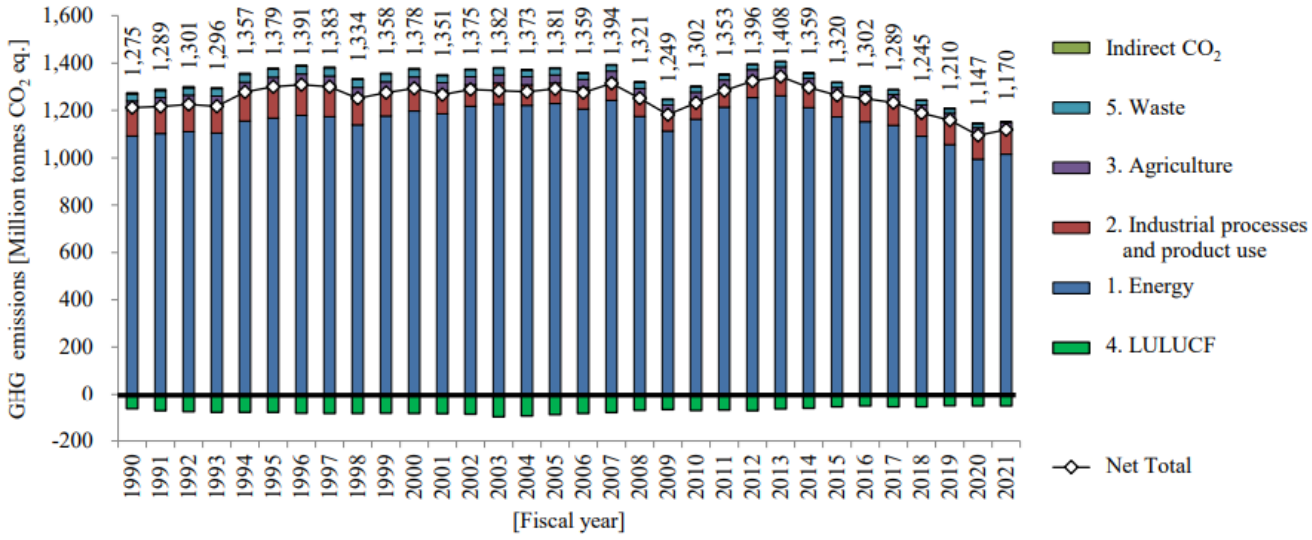
[16] METI (2021) Overview of Japan's Green Growth Strategy Through Achieving Carbon Neutrality in 2050
[17] METI (2023) Basic Policy for the realisation of GX – Roadmap for the next 10 years (only available in Japanese)
[18] METI (2022) Introduction of Japan's Offshore Wind Policy
[19] METI (2023) Basic Hydrogen Policy (only available in Japanese)
[20] G7 Leader's Communique (2023); G7 Leader's Communique (2022)
[21] MOF (2023) Climate Transition Bonds Framework (only available in Japanese)
[22] METI (2021) Basic Guidelines on Climate Transition Finance
[23] FSA, METI and MOE (2023) Transition Finance Follow-up Guidance
[24] METI (2023) Toward a Transition to Decarbonisation: Transition Finance
[25] METI (2021) Asia Energy Transition Initiative
[26] METI (2023) Basic Policy for the realisation of GX – Roadmap for the next 10 years (only available in Japanese)
[27] FSA (2023) 「企業内容等の開示に関する内閣府令」等の改正案に対するパブリックコメントの結果等について」

AREAS FOR POLICY ENHANCEMENT

Net Zero Pathway

Accelerating the shift to a net zero economy will benefit Japan in many ways, most importantly to build economic resilience and opportunity, and increase energy security by reducing reliance on energy imports. Japan's commitment to net zero by 2050 has profound implications for its private sector. The energy sector transition in particular is a fundamental enabler for all other industrial sectors. The image below shows greenhouse gas emissions by sector in Japan. The dominant role of the energy sector is similar to what is found in other G20 countries. Indeed, decarbonising industry also hinges on first eliminating emissions in the energy sector, in particular the power sector. The imperative to reduce emissions needs to be compatible with energy affordability as well as energy security concerns as part of a just transition. Transforming the energy sector as the highest contributor to national emissions will be key.

Greenhouse gas emissions and removals by sector in Japan (2021)



Source: Ministry of the Environment, Japan

While policies mentioned above will contribute in part to Japan's path to net zero, the GX Basic Policy (the basis for much of the policy related to the transition to net zero) does not include a strategy on how to decarbonise the power sector by 2035, and fossil fuels are still a significant proportion of the proposed energy mix.[28]

This renders energy transition and green growth policies as insufficient to meet Japan's net zero by 2050 target in a manner consistent with credible international pathways such as the International Energy Agency's (IEA) Net Zero by 2050 Scenario.[29]

[28] Government of Japan (2023) GX Basic Policy (only available in Japanese)
[29] IEA, Net Zero by 2050 (2021) https://www.iea.org/reports/net-zero-by-2050

The IEA in its Net Zero Report finds that all advanced economies, including Japan, will need to entirely decarbonize their power sector by 2035[30] to achieve the Net Zero Emissions by 2050 Scenario (NZE). Vivid Economics, in work that has been commission by PRI as part of the Inevitable Policy Response (IPR)[31], also found that the power sector in Japan would need to decarbonise by 2035 under a 1.5°C pathway (Required Policy Scenario, RPS) and 2045 in a 1.8°C scenario (Forecast Policy Scenario, FPS) – see table below.

Timelines for 100% clean energy in IPR modelling

100% clean power

	Timeline									annual reduction*	
	2020	2025	2030	2035	2040	2045	2050	2055	2060	RPS	FPS
AU					RPS		FPS			5%	3%
BRA					RPS		FPS			5%	3%
CAN			RPS	FPS						10%	7%
CHI					RPS		FPS			5%	3%
CSA					RPS		FPS			5%	3%
EEU				RPS		FPS				7%	4%
EURA						RPS			FPS	4%	3%
GCC						RPS			FPS	4%	3%
IND						RPS			FPS	4%	3%
INDO						RPS			FPS	4%	3%
JAP				RPS		FPS				7%	4%
MENA						RPS			FPS	4%	3%
RU						RPS			FPS	4%	3%
SA						RPS			FPS	4%	3%
SAF				RPS	FPS					7%	5%
SEAO						RPS			FPS	4%	3%
SK				RPS		FPS				7%	4%
SSA						RPS			FPS	4%	3%
UK				RPS	FPS					7%	5%
USA				RPS	FPS					7%	5%
WEU				RPS		FPS				7%	4%

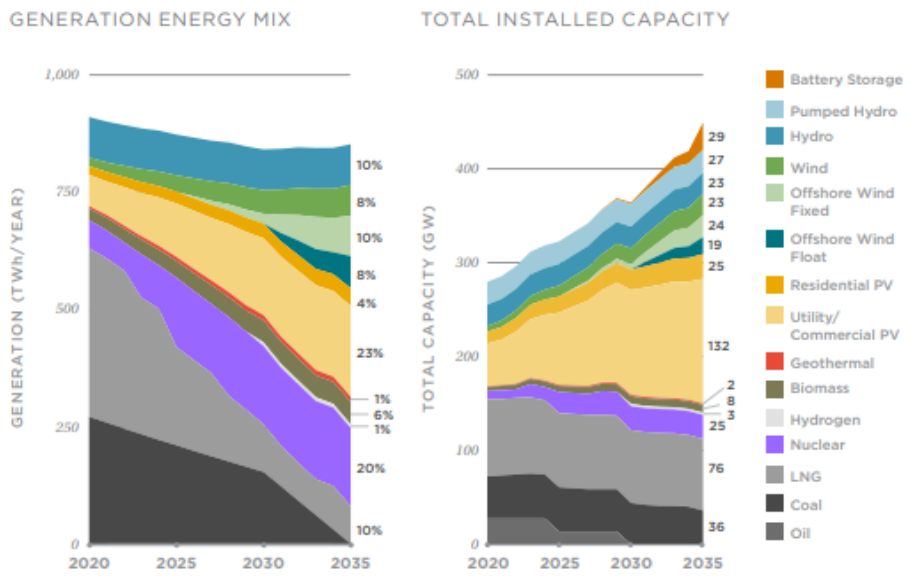
** reduction in power CO2 emissions as a share of 2020 levels*

Source: The Inevitable Policy Response

The speed of the transition in the energy sector, as well as choice generation technology, has been a matter of policy debate. Japan, in decarbonising its energy sector, faces several country specific challenges. These include limited regional grid connections and a mountainous topography, as well as a high reliance on imported fossil fuels, leading to energy security being a major driver for energy policy. Similarly, the historic structure of the power sector in the country, characterised by the ten former regional monopolies and an East and West Japan split in electricity transmission frequency, creates challenges. An understanding of these local conditions is essential to a credible transition pathway. Yet, recent analysis by Japanese and international researchers at the Lawrence Berkeley National Laboratory, found that even when accounting for country-specific conditions[32], achieving 90% clean energy in Japan's power sector by 2035 might be feasible at a lower Levelized Cost of Electricity (LCOE) than is available in Japan today. While it may be that different assumptions underpin this analysis to that of the Japanese government, cross-referencing other analysis could add further credibility to government models.

[30] IEA Net Zero by 2050 report states that 'overall net-zero emissions electricity in advanced economies' is required by 2035
[31] IPR Climate Transition Forecasting Consortium (2021) Inevitable Policy Response
[32] Lawrence Berkeley National Laboratory (LBNL) research included analysis of season Japanese power demand, solar and wind resource potential (accounting for land cover, elevation, slope, and national parks).
See pages 60 – 71 of LBNL "The 2035 Japan Report" (2023)

LBNL "The 2035 Japan Report" – Generation Energy Mix and Total Installed Capacity between 2020 and 2035, Clean Energy Scenario[33]



Source: Lawrence Berkeley National Laboratory

Presently, under METI's Sixth Strategic Energy Plan, the government is planning a substantive build out of renewables which is projected to grow from 18% of the generation mix to up to 38% by 2030. Together with the restarted nuclear power fleet this would mean that 59% of the generation mix would be emissions free by the end of the decade. However, the government has yet to publish interim targets and a detailed roadmap *for post 2030.* The question also remains as to how the emissions from the remaining 41% would be abated. In the path towards 2050, a significant role is anticipated for ammonia co-firing, a hydrogen derivative, through retrofitting coal and gas power plants for use in hydrogen-fired power generation. This is closely linked to the strategy of the Green Transformation (GX) policy and the support Japan is providing to shape power sector decarbonisation in Asia through the Asia Energy Transition Initiative (AETI), which includes financing for ammonia co-firing facilities across Asia.[34] Japan is also planning for different financial bodies to enable renewable energy as well as biomass, hydrogen, ammonia and CCUS in Vietnam, Laos and Indonesia through the Asia Zero Emissions Community, another pan-Asia energy transition partnership and component of the GX policy.[35]

Ammonia, which is commonly used as an industrial feedstock, produces no GHG emissions at the point of combustion. Yet, the lifecycle emissions and costs vary considerably depending on how it is produced and its percentage share of a plant's co-firing. Ammonia produced from fossil fuels has lifecycle emissions equivalent to double that of burning coal directly at four times the cost[36]. Lifecycle emissions could be significantly reduced with "green" ammonia, yet the cost gap widens to 15x of coal power generation[37].

Without regulatory frameworks to define which ammonia feedstock will be used or how life cycle emissions will be assessed, it is difficult to see how climate benefits will be ensured using this technology.

[33] Lawrence Berkeley National Laboratory (2023) "The 2035 Japan Report: Plummeting Costs of Solar, Wind, and Batteries Can Accelerate Japan's Clean and Independent Electricity Future"
[34] METI (2021) https://www.meti.go.jp/ENGLISH/PRESSS/2021/0528_002.HTML
[35] METI (2023) https://www.meti.go.jp/english/press/2023/pdf/0306_002a.pdf
[36] Transition Zero (2022) "Coal-de-sac: Advance Coal in Japan" report, page 21. https://www.transitionzero.org/insights/advanced-coal-in-japan
[37] Op. cite.

Investors have a range of opportunities to support the development of key technologies used in the transition, including advocacy for robust policy settings and regulations with transparent emissions lifecycle analysis.[38] The Glasgow Financial Alliance for Net Zero (GFANZ) has published a consultation on defining transition finance and considerations for decarbonisation contribution methodologies, which includes strategies designed to understand whether and how particular entities, assets and projects may be aligned to the transition.[39] Understanding how the components of the GX policy align with net zero based on these definitions could be helpful for investors to make informed decisions on a portfolio and entity level.

The commitment made through the 2023 G7 summit to achieve a 'fully or predominantly decarbonised power sector' by 2035 allows room for the use of ammonia co-firing in the national and international energy strategy of Japan. This does not align with IEA's NZE scenario, as full decarbonisation of the power sector is necessary to meet the IEA NZE scenario. In 2022, G7 countries also committed to stopping all overseas financing for unabated fossil fuel projects where possible.[40] Notably, Japan has continued to finance coal and upstream oil and gas developments since then.[41]

Financing Net Zero

Financing proposed through the GX Policy should be invested transparently and in line with international standards and latest science as well as national net zero goals.[42] While some information has been released regarding the type of projects which fall under the provisions of the policy[43], GX Transition Bonds may include co-firing power generation with coal and the use of grey hydrogen. This could lead to risks of greenwashing as well as potentially being a more costly route towards decarbonisation[44]. Risks also include those related to carbon lock-in, as defined by the OECD as 'when transition finance flows to technologies that present a marginal improvement but are overall still emission-intensive and long-lived'.[45] Many investors will expect clear guidelines and use of proceeds frameworks for the transition bonds, and a lack of transparency may not attract investor interest and creates investor risk. In addition, in the materials submitted by METI to the Joint Meeting to Study Clean Energy Strategies held on December 14, 2022, renewable energy is not explicitly included as part of the approximately ¥20 trillion in government support over the next 10 years, although there is explicit reference to research and development for 'related new zero emissions technology'.[46] More clarification is required to show investors exactly how the ¥20 trillion from the public sector will generate ¥130 trillion from the private sector.

Japan should ensure that policies are in place both to foster long-term national energy security and support the research and development of clean technology and infrastructure necessary to achieve it. This would help future-proofing Japan's socio-economic fabric, reinforce its' competitiveness in global markets and ensure Japanese industry is well positioned to capitalise on the global transition to net zero with export offerings that are consistent with credible pathways to meet the Paris Agreement goals and in demand. Any policies proposed within the framework of sustainable and / or transition finance should also be considered through the lens of ensuring a socially just and inclusive transition.[47]

---

[38] Investor Group on Climate Change (2022) Unlocking Investment in the Australian Hydrogen Industry
[39] GFANZ (2023) Defining Transition Finance and Considerations for Decarbonization Contribution Methodologies (Consultation)
[40] The 2023 G7 Communique did acknowledge the need for investment in some gas to address the energy crisis on a temporary basis.
[41] Public Finance for Energy Database [Accessed June 2023]
[42] See also InfluenceMap (2023) Japan's $1 Tn GX (Green Transformation) Policy
[43] MOF (2023) Climate Transition Bonds Framework (only available in Japanese)
[44] Bloomberg New Energy Finance (2022) Japan's Costly Ammonia Coal Co-Firing Strategy
[45] OECD (2023) Mechanisms to Prevent Carbon Lock-in in Transition Finance
[46] METI (2022) 第 11 回 産業構造審議会 産業技術環境分科会 グリーントランスフォーメーション推進小委員会／総合資源エネルギー調査会 基本政策分科会 2050 年カーボンニュートラルを見据えた次世代エネルギー需給構造検討小委員会 合同会合 (only available in Japanese)
[47] See PRI webpage 'Just Transition' for further detail

Enabling Net Zero

Carbon market mechanisms planned through the GX policy do not provide a sufficiently strong signal to investors and companies, as well as not being ambitious enough to meet net zero goals. Current plans for carbon pricing through the GX policy include a carbon levy for power producers from 2028 estimated in the range of $8-$12/t CO2[48], while the current carbon price (through the Tax for Climate Change Mitigation) sits at ¥289/t CO2 (approximately $2)[49]. The Institute of Energy Economics Japan (IEEJ) has also estimated a price starting 2026 of $14-$42/t CO2 for the carbon levy, and $83-$131 for the allowance auction, as recorded in the 7th GX Implementation Meeting.[50] However, this is only a tenth of the level of the IEA's estimated carbon price required of developed countries in a Paris Agreement-aligned scenario[51], as $135 would be needed under the Announced Pledges Scenario and $140 under a NZE by 2050 scenario.[52] Current estimated prices will not drive sufficient reallocation of capital towards the 2030 emissions reduction goal.

Rigorous disclosure requirements will also be important in the pathway to net zero. While current policy includes mandatory corporate reporting on sustainability topics, the framework remains high level and does not address important aspects, such as third-party verification or mandatory reporting of actual sustainability targets. Improving the reliability of disclosed information, the availability of climate-related data and reducing costs of reporting will be useful to investors. Ensuring that disclosure is available on time and alongside financial disclosure will also be key for investors and users for decision-making.

Current TCFD-aligned reporting requirements under the Corporate Governance Code are only applicable to prime listed companies instead of the broader listed market. While prime listed companies account for a large majority of market capitalisation, extending reporting requirements would send a clear policy signal to financial institutions and corporations. The FSA has also yet to make climate (emissions) indicators a part of the mandatory metrics for disclosure. The FSA should continue to cooperate with the Sustainability Standards Board of Japan (SSBJ) to develop a comprehensive framework for the disclosure of sustainability-related risks and opportunities, and for sustainability performance, within statutory reporting requirements.

As many of these policies are related to the GX Basic Policy, the process for setting the policy should be transparent and open. An example of how to ensure climate targets and supporting policies are sufficient would be to establish an expert advisory body consisting of leading technical experts which gives independent opinions to government bodies. While the Financial Services Agency (FSA) obtains advice from the Expert Panel on Sustainable Finance, there is no information available on an expert body (independent or otherwise) currently advising the GX Implementation Council.

[48] Influence Map (2023) based on REI, 2022. Policy overview: carbon taxes and levies, Diamond Online (2022)
[49] MOE (2012) Details on the Carbon Tax (Tax for Climate Change Mitigation)
[50] Minister in charge of promoting GX implementation (2023) Towards our country's Green Transformation (Japanese only)
[51] International Energy Agency (2018) The importance of real-world policy packages to drive energy transitions
[52] IEA (2023) World Energy Outlook, pg. 297

POLICY RECOMMENDATIONS

Investors will play a key role in the transition to a net zero economy, but require clear policy signals to be able to mitigate risks, seize opportunities and support national and international decarbonisation objectives.

To support the energy sector transition and a whole-of-government approach towards a net zero carbon economy, policies need to be coordinated and aligned to create an enabling environment for investors and industry.[53] Moreover, detailed and accessible information is required to clarify how policies will enable the transition. Policy areas that need to be synchronized within a coherent approach include policy on transition finance, climate-related disclosure, and carbon markets.

PRI recommends that the Japanese government[54]:

Net Zero Pathway

- **Publish quantitative information on the assumptions used in the GX Basic Policy as well as regulatory frameworks for the current strategic energy plan and pathways to net zero.**
    - Having official quantitative data on cost assumptions, lifecycle GHG emissions and types used for new technology such as ammonia co-firing (as well as references used) from METI will enable investors to make informed decisions regarding their decarbonisation strategies. Adding regulatory frameworks that define how lifecycle emissions will be assessed to the GX Basic Policy will help to clarify how current policy aligns with the Paris Agreement and net zero by 2050 goals.
    - Project-level financial costs should be quantified in the national decarbonisation policy, including cost assumptions used for sectoral roadmaps. Granular emissions data should be embedded in the technical roadmaps to enhance investor-usability.
    - Energy demand management and smart grids should also be included in the decarbonisation strategy.
    - Ensure information is available in English to allow international investors to understand and play an active, informed role in Japan's Green Transformation.

[53] See PRI (2023) Investing for the economic transition: the case for whole-of-government policy reform for more information on how climate policy should sit within a broader government strategy on the transition

[54] Where relevant, we have addressed our recommendations to a specific regulatory or policy-making body. Where one is not specified, we address the Japanese government and all relevant regulators.

- **Ensure the 7th Strategic Energy Plan (to be published in 2024 by METI) includes an energy policy roadmap post-2030, with mid-term sector targets for 2035 and beyond that are aligned with the national 2050 net zero goal. Include credible and up-to-date assumptions about feasibility, scalability, and the cost of electricity generation from various technologies, including solar, wind, ammonia co-firing and fossil fuel-fired plants with CCS.**
    - Economic modelling commissioned by PRI[55], the Net Zero Asset Owner Alliance[56], the International Energy Agency, as well as independent analysis[57] has consistently found that international market developments as well as cost and technology innovations make scaling up solar and on- and offshore wind power a reliable option for Japan to meet its energy and climate goals at lower cost than today**.**
    - Achieving climate policy and energy targets will require substantial new long-term investments in Japan's energy sector. Clarity on renewable targets for 2035 and beyond will provide greater certainty to investors on the path towards Japan's net zero economy by 2050. This requires a comprehensive energy sector plan, which shows how climate and energy policy will enable Japan's net zero strategy. Investments to modernise the grid will also be critical for large-scale renewable power integration and other decentralised energy sources.
- **Clarify how Japan intends to meet its G7 commitments on reducing fossil fuel usage and ending financing for international unabated fossil fuel expansion, including the 2023 commitment to achieve a 'fully or predominantly decarbonised power sector by 2035'.**
    - Carry out a comprehensive feasibility study on phasing out coal generation. Define what is meant by a fully decarbonised power sector, as well as unabated[58], and show clearly how current GX policy will enable this to happen.
    - If proposed investment in fossil fuel projects is reliant on current or future abatement of greenhouse gas emissions as a basis for Paris Agreement goal alignment, this must be supported by robust evidence for commercial and technological feasibility. If such evidence is not available, alternative approaches should be considered.
    - Ensure that the commitment to eliminate inefficient fossil fuel subsidies by 2025 or sooner is met.
- **Update the NDC with greater clarity on its alignment with international commitments, including long-term goals and achieving the purpose of the Paris Agreement. Show how current GX Policy will contribute to the NDC.**
    - The government should ensure that the GX Policy overall is in line with international goals, and that it can clearly meet expectations of Japan's existing NDC. Currently, it is not clear how the GX Policy and related policies will contribute to the NDC.

[55] See the IPR programme
[56] See the One Earth Climate Model commissioned by the UN-convened Net Zero Asset Owner Alliance (NZAOA) https://www.unepfi.org/industries/investment/one-earth-climate-model-sectoral-pathways-to-net-zero-emissions/
[57] See for example the IEA, Lawrence Berkeley National Labs, Transition Zero.
[58] 'Unabated' refers to something which has not been abated – OECD definition of pollution abatement is technology applied or measures taken to reduce pollution and/or its impacts on the environment. In the case of fossil fuel power generation, abatement is usually referring to Carbon Capture and Storage (CCS) or Carbon Capture, Utilisation and Storage (CCUS) technology. METI has set a target to store 6-12 million tonnes of CO2 annually by 2030, but in the (2022) National Greenhouse Gas Inventory Report of Japan CCS / CCUS is not yet included as a sink category for emissions and the IEA report on CCUS shows that technology development is not on track to help achieve net zero by 2050. As such, the EU and 17 other countries are warning against over-reliance on abatement technology when the focus should be on phasing out fossil fuels.

Financing Net Zero

- **Ensure that public-private finance proposed through the GX Policy, including the government-issued green transformation bonds, are invested transparently and in line with net zero goals.**
    - If the JPY20 trillion worth of 'transition bonds' already approved through the GX Policy is invested in technologies which turn out not to be aligned with net zero goals, this could delay the transition and cause confusion in the market. Without clarity on how specific projects fall under this provision and are aligned with net zero goals, investors face risks of greenwashing and potentially taking a less cost-effective route towards decarbonisation.
    - Products and guidelines should be designed to monitor the use of funds and ensure investor engagement. Ensure this information is available and accessible, and shows clearly how the transition bonds will contribute to the economic transition and net zero goals.
- **Ensure that financing through the Asia Energy Transition Initiative (AETI) is also in line with Net Zero Goals and does not rely on the use and expansion of thermal power generation to improve energy security across Asia.**
    - Promoting ammonia co-firing in Southeast Asia risks increasing fossil fuel lock-in in the region. International Renewable Energy Agency (IRENA) modelling shows that some countries in Southeast Asia have vast renewable resources and that, with significantly upscaled investment and policy, majority renewables-based power systems are feasible.[59] Japan should prioritise renewables investment through the AETI over other low-GHG solutions where possible.
    - Provide information clarifying alignment of financing through the AETI with international and national net zero goals.

[59] IRENA & ACE (2022) Renewable energy outlook for ASEAN: Towards a regional energy transition (2nd ed.), International Renewable, Energy Agency, Abu Dhabi; and ASEAN Centre for Energy, Jakarta

Enabling Net Zero

- **Update the proposed carbon pricing regime, starting with the GX ETS, to demonstrate consistency with the net zero by 2050 goal. Ensure that mechanisms are in place that prioritise direct decarbonisation efforts and incentivise them, rather than relying on offsets.**

    - Carbon pricing is a vital tool to cut carbon emissions in economically efficient ways. However, offsets should be a last resort for tackling emissions that cannot be technically mitigated across products and services.

      A rising price on carbon that covers power and industrial sectors with a target range of between $50-$100 per tonne of CO2 by 2030 would be in line with Paris Agreement goals.[60] The IEA NZE scenario also refers to an average carbon price of $130 per tonne of CO2 by 2030 across all advanced economies.[61] Aligning with international carbon taxes will also be key to ensuring integrity in the carbon market, for example through showing consistency with Article 6 of the Paris Agreement.

      Japan's carbon pricing mechanism, at a minimum, should cover power generation and industry. A strategy should also assess the possibility of extending carbon pricing to emissions intensive sectors like transport and buildings. All carbon pricing planned through the GX policy should genuinely shift incentives away from fossil fuels such as oil, gas and in particular coal's current nominally low-cost generation advantage and towards other clean energy options. As such, METI should review carbon pricing mechanisms proposed (such as the carbon levy and allowance auction for the power sector through the GX ETS) to ensure alignment with the net zero goal.

      PRI recommends aligning any offset use policy with the Oxford Offsetting Principles[62], which state that an organisation should 1) first seek to reduce emissions; 2) where offsets are used, purchase high quality credits; 3) disclose accounting practices where offsets are use; and 4) revise offsetting strategy as practices improve.

[60] Carbon Pricing Leadership Coalition Report of the High-Level Commission on Carbon Prices: https://www.carbonpricingleadership.org/report-of-the-highlevel-commission-on-carbon-prices
[61] IEA (2021) Net Zero by 2050
[62] Oxford Principles for Net Zero Aligned Carbon Offsetting (2020)

- **Ensure internationally aligned climate-related disclosure useful for investment decision-making.**

  - Working with SSBJ, build on plans to require mandatory corporate reporting on sustainability matters including scope 1, 2 and material scope 3 emissions (or justification on why scope 3 emissions are not material), scenario analysis, reduction target setting, and sector-specific metrics. The International Financial Reporting Standards (IFRS) Sustainability Disclosure Standards, both S1 and S2, should be fully adopted.

    This will prove advantageous for Japan by providing confidence to global investors that necessary and comparable information for risk assessment and evaluation is available. When adopting climate change-related disclosure standards, include any specific requirement for companies to disclose credible transition plans, consistent with international developments such as in Australia or Europe.

    The Japanese government has promoted transition finance as a key climate policy. Based on the reliance of Japanese companies on financing through loans and bonds, the government has implemented financing frameworks such as the Basic Guidelines on Climate Transition Finance and the accompanying sector-specific Technology Roadmaps. Though these initiatives provide an impetus for companies to devise transition plans, a more holistic approach which incentivises or requires the implementation of corporate transition plans (i.e., going beyond preparation and disclosure) is necessary.

    The FSA and JPX should enhance the TCFD-aligned reporting requirement in the Corporate Governance Code to explicitly require reporting on transition plans. Transition plans should cover disclosure on strategic alignment with the Paris Agreement objectives, including interim GHG emission reduction targets (Scopes 1, 2 and material scope 3 emissions), capital expenditure plans and accounts aligned with these targets, as well as human capital development plans to build capacity and support changes in the business portfolio.

    Reporting on accountability mechanisms such as governance, incentives, including remuneration incentives or sustainability-linked remuneration, tax breaks and third-party verification should also be addressed. In addition, the FSA and JPX should consider including requirements on transition plan reporting within the final Japanese sustainability disclosure standards, based on the IFRS Sustainability Disclosure Standards.

    Finally, the FSA should consider a phased approach to promoting standardised reporting on transition plans among asset owners and asset managers, to encourage, preferably mandate as part of prudential regulation, that portfolios align with the national 2050 net zero target, as per recommendations from the TCFD. This should also align with the embedding of the IFRS Sustainability Disclosure Standards in statutory reporting. Alignment with the Corporate Governance Code's phased implementation of its climate reporting requirement would also be desirable.

- **Establish an expert advisory body which provides independent opinions on climate change for science-based target setting, monitoring oversight, and policy recommendations appropriate to the institutional architecture of Japan's policy-making process**.

    - An independent multi-stakeholder advisory body providing recommendations on climate policy would strengthen Japan's climate governance and help to accelerate the energy transition in a cost-effective manner.

      A growing number of countries (e.g., Australia and New Zealand, Denmark, France, Germany, and the UK) as well as the European Union[63] have established independent scientific bodies to provide science-based recommendations to policy makers on climate policy. The UK was the first of these, when it established the Committee on Climate Change in 2008. Research has found that an independent advisory body is most effective when it has a legal mandate to make recommendations and for Government to justify any decision on legislation that does not follow these recommendations.[64] However, depending on the constitution of specific countries, if it is not possible to have an independent body with a legal mandate, ensuring transparency and diverse expertise on any advisory body is important.

[63] See, for example, the European Scientific Advisory Board on Climate Change, established under the EU Climate Law from 2021 https://climate-advisory-board.europa.eu/
[64] London School of Economics (2018) The role and influence of the UK's Committee on Climate Change