

Keynote Lecture: “Recent internal and external trends surrounding Carbon Neutrality”

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Good afternoon. I am KIHARA from the Ministry of Economy, Trade and Industry. Thank you for giving me this opportunity to participate the third Tokyo Zero-emission Innovation Bay symposium today. I would like to express my sincere gratitude to Professor Kashiwagi, the President of this council, Dr. Yoshino, the Director of Global Zero Emission Research Center (GZR), and the National Institute of Advanced Industrial Science and Technology (AIST) as the Secretariat of the Zero-emission Bay.

I would like to introduce recent changes in policy. In the first half, I will discuss Japan’s most recent energy and climate strategy, GX (Green Transformation). And in the second half, I will talk about the G7, which Japan is chairing this year, in particular the outcome of the G7 Summit held in May.

Let me first talk about GX. Three years ago, Japan announced its goal of achieving carbon neutrality by 2050. Since then, we have developed three major energy-related policy packages.

The first is the Green Growth Strategy, which sets out the direction of long-term innovation and establishes 2 trillion yen in total Green Innovation Fund; the strategy is aimed at 2050 and was announced in 2020.

The second is a medium-term energy mix strategy aiming for a 46% reduction in greenhouse gas emissions by 2030, with a focus on the energy supply side, including the Energy Master Plan announced in 2021.

The third is the GX Basic Policy, adopted in February this year, which is the most recent.

It is a comprehensive policy package outlining the future demand trajectory, including industries with large emissions that are difficult to reduce.

The related GX Promotion Law has just been passed at the previous ordinary session of the Diet.

We believe that the combination of these policies will accelerate GX, Green Transformation, efforts to simultaneously achieve the three goals of decarbonization, energy security and economic growth.

Looking at Japan's greenhouse gas emissions, steady progress has been made in reducing emissions.

Emissions increased slightly in Japan in 2021, but the overall trend is a decrease on track toward carbon neutrality by 2050.

Emissions in 2021 were 17% lower than in 2013, a good performance among the G7 countries.

Japan and overseas CO2 emissions data gives us a good direction toward which Japan should move.

Energy-related emissions account for a significant 93% of Japan's CO2 emissions, as shown in the pie chart on the left-hand side.

However, as Dr Kashiwagi mentioned earlier, it is important to note that power sector emissions are a part of energy-related emissions.

The power generation sector accounts for 40% of total emissions, so decarbonizing the power generation mix is a key issue.

But not only that, decarbonization in the industrial, transport and housing sectors, which account for the remaining 60%, e.g., those which use fossil fuels as a heat source, power or raw material, will be essential for carbon neutrality by 2050.

This includes many hard-to-abate, high-emission industries such as steel, chemicals, cement, aviation, etc.

The graph on the right shows Japan's CO2 emissions is 3% of the world's total.

Japan's responsibility is not only to reduce its own emissions, but also to provide the world with solutions such as advanced decarbonization technologies.

And, as countries other than Japan account for 97% of the world's emissions, we believe that Japan must contribute to Asia and other emerging countries to simultaneously reduce CO2 emissions and achieve economic growth.

And the core of the GX Basic Policy is the "Pro-growth Carbon Pricing Concept".

Over the next ten years, it is estimated that over 150 trillion yen of public and private GX investment will be necessary to meet both the international commitment to achieve carbon neutrality by 2050, and to strengthen industrial competitiveness and economic growth.

To realize GX, there are three policy measures.

First, we will implement initial investment support of 20 trillion yen over 10 years utilizing GX Economy Transition Bonds.

Second, we will introduce the "Pro-Growth Carbon Pricing Concept".

Specifically, full-scale operation of the emissions trading system, which is based on ambitious

emissions reduction objectives, will be launched in FY2026, and paid auctions for power generation utility, will be introduced gradually) from FY2033.

Additionally, a “GX surcharge” on fossil fuel importers will be introduced from FY2028.

Third, we will leverage new financial instruments to foster public-private partnerships in order to stimulate additional private-sector capital flows.

For these objectives, the GX Promotion Organization will be founded by the end of this fiscal year.

The government believes that it is critical to increase trading pricing predictability by offering a comprehensive picture of these policies, including a timetable.

We encourage industry to develop strategies and make investment decisions by enhancing predictability.

We believe this is the government's role.

There are four aims of initial investment leveraging in achieving carbon neutrality.

The first is to maximize energy savings, and the second is to decarbonize the power sector. Commercialized technology already exists in these two sectors.

For these two areas, we believe that the government's role is to support a large, long-term commitment by the private sector, and some of the risks associated with this commitment.

The third goal, decarbonization of the energy industry, and the fourth, decarbonization of manufacturing processes and raw materials, are challenging, due to the underdevelopment and high cost of the technologies, and we believe that government support is needed to develop innovative technologies and address the risks associated with their commercialization.

We think that utilizing hydrogen and ammonia is the key to decarbonizing the fuel sector.

In addition to technology development, the high cost of new technologies compared to traditional fuels also needs to be addressed.

We are also considering a scheme called price differential support.

The fourth goal, decarbonization processes and raw material in hard-to-abate industries is extremely difficult.

For example, the large-scale deployment of hydrogen reduction steelmaking will require intensive research, development, and demonstration.

It will also be essential to develop technologies of CO2 capture and chemical recycling procedures for the chemical, cement, and pulp and paper sectors.

This figure is too detailed so I will omit it, but it is an image showing the outlook for public and private investment of 150 trillion yen by sector.

The first half of my talk has been about the latest developments in Japan's GX. Next, I would like to introduce the results of the G7, which Japan is chairing this year, and related topics.

METI and the Ministry of the Environment (MOE) jointly hosted the "G7 Ministers' Meeting on Climate, Energy and Environment" in April, in April.

As you may still remember, the G7 Hiroshima Summit was held in May.

I will introduce the important aspects of the Hiroshima Summit Communique agreed upon by the leaders.

This slide has a lot of information, but I will highlight the key points. First, we will promote the Green Transformation as outlined (2), on a global scale. The leaders have agreed that Green Transformation, GX as we say in Japan, is very important.

As a chair of the leaders' communique preparation, I emphasized the importance of GX.

In the face of multitiered issues, such as energy security, achieving carbon neutrality, decarbonization, and economic growth, geopolitical risks are rising.

I stressed that it is important our actions must be transformational and innovative, not incremental, and the G7 leaders agreed.

As for these multitiered issues, we emphasized that diverse paths according to each country's circumstances will lead to the common goal of net zero.

The Japanese government proposed the necessity of pursuing net-zero emissions by working together on a global scale with developing and emerging countries, and the G7 leaders agreed to the importance of supporting each other through various approaches, which is by 'various pathways'.

The consensus on accelerating the promotion of clean energy technologies described in (6), such as energy efficiency, renewable energy, hydrogen and ammonia, nuclear power, and CCUS and carbon recycling, was nearly identical to the G7 Leaders' Communique and the Climate, Energy, and Environment Communique.

Regarding the fossil fuel phase-out described in (7), which was later reported in the newspapers, we underlined our commitment to accelerate the phase-out of unabated fossil fuels so as to achieve net zero in energy systems by 2050 at the latest, and call on other countries to join us in taking the same action.

G7 countries are already contributed to carbon neutrality by 2050, so this message is intended for non-G7 countries. Furthermore, G20 meetings will be held this summer, the G20 Summit in fall, COP28 in the United Arab Emirates (UAE) at the end of the year, so we have sent the message in advance of these international negotiations.

Next, I will introduce two key points of the communique. One is outlined in (11), which we encourage and promote private entities' work to foster innovation contributing to the emission reduction of other entities, this was advocated by the Japanese government in terms of avoided emissions. I will explain more detailed later.

(12) states that transition finance has significant role in advancing the decarbonization of the economy as a whole, which I will talk about later.

The G7 leaders all agreed with these very comprehensive messages.

I would like to introduce more points, but due to time constraints, I will skip some as I proceed.

First, I would like to talk about 'Transition Finance'.

Achieving carbon neutrality requires all industries to work toward net zero emissions, not simply those that are easiest to decarbonize.

As Dr. Kashiwagi stated, the 2°C degrees target and 80% decrease in greenhouse gas emissions can mostly met, but to achieve carbon neutrality and net zero by 2050, whole industries must cooperate to realize net zero emissions.

However, not all industries can be decarbonized at once, like turning on and off a light switch. Industrial sectors that have difficulty decarbonizing also face challenges such as financing from investors.

Even if a company has an ambitious reduction strategy and investment plan for decarbonization, the risk of high emissions for financial institutions investing in the company makes it difficult to proceed with financing, which is called "financed emissions".

To this end, the Japanese government has proposed the concept of transition finance and has been developing environments toward carbon neutrality ahead of other countries.

We believe that it is critical for Japan to move toward carbon neutrality, not just in green areas like renewable energy, which is already decarbonized, but also in industries with large CO2 emissions, such as energy conservation and energy transition, or processes using AI or DX. To support this transition, the Japanese government, led by the Ministry of Economy, Trade

and Industry (METI), the Financial Services Agency, and the Ministry of the Environment, has established a system for transition and develop this market environment. We provide four tools, which we call the four pillars.

First is the basic guidelines and the basic concepts, and second is sector-specific technology roadmaps, which are very important.

Eight sector-specific technology roadmaps are formulated and provided: iron and steel, chemical, power, gas, oil, pulp and paper, cement, and automobile sectors.

The roadmaps present the technologies along with their backgrounds and timeframes, from the most advanced technology available today to future technologies, and also available in English.

We can eliminate 80% of Japan's CO2 emissions if we make efforts in accordance with these roadmaps.

Third, model and subsidiary fund projects are being carried out. We are actively engaged in providing subsidies to businesses that engage in transition finance or that are planning transition bonds/loans.

Forth was to develop "Follow-up Guidance" for financial institutions in response to the inquiries we have received from banks and investors regarding what to do post-execution of finance.

In this way, we are working to consistently improve reliability and effectiveness from pro-execution to post-execution.

Furthermore, decarbonization investments in Japan have grown significantly in the last few years, and the total sum raised for transition finance has reached 1 trillion yen, which is shown by the dark blue at the bottom of the left-hand bar chart.

The pie chart of the right-hand side shows how the demand for transition finance is rising rapidly across all industries, including steel, gas, power, shipping, heavy industry, oil, cement, and others.

The importance of transition finance planning is also increasing internationally, and the movement to promote transition finance is gaining momentum.

The International Capital Markets Association, ICMA, is an organization that announces various bond issuance principles, such as the Green Bond Principles.

ICMA released the Climate Transition Finance Handbook in 2020, which was the first major move in this area.

After that, especially in 2022, guidance on transition has been released by the G20, TCFD, GFANZ, CBI, OECD, Net-zero Banking Alliance.

Japan is at the forefront of developing this system, and other nations are becoming more and more interested.

We believe that the global dialogue on transition support will continue to intensify.

Finally, I would like to introduce the 'avoided emission' proposed by the Japanese Government at the Summit.

This reduction contribution, avoided emissions, is an indicator of a company's corporate activities, but there are also solutions provided by companies.

Avoided emissions is the positive impact on society when this is compared to another baseline scenario for global greenhouse gas impact.

Taking heat pumps as an example, gas heating is now the main heating system in Europe, but it is being replaced by gas heating.

Even if a considerable reduction in CO₂ occurs, that large reduction cannot be recognized as Scope 1, 2, or 3 of the heat pump manufacturers.

Because heat pump manufacturers' operations will expand to create additional heating systems, and CO₂ emissions will rise.

There is a strange phenomenon going on that real contribution on reducing CO₂ emissions cannot be recognized.

'Avoided emission' is an attempt to quantify the value of a company's contribution as a solution provided to the overall reducing emissions in society.

The question is how the contribution of other entities to emission reductions can be considered by providing decarbonization solutions in addition to the established Scope 1, 2 and 3 emissions accounting system, and the concept of reduction contribution is clearly stated in the G7 Ministerial Communiqué in this regard.

And now, there is increased discussion on the amount of reduction contribution, called 'avoided emissions' in English, and the World Business Council for Sustainable Development, WBCSD, which developed Scope 1, 2, and 3, issued the world's first guidance on this topic in March 2023.

This is general guidance, and discussions are now underway in various sectors and industries on how to perform more detailed calculations.

In some electrical and electronic fields, there is a movement to make an IEC International Standard, like an electronic version of ISO.

The finance sector must also be involved. For example, at GFANZ, the finance sector is now participating in discussion on how to further develop the concept of the amount of reduction contribution.

Because of time constraints, I introduced Japan's most recent GX policy measures and G7 discussions.

The Japanese government will continue to provide various tools and support for the realization of GX.

Climate change and then sustainability are difficult challenges for humanity.

We believe it is essential to bring together the wisdom of the world to find solutions and open a new future.

Many of Japan's leading companies, universities and research institutions participate in this council and continue to work towards innovation in zero-emission technologies.

We hope that through your collaboration, innovations will emerge one after another from the Tokyo Bay area and contribute towards achieving carbon neutrality in Japan and the world.

Thank you very much.