DEEP DECARBONIZATION PATHWAYS

CLIMATE AMBITION BEYOND EMISSION NUMBERS

Taking stock of progress by looking inside countries and sectors

JAPAN

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SEPTEMBER 2021

IDDRI

Citation

Kentaro Tamura (2021). *Climate ambition beyond emission numbers, Taking stock of progress by looking inside countries and sectors, Japan*. Deep Decarbonization Pathways (DDP) Initiative-IDDRI. Paris.

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The report is available online:
https://ddpinitiative.org/wp-content/pdf/DDP_AmbitionReport_JAP.pdf

Financial support from

The report "Climate Ambition Beyond Emission Numbers" is made possible thanks to an array of projects supporting in-country capacity on climate mitigation research across the targeted geographies. It is also is financially supported by the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) as part of the "Climate Action After Paris" project (nr. 18_I_326) and the French government as part of the programme "investissements d'avenir" under the reference ANR-10- LABX-01.

Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

Production: IDDRI.
Editing: Marta Torres Gunfaus, Anna Pérez Català, Lola Vallejo, Henri Waisman.
Layout: Ivan Pharabod.

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How is this document relevant to the Global Stocktake? 2

Foreword 4

Japan: Narrative On Climate Ambition Since The Paris Agreement 5

Domestic discourse 5

National governance 6

Actions and policies 8

Disclaimer

The results presented in this report are outputs of the academic research conducted under the DDP BIICS project as per the contractual agreement. The academic work does not in any way represent our considered opinion for climate negotiations and also does not reflect the official policy or position of the Government of Japan.

How is this document relevant to the Global Stocktake?

This document is part of a collective report that assesses the evolution of climate ambition in 26 countries and 3 hard-to-abate sectors through a granular and context-specific analysis of trends and progress of national and sectoral transformations.[1] This approach allows identifying what hinders and spurs action in countries and sectors, and understanding the conditions that can support enhanced ambition, which could be political, social, economic, governance.

These insights are directly relevant to four overarching functions of the Global Stocktake in support of its desired outcome, i.e. "to inform Parties in updating and enhancing, in a nationally determined manner, their actions and support in accordance with the provisions of the Paris Agreement, as well as enhancing international cooperation for climate action" (Article 14.3 of the Paris Agreement):

- Create the conditions for an open and constructive conversation on global cooperation (on e.g., technology, trade, finance, etc.), based on an in-depth understanding of the international enablers of enhanced country ambition.
- Organize a process for knowledge sharing and collective learning, based on concrete examples of actions already in place or being discussed, including best practices.
- Create space for open dialogues across different stakeholders to support better coordination of actions, based on a detailed understanding of the levers to be activated to enhance ambition in national and sectoral transitions
- Facilitate ownership by decision-makers of the climate challenge and the risks and opportunities of the low-emission and resilient transition, based on context-specific and granular analysis of barriers and enablers.

More specifically, the collective report in general – and this document in particular – can contribute to address some of the key guiding questions for the Global Stocktake[2], notably:

- What actions have been taken to increase the ability to adapt to the adverse impacts of climate change and foster the climate resilience of people, livelihoods, and ecosystem? To what extent have national adaptation plans and related efforts contributed to these actions (Decision 19/CMA.1, paragraph 36(c))?
- How adequate and effective are current adaptation efforts and support provided for adaptation (Article 7.14 (c) Paris Agreement)?

1 The full report « Climate ambition beyond emission numbers - Taking stock of progress by looking inside countries and sectors" can be found at: https://www.iddri.org/en/publications-and-events/report/climate-ambition-beyond-emission-numbers-taking-stock-progress

2 Draft Guiding Questions for the Technical Assessment of GST1 (version 20th October 2021), available at: https://unfccc.int/sites/default/files/resource/Draft%20GST1_TA%20Guiding%20Questions.pdf

- What are the barriers and challenges, including finance, technology development and transfer and capacity-building gaps, faced by developing countries?
- What is the collective progress made towards achieving the long-term vision on the importance of fully realizing technology development and transfer in order to improve resilience to climate change and to reduce greenhouse gas emissions referred in Article 10.1 of the Paris Agreement? What is the state of cooperative action on technology development and transfer?
- What progress been made on enhancing the capacity of developing country Parties to implement the Paris Agreement (Article 11.3 Paris Agreement)?
- To achieve the purpose and long-term goals of the Paris Agreement (mitigation, adaptation, and finance flows and means of implementation, as well as loss and damage, response measures), in the light of equity and the best available science, taking into account the contextual matters in the preambular paragraphs of the Paris Agreement:
  - What are the good practices, barriers and challenges for enhanced action?
  - What is needed to make finance flows consistent with a pathway towards low GHG emissions and climate-resilient development?
  - What are the needs of developing countries related to the ambitious implementation of the Paris Agreement?
- What is needed to enhance national level action and support, as well as to enhance international cooperation for climate action, including in the short term?
- What is the collective progress made by non-Party stakeholders, including indigenous peoples and local communities, to achieve the purpose and long-term goals of the Paris Agreement, and what are the impacts, good practices, potential opportunities, barriers and challenges (Decision 19/CMA.1, paras 36(g) and 37(i))?

Foreword

Henri Waisman, Marta Torres Gunfaus, Anna Perez Catala, IDDRI.

Country commitments as reflected in enhanced Nationally Determined Contributions submitted to the UNFCCC are insufficient to put the world on track to achieve the collective objective of the Paris Agreement to hold temperature increase below 2 °C or 1.5 °C above pre-industrial levels. Furthermore, concrete policies and actions adopted by countries on the ground are often not sufficient to achieve these NDC targets. These conclusions highlight the need to increase ambition and to provide convincing evidence to accelerate action in the immediate and short term to give effect to this ambition. Yet these assessments are not sufficient to effectively guide the progressive increase of ambition, as organized by the cyclical process of the Paris Agreement.

APPROACH

With this imperative in mind, this report adopts a different, complementary, perspective on climate ambition. It seeks to open the box of emission pathways, by considering multiple dimensions of the conditions that will make these pathways possible. These are technical, economic, political, social and governance considerations in need of attention to enable the required far-reaching and systemic transformation towards the long-term goal. On the one hand, the revision of emission targets needs to be directed by an assessment of how drivers of emissions should change to trigger transformation. On the other hand, converting emissions' targets into pertinent concrete implementation requires well-designed policy packages and investment plans that are also informed by a clear and detailed understanding of the starting point, priorities and interplays between the available levers of transformation.

This bottom-up assessment aims at contributing to the process of collective learning in support of the progressive increase of collective ambition, as inserted at the core of the Paris Agreement paradigm. Approaching climate ambition through the lens of underlying transformations calls for reflecting the heterogeneous nature and the multi-faceted aspects of transitions in different sectors and countries. This forces a move away from a purely global perspective and adopts a more granular approach based on country and individual sector perspectives. Thus, the report explores trends and progress on these transformations, as locally observed over the past years, notably since the Paris Agreement. This 'backwards looking' approach can help identify where developments are going in the right direction, where they should be accelerated and where major tensions remain that should be addressed as a priority to avoid undermining the transition. The picture of the state of the ambition discussion, firmly embedded in the country and sectoral realities, can provide means for reflection and action within the international climate community, particularly to inform focus areas for advancing the collective ambition agenda.

STRUCTURE OF THE REPORT

This country report describes the recent evolutions of domestic discourses on climate ambition, national climate policy, national governance and concrete policies and actions with a significant effect on GHG emissions. The chapter highlights a selection of striking and structurally important elements to advance the transformation towards carbon neutrality from an in-country perspective.

This report is part of a full series of 26 country chapters and three sectoral chapters. The full report includes a "summary for decision-makers" to present 10 cross-cutting messages emerging from the country and sector analysis, as a guide to the selection of priorities for collective action in the post-COP26 period.

You will find the full report at: https://www.iddri.org/sites/default/files/PDF/Publications/Catalogue%20Iddri/Rapport/DDP_beyond%20emissions%20report.pdf

JAPAN

NARRATIVE ON CLIMATE AMBITION SINCE THE PARIS AGREEMENT

This chapter has been written thanks to the support of the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU).

Japan has raised its climate ambition by declaring its commitment to achieve carbon neutrality by 2050, and by setting a new target of reducing its greenhouse gas (GHG) emissions by 46% against 2013 levels by 2030. This brief provides a perspective on how Japan's ambition has evolved since 2015, in terms of domestic discourse, governance to strengthen ambition, and action on the ground to implement the necessary measures.

DOMESTIC DISCOURSE

Ahead of the declaration on carbon neutrality by 2050, there were two significant changes in perception towards climate measures in Japan. First, in June 2018 at the Council on Investments for the Future—a top body to determine the general direction of national economic policy—the then Prime Minister Abe stated, "Combating climate change is no longer a cost for companies, but a source of competitiveness. And companies that are proactive in dealing with environmental issues will attract funding from around the world, enabling them to grow and take further action."[1] This statement marked a turning point in perception on climate change policy among key decision-makers (previously, climate measures were seen as costly and burdensome for business

1 See the meeting minutes of the 17th Council on Investments for the Future, http://www.kantei.go.jp/jp/singi/keizaisaisei/miraitoshikaigi/dai17/gijiyoushi.pdf.

activities). The statement was repeated in key policy documents such as Japan's long-term low GHG emissions development strategy in June 2019, and the declaration of 2050 carbon neutrality in October 2020.

The perception that combating climate change is no longer a cost for companies but rather a source of competitiveness was driven by actual changes in business. For example, there is a rapidly growing number of Japanese companies that are engaged in RE100, Science-based Target initiative (SBTi) and the Taskforce on Climate related Financial Disclosures (TCFD). In addition, pro-climate action business groups like the Japan Climate Leaders' Partnership (JCLP) have seen a marked increase in their membership[2]. The market size of ESG investments in Japan increased from JPY 57 trillion in 2016 to JPY 231 trillion in 2018, an increase of 306%. Finally, immediately preceding the declaration on carbon neutrality by Prime Minister Suga, two significant announcements were made. The first came from the chair of *Keidanren*, Japan's biggest business association including members from the energy-intensive sectors, who proposed innovation for 2050 carbon neutrality at the Council on Economic and Fiscal Policy.[3] The second announcement was that JERA—the biggest power generation company in Japan, producing about 30% of Japan's electricity—also pledged to achieve carbon neutrality by 2050.[4] It is these changes to the way business perceive climate measures that have paved the way for climate ambition.

However, one consequence of putting climate change measures in a key component of a growth strategy is that the focus of the measures tended to be on industry-oriented technological innovation. For example, the Japan's long-term low GHG emissions development strategy highlighted hydrogen and carbon capture, utilization and storage (CCUS), while providing few specific discussion of innovation in socio-economic systems or lifestyles. A more balanced discourse is needed in the course of achieving carbon neutrality.

Secondly, climate change-related disasters have also had a major impact on public perception. Climate change began to be viewed as a threat to society, requiring the fundamental response of carbon neutrality. In 2018, Japan was hit by three exceptionally extreme weather events, causing economic damage of USD 27.5 billion.[5] Then in 2019, two record-strong typhoons caused economic damage of USD 25 billion.[6] According to German Watch's Global Climate Risk Index, Japan was ranked the country most affected by climate change in 2018, and the fourth most affected country in 2019. Furthermore, thanks to the development of a branch of climate science called extreme event attribution, the Japan Meteorological Agency began to point out the linkages between global warming and these specific events,[7] which were reported by mass media and started gaining the attention of the general public.

Responses to these climate change-related disasters put a considerable economic burden on local governments. Many of them began to declare a state of climate emergency, and others announced their commitment to carbon neutrality by 2050. Prior to Prime Minister Suga's declaration on carbon neutrality, 168 local authorities, covering 62% of Japan's total national population, declared their commitment to achieving carbon neutrality by 2050.[8] In addition, private companies also face the growing risk of physical damage due to climate change, which threatens their business operations and assets.

These changes in perception has provided the domestic basis for raising ambition.

NATIONAL GOVERNANCE

Japan's recent move to raise its climate ambition was accompanied by three developments related to na-

2 Member companies of JCLP are 186 with the total sales of 144.8 trillion yen as of June 2021. See https://japan-clp.jp/en

3 The Council on Economic and Fiscal Policy became a top body to determine the general direction of national economic policy, after the Council on Investments for the Future was abolished.

4 JERA's press release "Towards Zero CO_2 Emissions in 2050." Available at https://www.jera.co.jp/english/information/20201013_539

5 Eckstein, et al. "Global Climate Risk Index 2020" German Watch Briefing Paper. Available at https://www.germanwatch.org/sites/germanwatch.org/files/20-2-01e%20Global%20Climate%20Risk%20Index%202020_14.pdf

6 Eckstein, et al. "Global Climate Risk Index 2021" German Watch Briefing Paper. Available at https://germanwatch.org/sites/default/files/Global%20Climate%20Risk%20Index%202021_2.pdf

7 Imada, et al. "The July 2019 High Temperature Event in Japan Could Not Have Happened without Human-Induced Global Warming." *Scientific Online Letters on the Atmosphere (SOLA)*. Vol.15A (2019) Available at https://www.jstage.jst.go.jp/article/sola/15A/0/15A_15A-002/_article

8 As of June 2021, the number of local governments announcing the 2050 carbon neutrality reached 416 covering 88% of the total population. See https://www.env.go.jp/policy/zerocarbon.html

tional governance of climate issues. First, the commitment to carbon neutrality by 2050 was enshrined in law. Second, there was a change in the process for formulating Nationally Determined Contributions (NDC). Third, a Cabinet Office Minister for Climate Change was appointed to accelerate coordination across all levels of government.

Regarding legislation, the Act on Promotion of Global Warming Countermeasures was amended to stipulate the goals of the Paris Agreement and the government's declaration of carbon neutrality by 2050 as basic principles and position them in the law. The Act entered into force in 1998 as the first climate-dedicated law in Japan, and serves as a framework legislation for climate change policy. By clearly setting out the direction and continuity of the policy, the amended Act aims to provide predictability to all actors, including citizens, local authorities and businesses, and to promote initiatives and innovation.

With regard to Japan's NDC, a new target of reducing GHG emissions by 46% against 2013 levels by 2030 was announced in April 2021, though this has not yet been officially communicated as the updated NDC. The basis for the 46% emissions reduction target is not known. If a straight line is drawn between zero emissions in 2050 and current emissions, however, there will be around 46% reduction in emissions by 2030 compared to 2013 levels. This new target is a significant increase from the previous target of a 26% reduction (the first NDC).

When Japan's first NDC was formulated in 2015, energy policy provided a framework within which the 26% reduction target was set. The Strategic Energy Plan provides the general direction of national energy policy for the next two decades, and has been revised every three to four years. Based upon the Fourth Strategic Energy Plan of 2014, the Long-term Energy Supply and Demand Outlook of July 2015 provided "macro-framework" (GDP and economic activities) and an "energy mix" for 2030, which in turn became a basis for bottom-up calculation of the emissions reduction target for 2030 (METI, 2015). However, due to a deadlock in the discussions on energy policy, in particular with regard to nuclear power, the Fifth Strategic Energy Plan of 2018 did not amend the 2030 energy mix. This led to a situation where NDC could not be substantially changed even though Decision 1/CP.21 requested Parties to communicate or update their NDCs in 2020.[9] As a result, the Japanese government updated its NDC in March 2020 without any change to the emissions reduction target.[10]

Since changing the emission reduction target for 2030 would require a change in the 2030 energy mix, it was expected that Japan's NDC would not be changed until after the summer of 2021, when the new Strategic Energy Plan would be formulated. However, at the urging of the Biden Administration in the US, a new 2030 emission reduction target was announced at the Climate Leaders' Summit in April 2021 before the new Strategic Energy Plan was developed. At the same time, the targets were raised from the original assumptions. This meant that the new Strategic Energy Plan has to be developed in line with the new 2030 emission reduction target, and must also take into account carbon neutrality by 2050. In other words, climate targets provided a framework within which energy policy would be formulated.

At the time of writing, it is not clear whether and how this new process whereby energy policy is designed to achieve a climate target will be institutionalised. However, this provides an opportunity to develop a new governance system for integrating energy policy and climate policy. Under current legislation, the Plan for Global Warming Countermeasures is mandated by the Act on the Promotion of Global Warming Countermeasures, while the Strategic Energy Plan is mandated by the Basic Act on Energy Policy. These two sets of policy differ in terms of the timing and process of revision, thereby resulting in significant obstacles to enhancing emissions reduction targets. Integrated climate and energy policy is required to make the domestic policy process consistent with a five year cycle of NDC submission.

One positive step toward cross-governmental coordination was the establishment of a Cabinet Office Minister for Climate Change. In March 2021, Prime Minister Suga appointed Environment Minister Koizu-

9 https://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf

10 Japan' submission of updated NDC. Available at https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Japan%20First/SUBMISSION%20OF%20JAPAN%27S%20NATIONALLY%20DETERMINED%20CONTRIBUTION%20(NDC).PDF

mi as the Cabinet Office Minister for Climate Change, assigning him with coordinating powers across all ministries.[11] There are more than 10 bodies under the Cabinet Office, the Ministry of Economic, Trade and Industry, the Ministry of the Environment the Ministry of Land, Infrastructure, Transport and Tourism, and the Ministry of Agriculture, Forestry and Fisheries that discuss and review climate and energy policy. The role of the newly-established Cabinet Office Minister is expected to coordinate climate action across government with the aim of enhancing the level of climate ambition.

ACTIONS AND POLICIES

One of the most important actions put in place over the past five years with notable potential for the achievement of climate objectives was establishing targets for approving offshore wind power of 10 GW by 2030 and 30-45 GW by 2040.

Surrounded by the sea on all sides, Japan has huge potential to generate offshore wind power and must use this to the maximum extent in order to achieve carbon neutrality by 2050. However, the deployment of offshore wind power is significantly lagging behind. The feed-in tariff (FIT) scheme gave a boost to the deployment of solar PV, but failed to develop offshore power projects. The capacity of offshore wind power installed in Japan is currently around 0.2GW, mostly from government-funded demonstration projects. The government did not set clear targets for introducing offshore wind power. Due to a poor outlook for the domestic future market, major Japanese wind turbine makers withdrew from the business.

In April 2019, to boost the deployment of offshore wind power, the Japanese government brought into force the «Act of Promoting Utilization of Sea Areas in Development of Power Generation Facilities Using Maritime Renewable Energy Resources.» This Act allows offshore wind power developers to occupy a registered area up to 30 years after consultation with relevant ministries and local stakeholders, such as fisheries and local residents, with a view to reaching a consensus. The government will set five areas where operation of renewable energy will have started by FY2030.

In addition to legislation, the Japanese government consulted with the private sector, and outlined its vision and targets for offshore wind power. The vision included a 60% local content requirement by 2040 as well as a target of reducing the cost of fixed foundation offshore wind power generation to JPY8-9/kWh sometime between 2030 and 2035.

It is essential for the Japanese government to commit itself to creating an attractive domestic market and to attract both domestic and overseas investment. Along with the government's initiative, major wind turbine makers like Vestas Wind Systems and GE announced the establishment of strategic partnership with Toshiba and a joint venture with Mitsubishi Heavy Industry, respectively.[12] This has strengthened expectations of the rapid deployment of offshore wind power in Japan.

11 https://www.env.go.jp/annai/kaiken/r3/0309.html

12 Press release from Mitsubishi Heavy Industry, available at https://www.mhi.com/jp/news/210201.html; Press release from Toshiba, available at https://www.toshiba-energy.com/info/info2021_0511_02.htm

The DDP is an initiative of the Institute for Sustainable Development and International Relations (IDDRI). It aims to demonstrate how countries can transform their economies by 2050 to achieve global net zero emissions and national development priorities, consistently with the Paris Agreement.. The DDP initiative is a collaboration of leading research teams currently covering 36 countries. It originated as the Deep Decarbonization Pathways Project (DDPP), which analysed the deep decarbonization of energy systems in 16 countries prior to COP21 (deepdecarbonization.org). Analyses are carried out at the national scale, by national research teams. These analyses adopt a long-term time horizon to 2050 to reveal the necessary short-term conditions and actions to reach carbon neutrality in national contexts. They help governments and non-state actors make choices and contribute to in-country expertise and international scientific knowledge. The aim is to help governments and non-state actors make choices that put economies and societies on track to reach a carbon neutral world by the second half of the century. Finally, national research teams openly share their methods, modelling tools, data and the results of their analyses to share knowledge between partners in a very collaborative manner and to facilitate engagement with sectoral experts and decision-makers.
www.ddpinitiative.org

The Institute for Sustainable Development and International Relations (IDDRI) is an independent, not-for-profit policy research institute based in Paris. Its objective is to identify the conditions and propose tools to put sustainable development at the heart of international relations and public and private policies. IDDRI is also a multi-stakeholder dialogue platform and supports stakeholders in global governance debates on the major issues of common interest, such as actions to mitigate climate change, protect biodiversity, strengthen food security, and to manage urbanisation. The institute also participates in work to build development trajectories that are compatible with national priorities and the sustainable development goals.

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