Carbon Credit Report (Draft)

○ 2022

Study Group on Preparation of Operational Environment to Ensure Proper Use of Carbon Credits toward Achieving Carbon Neutrality

Content

1. Introduction

1.1. Background

In October 2020, Prime Minister Suga declared that Japan aims at carbon neutrality by 2050 and realization of a decarbonized society, and in April 2021, announced Japan's 2030 goal to reduce greenhouse gas emissions by 46% from the 2013 level. The government has pledged to mobilize all policy tools at its disposal to support the positive efforts of the private sector to make bold investments and innovations to realize this goal.

As part of this policy review, the Ministry of Economy, Trade and Industry (METI) set up a study group on ideal Economic and other approaches for achieving worldwide carbon neutrality and conducted a series of consultation through seven meetings held from February to August 2021 for presenting the basic thinking and viewpoints necessary for promoting "carbon pricing that contributes to growth,". The study group released an interim report in August 2021 showcasing the direction of concrete measures. [1]

With carbon credit trading positioning itself as one of the carbon pricing mechanisms by the private sector, and based on common understanding that the activation of such transactions can contribute to the reduction of emissions in Japan as a whole, the interim report presented two policy directions: "illustration of the status of carbon credits" and the "creation of a carbon credit market."

Due to the nature of these directions, it was determined that there was a need to undertake a policy review in an integrated manner at the same venue, and in November 2021, the Study Group on Preparation of Operational Environment to Ensure Proper Use of Carbon Credits toward Achieving Carbon Neutrality was established, and ○ discussions and 9 interviews in total were held from November 2021 to ○ regarding these two directions. [2]

This report is a document compiled under the name of the study group based on key conclusions of the discussions and those interviews.

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[1] Interim report of the Research Group on Economic Methods, Etc. for the Achievement of Carbon Neutrality Worldwide
https://www.meti.go.jp/press/2021/08/20210825002/20210825002-1.pdf

[2] Study Group on Preparation of Operational Environment to Ensure Proper Use of Carbon Credits toward Achieving Carbon Neutrality
https://www.meti.go.jp/shingikai/energy_environment/carbon_credit/index.html

1.2. Purpose of this Report

Based on the discussions in the study group, this report is intended to clarify following three points:

(1) To illustrate the significance of various types of carbon credits and ways in which they are used

- Building on the current status of international discussions on carbon credits and issues related to their appropriate use, to present a basic concept on the importance of carbon credits as a tool to realize a carbon neutral society at the global scale while contributing to economic growth and appropriate use of carbon credits.

(2) To show directions of actions to promote the achievement of Japan's emission reduction targets through carbon credits

- To clarify the handling of various carbon credits in domestic systems and to establish the direction of policies for expanding the supply of carbon credits that can contribute to Japan's goals, from the perspective of promoting reduction of domestic emissions and achievement of NDC through carbon credits.

(3) To show directions of the carbon credit market in Japan

- To show the ideal direction of a "carbon credit market" that can leverage international ESG funds and become a hub for global decarbonization business, as the supply and demand of carbon credits are expected to expand globally.

1.3. Status of this Report

Based on the discussions in the study group, this report summarizes the basic items such as definitions and requirements of carbon credits, and then summarizes the domestic and international trends of carbon credits and issues of carbon credits in Japan, as well as the basic directions and proposals for concrete measures for appropriate utilization. The following is a summary of the results of the study. The status structure of this report is summarized as follows.

(1) The first half of this report summarizes domestic and international trends in carbon credits, but meanwhile, discussions on carbon credits are still evolving with a variety of entities, including private businesses and international NGOs largely involved, and will continue to develop in the future. Therefore, this report is a release of information based on the current situation and awareness at the time of compilation of this report, and the contents of this report may be updated after the release of this report.

(2) The latter half of the report presents the direction and specific measures for the appropriate use of carbon credits, which are based on the discussions in the study group and provide specific suggestions for the discussions in each domestic system.

(3) This report is the first comprehensive overview of carbon crediting schemes in Japan. After its publication, we will continue to update this report by revising it as necessary, taking into account discussions with a wide range of stakeholders in both the public and private sectors, as well as the progress of international discussions.

2. What is a carbon credit?

2.1. Definition of a carbon credit

In this report, "carbon crediting" refers to a system that certifies units of emissions reductions and carbon removals/sequestrations generated through projects such as renewal of boilers, introduction of solar power generation equipment and implementation of forest management based on the difference between baseline and actual emissions or removals established through MRV (monitoring, reporting, verification) process. [3] Also called "baseline-and-credit," credit buyers can use credits voluntarily for carbon offsetting or, depending on the credit type, in regulatory systems. In addition, carbon credit issuers can earn revenue from the sale of carbon credits, which can be considered as one of the incentive mechanisms for emission reductions, carbon sequestrations, and carbon removals.

On the other hand, emissions trading system introduced in Europe, California, China, Tokyo and Saitama Prefecture and elsewhere is called "cap-and-trade," which is a mechanism that establishes certain emissions rules (allowance) for emissions of organizations and facilities, and if actual emissions exceed the allowance, excess emission limits are purchased from companies with emissions below the limit. In addition, some schemes allow the purchase of carbon credits on an additional and limited basis as a complement to the allowance, and specific cases are highlighted in 3.1.4 Credit usage in national systems.

At the time of writing this report, while carbon credits are a mechanism that support voluntary efforts, cap-and-trade is characterized by being a regulatory mechanism that serves as a method of carbon pricing.[4]

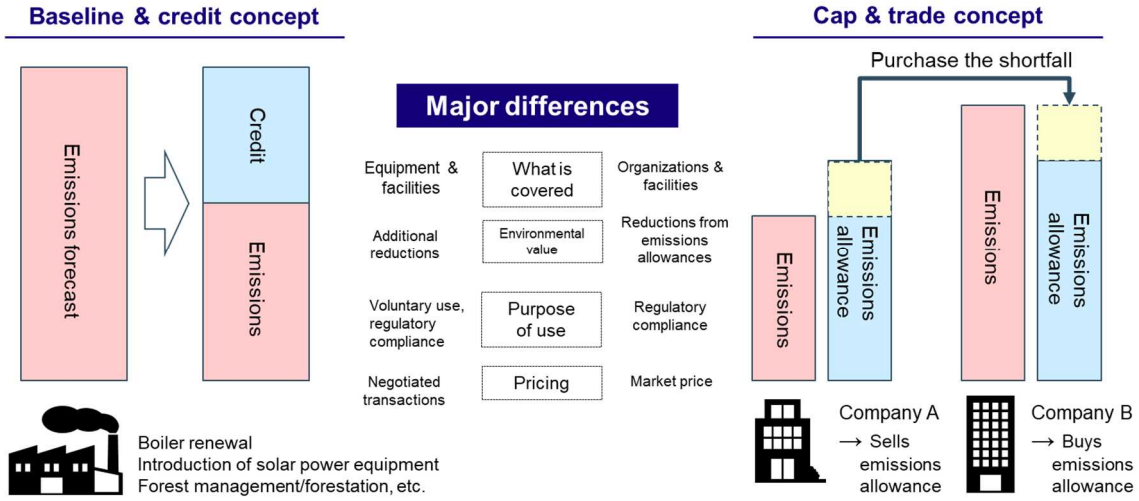

Figure 1 Differences between baseline-and-credit and cap-and-trade

[3] Generally, the process of credit issuance follows the order of (1) preparation of PDD, (2) validation, (3) project registration, (4) preparation of monitoring report, (5) verification, and (6) issuance of credits.

[4] In Europe, there have been studies to expand the scope of the Emissions Trading Scheme to include sectors that have not been covered so far, such as shipping, road transport, and buildings. https://ec.europa.eu/info/sites/default/files/revision-eu-ets_with-annex_en_0.pdf

Distinct from carbon credits, there are also certificates for electricity and heat derived from renewable energy facilities procured externally as indirect energy. Carbon credits are certified in t-CO2 units for the amount of GHG (greenhouse gas) emissions reductions based on the baseline, and buyers also claim carbon offsets, etc. in t-CO2 units, while certificates certify the amount of electricity and heat from renewable energy sources in units of kWh or kJ. In addition, by guaranteeing the attributes of these (e.g., date/time, place, method of power generation), buyers can overwrite the attributes for externally procured electricity using a separately procured certificate. In Japan, Non-Fossil Certificates managed by the government and Tradable Green Certificates managed by private businesses are traded.

In such transactions, certificates generally do not have additionality (see section 2.2 Main requirements of carbon credits), and the attributes for electricity, etc. in the same grid are just replaced, so the action of using certificates to reduce indirect emissions does not necessarily lead to the creation of a new reduction action, and it should be noted that it is different from carbon credits.

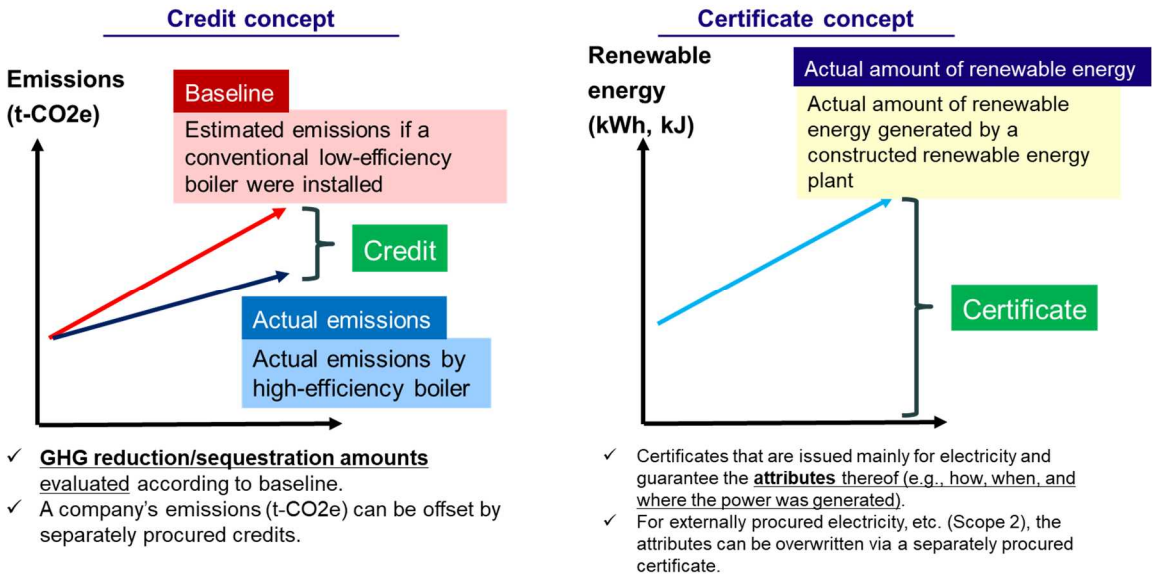

Figure 2 Differences between carbon credits and certificates

2.2. Main requirements of carbon credit

When a certification authority certifies carbon credits, certain requirements are set for the target project to ensure the quality of carbon credits. In this section, the table below shows the requirements of the "ICROA CODE OF BEST PRACTICE" established by the International Carbon Reduction & Offset Alliance (ICROA), which are generally known as the current carbon credit requirements.[5]

Table 1 Overview of the "ICROA CODE OF BEST PRACTICE" by ICROA

Category	Summary
Real	All emissions reductions and removals and the project activities that generate them have genuinely taken place, they are measured, monitored and verified ex-post.
Measurable	Credits are quantifiable and use recognised measurement tools, including adjustments for uncertainty and leakage, against a realistic and credible emissions baseline. Credits are credited only beyond performance against a defensible, conservative baseline estimate of emissions that assumes the BAU trajectory in the absence of the activity. Baselines should be recalculated on a regular, conservative timeframe. Regarding the avoidance of leakage, the Standard has requirements for the project to demonstrate leakage is minimal and there should be no, or minimal additional or unintended emissions related to the project's implementation and operations. The risk of leakage is adequately assessed, mitigated and calculated considering any potential increase in emissions outside of the boundary, including taking appropriate deductions.

[5] As of December 2021, the following 11 standards satisfy the standards: CDM, CAR, Gold Standard, JI, VCS, ACR, Emissions Reduction Fund (ERF) of the Australian Government, UK Woodland Carbon Code (WCC), Architecture for REDD+ Transactions (ART), The REDD+ Environmental Excellence Standard (TREES), Global Carbon Council (GCC).

Permanent	Carbon credits are issued for reductions or removals that are permanent or, if they have a reversal risk, must have requirements for a multi-decadal term and a comprehensive risk mitigation to ensure the risk is minimised and compensation mechanism in place to ensure the risk is minimised, with a means to replace any units lost.
Additional	Project-based emission reductions and removals beyond what would have occurred if the project had not been carried out or that would have otherwise occurred. Projects demonstrate a conservative business as usual (BAU) scenario and must be surplus to regulatory requirements. Jurisdictional programs demonstrate additional reductions below the historical reference level.
Independently verified	All emission reductions and removals shall be verified to a reasonable level of assurance by an independent and accredited third-party verifier. MRV should be conducted at the specified intervals.
Unique	The carbon credits are only counted once and are not double issued or sold.

In addition, with regard to the prevention of double counting above, it must be noted that if a carbon credit issuer transfers a credit to another entity, said issuer may no longer claim the transferred emissions reductions. The following graph is an example of adjustment under the Act on Promotion of Global Warming Countermeasures.[6]

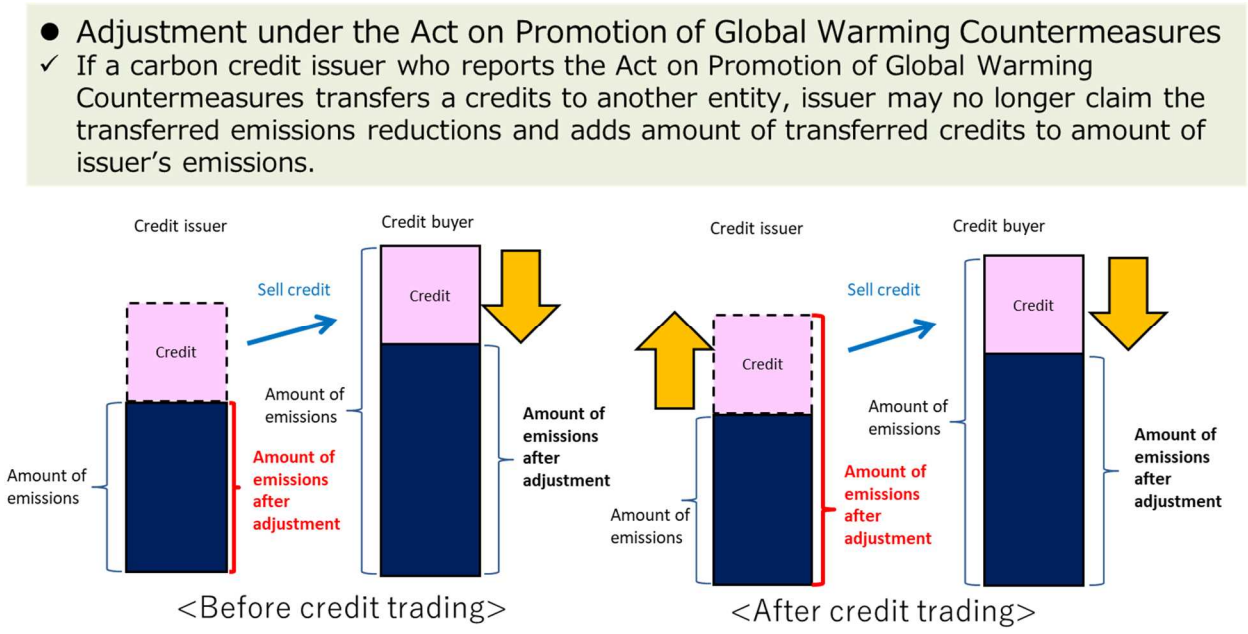

Figure 3 Overview of additional reporting
under the Act on Promotion of Global Warming Countermeasures

2.3. Schemes and types of carbon credits in Japan and overseas

In Japan, there are several carbon credit schemes, including the J-Credit Scheme operated by the Japanese government and the J-Blue Credit, a voluntary credit standard operated by the private sector. Carbon crediting schemes with carbon reduction value in foreign countries include public sector-led initiatives run by the United Nations and governments such as CDM and JCM, and voluntary credits operated by the private sectors such as VCS, Gold Standard, American Carbon Registry and Climate Action Reserve.

[6] Since the Act on Promotion of Global Warming Countermeasures only requires business operators with annual GHG emissions above certain thresholds to report the amount of their GHG emissions to the national authority with GHG sequestrations/removals not included in the target of its reporting, those who transferred certified greenhouse gas sequestrations/removals credits by forest management and conservation do not need to add the amount of those credits on top of their emissions when applying adjustment in their reporting.

Table 2 Main carbon credit schemes in Japan and overseas

Scheme	Summary
Schemes with carbon reduction effects in Japan	
J-Credit Scheme	A crediting scheme operated since 2013 by Management Committee consisting of the Ministry of Economy, Trade and Industry, the Ministry of the Environment, and the Ministry of Agriculture, Forestry and Fisheries. A wide variety of project types are eligible for credit issuance including energy conservation, renewable energy, improved forest management, etc.
J Blue Credit	A credit standard operated since 2020 by Japan Blue Economy association (JBE), which certificates credits specializing in Blue Carbon.
Schemes with carbon reduction value in foreign countries	
Clean Development Mechanism (CDM)	A standard that allows developed (Annex I) countries to implement jointly with developing (non-Annex I) countries and to transfer these emissions reductions in order to meet their own targets under the Kyoto Protocol.
Joint Crediting Mechanism (JCM)	A standard used for i) quantitatively assessing Japan's contribution to greenhouse gas emissions reduction and sequestration achieved through dissemination of outstanding decarbonization technologies, products, systems, services and infrastructures and the implementation of countermeasures in developing countries, etc. and ii) achieving Japan's NDC.
Verified Carbon Standard (VCS)	WBCSD (World Business Council for Sustainable Development), IETA (International Emissions Trading Association), and other organizations in which private companies participate established this certification standard in 2005. Various types of project are being implemented, including those related to forests and land use sector such as REDD+ and projects that reduce emissions through wetland conservation.

Gold Standard (GS)	A certification standard established in 2003 by the World Wide Fund for Nature (WWF), an international environmental NGO. In addition to issuing its own Verified Emission Reductions (VER), GS certifies CDM projects deemed to have incidental benefits, such as contributing to local communities.[7]
American Carbon Registry (ACR)	The world's first private credit certification standard, established in 1996 by NPO Winrock International.
Climate Action Reserve (CAR)	A certification standard that originated from the California Climate Action Registry founded in 2001.

In some cases, Carbon credits are also classified according to the methodology of the project that issues them, including whether a methodology is derived from avoidance/reduction[8] or from sequestration/removal[9]. This can be outlined, for example, in the following table:

Table 3 Main methodologies of projects that create carbon credits[10]

Category		Initiative
Avoidance /Reduction	Nature-based	REDD+[11], other nature conservation, etc.
	Technology-based	Renewable energy, improved equipment efficiency, fuel exchange, improved transport efficiency, waste management, etc.
Sequestration /Removal	Nature-based	Afforestation/reforestation, cultivated land management, peat bog restoration, coastal area restoration, improved forest management, grassland conservation, etc.
	Technology-based	Direct air carbon capture and storage (DACCS), bioenergy crops with carbon capture and storage (BECCS), enhanced weathering, biochar, etc.

In recent years, there has been a move to stop new registrations of emission

[7] In addition to the CDM certification and verification process, carbon credits that meet the following independent criteria: (1) project eligibility, (2) additionality and baseline, (3) contribution to sustainable development, and (4) stakeholder consultation.

[8] GHG emissions decrease compared to the baseline as a result of project implementation.

[9] GHG sequestrations/removals will be increased compared to the baseline as a result of project implementation.

[10] The classification is based on the TSVCM Final Report.
https://www.iif.com/Portals/1/Files/TSVCM_Report.pdf

[11] Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries

avoidance/reduction (hereinafter referred to as emission reduction) credits in some standards, and to expand carbon credits derived from sequestration/removal compared to carbon credits derived from emission reduction.[12] And there has also been discussion in international initiatives that financial additionality may not be necessary, especially for sequestration/removal.[13]

[12] VCS organizes energy-saving projects (fuel conversion, lighting renewal, waste heat recovery, HFC-23 reduction, etc.) and renewable energy projects (grid-connected hydropower, wind power, geothermal power, solar power, etc.) according to project implementation site (LDC/non-LDC) and project scale (large/small) and announces restrictions. Large-scale projects are uniformly excluded from projects in non-LDCs. Large-scale projects are added, while grid-connected hydroelectric power generation are excluded.
Gold Standard also publishes Eligibility Requirements for Grid Connected Renewable Energy Generation Projects (VER and CER), and projects implemented in countries or regions included in high- and middle-income countries and high-income countries classified as such by the World Bank and projects implemented in countries where the level of renewable energy penetration exceeds 3.5% of the total grid capacity on the date of submission of the proposed project for the preliminary review are deemed ineligible. As exceptions, however, projects implemented in the least developed countries (LDCs), small island developing states (SIDS), or landlocked developing countries (LLDCs) specified by the United Nations, or in other special situations (conflict zones, etc.) are exempt from these eligibility requirements.

[13] In the discussion of the "Core Carbon Principles" in the TSVCM, one of the issues to be considered was whether financial additionality was necessary for all methodologies. In view of the increasing amount of carbon removal, some participants suggested that sequestration/removal in particular should be distinguished from emission reduction /reduction or may not be necessary.

3. Carbon credit trends

3.1. International trends

Government regulation and taxation measures, etc. were mainly envisioned as discipline to encourage companies to reduce carbon emissions. However, with rising global calls for measures against climate change, there are also examples of a shift to a new governance structure that provides discipline to companies while capital markets, vendors, consumers, NPO/NGO, and other various non-governmental stakeholders interact to realize carbon neutrality worldwide.

Amidst this trend, initiatives by companies using primarily private sector-led voluntary carbon credits have gained momentum. In particular, attention has been focused on methods such as voluntary emissions reduction initiatives through energy conservation and the use of renewable energy, as well as using carbon credits to offset emissions that remain despite reduction efforts.

Within this context, the following provides an overview of trends in international initiatives, moves by carbon credit exchanges gaining momentum in individual countries, the formation of international rules, etc.

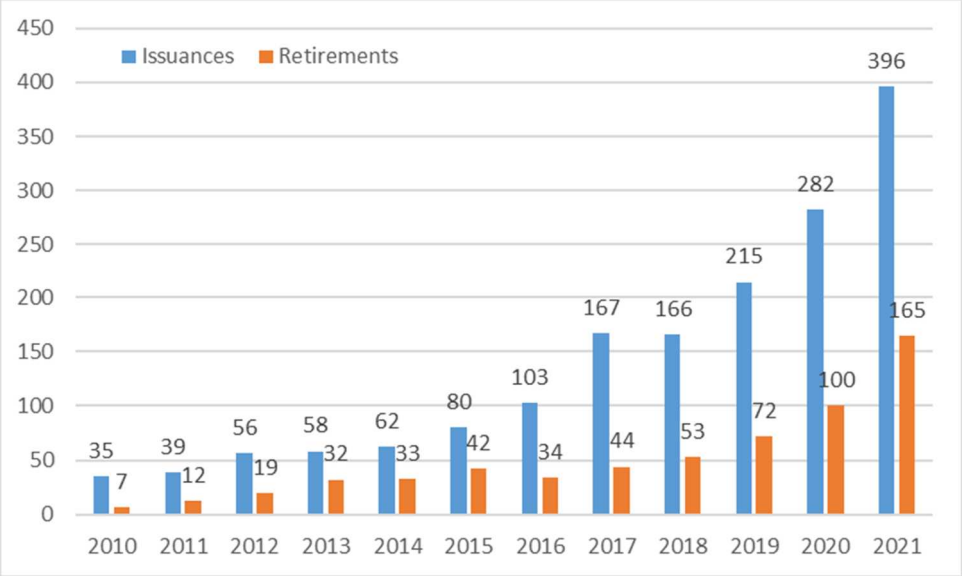

Figure 4 Shifts in the amount of international carbon credits issued and retired (Mt-CO2)[14]

[14] Credits tallied include ACR, ART TREES, CAR, CARB, CDM (for credits issued after 2016), City Forest Credits, Climate Forward, Coalition for Rainforest Nations, Eco Registry, GCC, Gold Standard, Plan Vivo, ProClima, and VCS

3.1.1. The Paris Agreement's Article 6 Rules

In November 2011, at the 26th Climate Change Conference of Parties to the United Nations Framework Convention on Climate Change and the 3rd Meeting of the Parties to the Paris Agreement (CMA3), agreement was reached on the implementation rules of Article 6 (Market mechanisms) of the Paris Agreement. Rules for internationally transferable mitigation outcomes (ITMOs) are divided into general guidance regarding ITMOs in section 6.2, which includes ITMOs related to cooperative approaches such as the Joint Crediting Mechanism (JCM) and section 6.4 guidance specializing in mechanisms managed and operated by the UN.[15] Section 6.2 guidance prescribes the definition of ITMOs as indicated below, and for those ITMOs approved for use for international mitigation purposes such as NDC achievement or CORSIA, corresponding adjustments must be made by the country participating in the cooperative approach as a measure for the avoidance of double counting.[16]

Table 4 Definition of ITMOs[17]

Definition of ITMOs
Real, verified, and additional
Emission reductions and removals, including mitigation co-benefits resulting from adaptation actions and/or economic diversification plans or the means to achieve them, when internationally transferred
Measured in metric tonnes of carbon dioxide equivalent (t CO2 eq) in accordance with the methodologies and metrics assessed by the Intergovernmental Panel on Climate Change and adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) or in other non-greenhouse gas (GHG) metrics determined by the participating Parties that are consistent with the nationally determined contributions (NDCs) of the participating Parties
From a cooperative approach referred to in a cooperative approach that involves the international transfer of mitigation outcomes authorized for use towards an NDC pursuant to Article 6, paragraph 3
Generated in respect of or representing mitigation from 2021 onward

[15] Among the Article 6.4 credits, Japan does not expect to utilize the pre-2020 CDM for NDC. http://www.registry.go.jp/kyoto_20211221.pdf

[16] Under the CMA3 agreement, the agreed corresponding adjustment methods are: (1) method of reconfiguring single-year goals into provisional multi-year targets and counting the ITMOs used in each year, depending on the emissions route or carbon budget; and (2) method of annually calculating the average transferred volume of ITMOs used during the NDC implementation period, provisionally counting each year, and making a final corresponding adjustment, which would be applied to the NDC target year.

[17] Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement, Annex I. Internationally transferred mitigation outcome

Mitigation outcomes authorized by a participating Party for use for international mitigation purposes other than achievement of an NDC or authorized for other purposes as determined by the first transferring participating Party
Article 6, paragraph 4, emission reductions issued under the mechanism established by Article 6, paragraph 4, when they are authorized for use towards achievement of NDCs and/or authorized for use for other international mitigation purposes

As a result, it became possible to use ITMOs that have been authorized and have undergone corresponding adjustment in accordance with the guidance in section 6.2 not only for voluntary carbon offset claims of private companies as in the past but also toward the achievement of NDC of each country in regard to overseas voluntary credits provided by the private sector as well as the UN-managed market mechanism based on Article 6.4, the JCM based on Article 6.2 and other credits implemented by the government.[18]

As prescribed in Article 5 of the Guidelines for the Implementation of the Joint Crediting Mechanism (JCM) in Japan (As of January 17, 2022), private companies having a JCM are allowed to transfer credits to a retirement account as a carbon offset against its own emissions, and the Japanese government positions the JCM as those to be used for NDC achievement (Article 5, Paragraph 2, Item 2).[19] In addition, Articles 6 and 7 stipulate the approval and corresponding adjustments required under the Paris Agreement as follows.

Table 5 Text about the purpose of credits and corresponding adjustments in the Guidelines for the Implementation of the Joint Crediting Mechanism (JCM) in Japan

Purpose of use of JCM credits	Article 5 The Government of Japan may use retired JCM credits, which are issued for emission reductions and removals that are realized on or after 1 January 2021 in the JCM registry of Japan, and retired for the purposes specified in paragraph 2, sub-paragraphs 1) and 2) of this Article, to achieve Japan's NDC. 2 The account holding entity that hold JCM credits may use its JCM credits for the purposes specified in the sub-paragraphs below.

[18] On the other hand, regardless of whether or not there is a corresponding adjustment in accordance with the Article 6.2 Guidance, Japan's use of voluntary credits for NDC is not allowed because it is not positioned in the current Global Warming Countermeasures Plan (approved by the Cabinet in October 2021). Similarly, credits based on Article 6.4 are not allowed. Not allowed.

[19] If a company retires carbon credits for carbon offsets and also uses them to achieve the country's NDC at the same time, this does not constitute double counting of carbon credits since the calculation is done in a different emissions layer.

	1) Adjustment on GHG emissions through retirement as stated in Article 1, Item 4 of the Order on Reporting of Carbon Dioxide Equivalent Greenhouse Gas Emissions etc. (the Ordinance of the Cabinet Office, the Ministry of International Affairs and Communications, the Ministry of Justice, the Ministry of Foreign Affairs, the Ministry of Finance, the Ministry of Education, Culture, Sports, Science and Technology, the Ministry of Health, Labour and Welfare, the Ministry of Agriculture, Forestry and Fisheries, the Ministry of Trade, Economy and Industry, the Ministry of Land, Infrastructure and Transport, and the Ministry of the Environment No.2 of 2006); 2) Utilization for carbon offsetting and other purposes through retirement, other than the purpose specified in the preceding sub-paragraph; 3) Utilization for other international mitigation purposes through cancellation, limited to the JCM credits whose use is approved by the relevant implementing authority. The Government of Japan makes publicly available on the JCM website (https://www.jcm.go.jp/), the name of those purposes and the approved JCM credits; 4) Utilization for carbon offsetting and other purposes through cancellation, other than the purpose specified in the preceding sub-paragraph.
Authorization as a Party to the Paris Agreement	Article 6　The Government of Japan, as a Party to the Paris Agreement, authorizes through separately specified procedures, the use of the JCM credits issued from emission reductions and removals that are realized on or after 1st January 2021 for the purpose specified in Article 5, paragraph 1, as well as the use of the JCM credits whose use is approved for other international mitigation purposes specified in Article 5, paragraph 2, sub-paragraph 3), in accordance with the Paris Agreement and its relevant decisions.. 2 The Government of Japan requests the partner country to authorize, as a Party to the Paris Agreement, JCM credits issued from emission reductions and removals that are realized on or after 1st January 2021, in accordance with the Paris Agreement and its relevant decisions.

Corresponding adjustments	Article 7　The Government of Japan, as a Party to the Paris Agreement, applies a corresponding adjustment by deducting the quantity of the JCM credits authorized in line with Article 6, paragraph 1, from the amount of GHG emissions covered by Japan's NDC, when those JCM credits are used for the purpose of Article 5, paragraph 1 by following separately specified procedures, in accordance with the Paris Agreement and its relevant decisions. 2 The Government of Japan requests the partner country to apply a corresponding adjustment by adding the quantity of JCM credits authorized in line with Article 6, paragraph 1 on the amount of GHG emissions covered by its NDC, in accordance with the Paris Agreement and its relevant decisions.

3.1.2. International Initiatives

The following table outlines international initiatives, guidance, and other trends relating to carbon credits. As of March 2022, rules related to accounting for and reporting GHG emissions, international standards relating to appeals for carbon neutrality, claim methods for the quality carbon credits and when they are used, and so forth are under consideration, and no concrete conclusions have been reached.

Table 6 International initiatives, guidance, and other trends relating to carbon credits

Initiative, Guidance, etc.	Summary
GHG protocol	- Guidance related to accounting for and reporting GHG emissions established by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). - Given that the guidance referenced in international initiatives such as SBTi/RE100 is the GHG Protocol, although ISO 14064 has been established as an international standard for accounting and reporting methods, the GHG Protocol has become the de facto standard internationally.[20]

[20] Since 2018, when the influence of international initiatives (CDP, RE100, SBT, etc.) was increasing, METI has developed "Guidance on Responding to International Climate Change Initiatives," which explains the GHG Protocol Scope 2 guidance for Japanese companies. https:// www.meti.go.jp/press/2019/03/20200331019/20200331019.html

	- In addition, toward early 2023, the "Land Sector and Removals Guidance" has been established as guidance for accounting for and reporting GHG in relation to land use and carbon sequestrations.
ISO	[ISO14064] - An international standard that outlines requirements related to accounting for, reporting, and verifying GHG emissions and reductions in an organization/project. - Largely divided into organizational accounting (ISO 14064-1) and project accounting (ISO 14064-2), in Japan it is referenced in the J-Credit Scheme, among others. Incidentally, validation and verification (ISO 14064-3) are also referenced in the J-Credit Scheme, etc. [ISO14065] - An international standard that outlines requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition. - Referenced as a requirement to register as a verification body under the J-Credit Scheme, etc. [ISO14068] - An international standard for carbon neutrality is under discussion.
PCAF	- On November 18, 2020, Partnership for Carbon Accounting Financials (PCAF), an international initiative/networks of financial institutions, published the PCAF Standard which is a methodology for calculating GHG emissions associated with investments and loans based on the GHG Protocol. Avoided emission/removal was a reporting option in this standard. - The draft of the new methodology published on November 10, 2021, proposes that Absolute emissions shall be reported without taking into account carbon credits purchased by clients and projects to offset these emissions. Carbon credits purchased by clients and projects may be reported, and if so, shall be reported separately.

SBTi	- An international initiative that promotes science-based net zero target setting. - The Net Zero Standard announced on October 28, 2021, outlines (1) methods of transitioning to net zero and (2) the role of achieving net zero, while regarding carbon credits evaluated at the net zero point as sequestrations and removals only. - However, there are maximum limits for the amount of sequestration and removal credits that can be used, which differ according to sector, but in general the maximum is 10% of the base year emissions. - Forest, Land and Agriculture Science Based Target Setting Guidance is under development.
TSVCM (IC-VCM)	- The Taskforce on Scaling Voluntary Carbon Markets (TSVCM) is a task force established by Mark Carney (former Bank of England governor, UN Special Envoy on Climate Action and Finance) for the purpose of expanding the private sector credit market. - It suggests that a credit market 15 times larger than the current one will be required to realize a net zero society, and in a report published in January 2021, it mentions with respect to the target for promoting the creation of a credit market that reduction projects are important over the short-term, but a transition to sequestration and removal over the medium to long term is required. - Phase 2 through July 2021 outlines the main points of the credit quality and assessment framework, "Core Carbon Principles"(CCP), but no concrete conclusions have been reached, so a newly established governance body (The Integrity Council for Voluntary Carbon Markets (IC-VCM)) is continuing to study this.

VCMIi	- The Voluntary Carbon Market Integrity Initiative (VCMIi) is a platform that promotes participation in voluntary carbon markets to achieve the goals of the Paris Agreement. - Moving toward April 2022, a roadmap published on October 29, 2021 sets forth the following five points to addressed. ➢ Produce clear guidance for corporations and other nonstate actors（NSAs） on high-ambition voluntary use of carbon credits with high environmental, social, and gender integrity, including what constitutes 1.5°C-aligned voluntary use of carbon credits. ➢ Develop clear guidance on the claims that corporations and other NSAs should make in relation to their voluntary use of carbon credits and the different types of carbon credit that are appropriate for each type of claim. ➢ Draft recommendations on an institutional framework for the governance, transparency, and assurance of claims relating to voluntary use of carbon credits and considerations for the role of governments in their implementation. ➢ Create country strategies to enhance access to financing opportunities from VCMs to support the achievement and enhancement of NDCs and support sustainable and inclusive development priorities. ➢ Develop recommendations for alignment with the evolving international architecture under the Paris Agreement and other related regulatory environments.

3.1.3. Carbon Credit Trading

Carbon credits are generally traded in negotiated trades mediated by brokers/retailers and in over-the-counter (OTC) trades, but in recent years, in addition to these trades, there has been a movement to establish exchanges and trading platforms such as those shown in the table below. Various carbon credit trade methods and the use of digital technology epitomized by block-chain management can be seen in some cases.

Table 7 Examples of Carbon Credit Exchanges and Trading Platforms

Company/ Organization	Location	Description
Xpansiv	USA	・ Operates an environmental value platform (CBL market). ・ Transaction volume is expanding year by year, and in 2021, approximately 120 million t-CO2 of credit transactions were conducted (market share around 36%). ・ In addition to CORSIA-eligible reduction credits (GEO) and nature-based credits (N-GEO), on October 28, Xpansiv announced plans to sell credits (C-GEO) aligned with credit quality (CCP) defined by the TSVCM. ・ Xpansiv also participates in the InterWork Alliance Sustainability Working Group, an initiative to consider the tokenization of credits.
CME Group	USA	・ Operates a futures market (CBL Global Emissions Offset futures) for the credits (GEO, N-GEO) sold on the above-mentioned CBL market. In 2021, approximately 500,000 tons were traded by the end of the second quarter.
London Stock Exchange (LSE)	UK	・ The London Stock Exchange announced plans to establish an exchange for the purpose of (1) accessing large-scale capital for project development, and (2) providing a long-term supply of high-quality carbon credits to companies and investors. (11/5/2021) ・ Positioned as a fair means of transitioning to a low-carbon society, activation of credit markets is also mentioned in CCP as an example of high-quality credits.
AirCarbon Exchange (ACX)	Singapore	・ Manages tokenized credits (AirCarbon Tokens) via block-chain, and operates an exchange. ・ In 2021, approximately 3.6 million tons were traded by the end of the second quarter.

DBS, SGX, Standard Chartered, Temasek	Singapore	・ Announced the opening of a high-quality nature-based credit exchange (CIX). (5/20/2021) ・ Explanations are given regarding the differences with numerous exchanges, such as that CIX will leverage satellite monitoring, machine learning, and block-chain to enhance transparency, integrity, and quality of carbon credits and enhance liquidity through forward transactions at a predetermined delivery price.
Public Investment Fund (PIF)	Saudi Arabia	・ Announced the founding of Riyadh Voluntary Exchange Platform, a platform for trading voluntary carbon credits. (9/3/2021) ・ It is believed that credits from the Middle East and North Africa will be handled.
CIBC, Itau, NAB, NatWest	Canada, Brazil, Australia, UK	・ Announced the launch of a trading platform called “Project Carbon,” which promotes transparency and liquidity of block-chain-based voluntary credits. (7/7/2021) ・ BNPP, UBS and Standard Chartered have also joined the founders and announced that they will launch "Carbonplace" as a payment platform. (2/15/2022). They also mentioned that they will provide high quality credits and plan to have the platform fully operational by the end of 2022 and also announced a collaboration with CIX (3/24/2022).

3.1.4. Credit Usage in National System

Under the cap-and-trade type Emission Trading System in each country, the use of baseline-type carbon credits was limited from the perspective of encouraging efforts within entities subject to regulation.

Recently, movements to promote the use of these carbon credits from sequestration/ removal for becoming carbon neutral can be found in Emission Trading System. The following table outlines relevant examples.

Table 8 Carbon credit use in public systems in various countries

Country/region	System/policy	Trend
UK	UK-ETS	・ Consider evaluating carbon credits derived from Direct Air Capture (DAC) in the UK-ETS (October 2021).
Europe	EU-ETS	・ For international credits sent overseas, in each phase conditions are set for the country where the project is implemented, the field of the project, and the amount of carbon credits that can be utilized (utilization from 2021 (Phase 4) is not anticipated at this time). ・ "Sustainable Carbon Cycles," released by the European Commission, states that consideration will be given to a system (carbon removal certificates) for establishing and certifying MRV standards for carbon fixation through forests, farmland, and other land use, carbon removal through DACCS/BECCS and other technologies. Consideration will also be given to use in future compliance markets. (December 2021)
USA	Growing Climate Solutions Act of 2021	・ A bill was introduced (April 2021) to establish a program allowing agriculture and forestry businesses in the United States, mainly the U.S. Department of Agriculture (USDA), to create and trade voluntary credits. The bill is currently in the Senate (June 2021).
USA	California Compliance Offset Program	・ Cabon credits can be used in the ETS implemented by the State of California. The quantitative limit is expected to be no more than 8% of obligations from 2013 to 2020, no more than 4% from 2021 to 2025, and no more than 6% from 2026 onwards. ・ The Air Resources Board (ARB) overseeing this established the Air Resources Board (ARB) Compliance Offset Protocols, which are standards organized for each project type (livestock methane, mine methane, ozone

		depletion substances (ODS), agriculture (rice cultivation), U.S. forest, and urban forest projects). Only credits that meet these protocols can be used.
Australia	Indo-Pacific Carbon Offsets Scheme	・ A partnership with Fiji, Papua New Guinea, and others was announced for the creation and use of high-integrity, high-quality credits that are also compliant with corresponding adjustments. (November 2021)
China	China National ETS	・ Under the national ETS begun in 2021 for power generation equipment, carbon credits (CCERs) created through the carbon credit system implemented by the government of China (China GHG Voluntary Emission Reduction Program) can be used for up to 5%.
South Korea	Korea ETS	・ In Phase 1 (2015-2017), Korea Offset Credits (KOC) and CER created in Korea could be used for up to 10% of obligations. ・ In Phase 2 (2018-2020), KOC and CER developed by Korean companies on or after June 1, 2016, could also be used for up to 10% of obligations. ・ Requirements were also established. For example, at least 20% of the ownership rights and voting stocks must be owned by a Korean company, and a Korean company must supply the low-carbon technology worth at least 20% of the project cost. ・ In Phase 3 (2021-2025), the phased quantitative limit decreased to 5%.

3.1.5. Use of Cabon Credits in CORSIA

The International Civil Aviation Organization (ICAO), at its 37th Assembly, established a global reduction goal of not increasing GHG emissions from 2020 onwards, and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) was started in 2021 as a means of achieving this. The demand for carbon credits in CORSIA is considered to be strongly influenced by COVID-19, and the demand estimation by ICAO in May 2021 considering the influence of COVID-19 expected to be as much as 1.6 to 3.2 billion tons.[21]

With some exceptions, the eligible unit dates in the pilot phase (2021-2023) are until December 31, 2020. Therefore, these credits are not covered by Article 6 of the Paris Agreement, and corresponding adjustments is not necessarily required.[22]

Table 9 Credits that can be used in the CORSIA pilot phase and eligible unit dates

Standard	Eligible Unit Dates
ACR	Issued to activities that started their first crediting period from 1 January 2016 and in respect of emissions reductions that occurred through 31 December 2023 *ACR and ART state that corresponding adjustments will be made.
ART	
CCER	Issued to activities that started their first crediting period from 1 January 2016 and in respect of emissions reductions that occurred through 31 December 2020.
CDM	
CAR	
GCC	
GS	
VCS	

[21] "Update to Scenario based Analyses of Potential Impacts of Covid19 on CORSIA," ICAO

[22] The requirement for corresponding adjustments after the pilot phase has not been mentioned at this time.

3.1.6. Use of Carbon Credits by Businesses

As shown in 3.1 International trends, the creation and use of carbon credits in recent years have been on an increasing trend internationally. In addition to utilizing credits for products and services, carbon offsetting in organizations or facilities is also carried out in manufacturers, IT companies, and others. These uses are voluntary, but corporate demand for carbon credits is also thought to be arising in partial use under national regulations such as CORSIA, carbon tax, and ETS, introduced in the previous section.

Table 10 Examples of international voluntary credit use

Category of carbon credit use	Examples
Products and services	・Shell Supplies CARBON NEUTRAL LNG offset by nature-based credits (e.g., peat bog conservation in Indonesia, REDD+ in Peru) to Tokyo Gas, Osaka Gas, etc. ・Occidental Uses VCS to offset GHG emissions estimated from the overall oil life cycle, including oil drilling, transport, storage, shipment, refinement, and subsequent use and combustion, and supplies this as Carbon-Neutral Oil to Reliance (India).
Facilities and organizations	・Volkswagen Discloses in its corporate goal of achieving carbon neutrality by 2050 its plan to offset residual emissions with forest credits in Indonesia certified under VCS, CCB Standard, etc. ・Microsoft Announces that it will be carbon negative by 2030 and that it will procure removal credits. Also announces its thoughts on a unique high-quality standard and a request for proposals (RFP) to procure credits appropriate for this.

In addition, American Carbon Registry and Emissions Reduction Fund operated by the Australian government have developed CCS methodologies for carbon credits issued from CCUS-related projects[23][24], which need to be expanded in the mid- to long-term supply. And as a

[23] https://americancarbonregistry.org/carbon-accounting/standards-methodologies/carbon-capture-and-storage-in-oil-and-gas-reservoirs

[24] http://www.cleanenergyregulator.gov.au/About/Pages/News%20and%20updates/NewsItem.aspx?ListId=19b4efbb-6f5d-4637-94c4-121c1f96fcfe&ItemId=985

new movement toward the creation of carbon credits, on June 16, 2021, CCS+ was established as a new initiative aiming to scale up business by applying CCUS-related projects to voluntary credits. Going forward, the goal is to formulate methodologies under the VCS and Article 6 of the Paris Agreement. The following table provides an overview and specifies participants gleaned from public information.

Table 11 CCS+ overview and participating members

Summary	Objective	To unlock and scale-up CCS-related climate action in carbon markets, with an initial focus on project-based methodologies for the Voluntary Carbon Market (VCM) and Article 6.
	Goal	To help limit global warming to well below 2, preferably to 1.5° and eventually reach net-zero by creating methodologies to accelerate scaling of CCS+ through carbon markets.
	Innovation	Carbon capture and storage (CCS), in its various forms (+), including both sequestration and utilization, represents key technology solutions for achieving both permanent emission reductions and carbon removals.
Participants	Energy-related and DAC/CCS-related entities	Oxy Low Carbon Ventures, Northern Lights, Total Energies, Equinor, Drax, BP, Fortum, JOGMEC, INPEX, Carbon Engineering, Carbfix, Climeworks, Carbyon, 44.01, Next Carbon Solution, Baker Hughes
	Carbon credit-related entities, consultants, measurement platformers, etc.	South Pole, Mitsubishi Corporation, Climate Partner, Macquarie, Perspectives Climate Group, Carbon Finance Labs, IFPEN
	Advisors/Supporters	IETA. Global CCS Institute, Negative Emissions Platform, ICROA, WBCSD, ZEP, RMI, OGC, TNO, EDF, Verra

3.2. Carbon Credit Trends in Japan

As stated in 1.1 Background, in Japan too, the Action Plan of the Growth Strategy decided by the Cabinet in June 2021 positioned the promotion of voluntary and market-based initiatives for carbon pricing using carbon credits as government policy.[25] In addition, the interim report of a study group on ideal Economic and other approaches for achieving worldwide carbon neutrality positioned the activation of carbon credit trading as a policy direction in aiming for "carbon neutrality by 2050." On the other hand, the circulation of carbon credits in Japan lacks robustness, and there is still room for expansion.

The following summarizes recent trends in J-Credit, which is a typical carbon credit scheme with carbon reduction/sequestration/removal value in Japan, and the JCM, which has carbon reduction value in foreign partner countries, and describes the positioning of carbon credits in the emissions trading schemes of Tokyo and Saitama Prefecture and examples of its utilization by private companies.

3.2.1. J-Credit Scheme

The number of registered projects and the amount of certified carbon credits are steadily on the rise with the cumulative registered number reaching 885 projects and certified carbon credits totaling 8.04 million tons of CO2 at the 49th Certification Committee meeting held in March 2022. The Plan for Global Warming Countermeasures decided by the Cabinet on October 22, 2021 sets the goal of cumulative 15 million tons of CO2 of certified carbon credits to be issued by 2030. To create an enabling environment for further project development and scale up the supply of carbon credits, methodological frameworks were revised at the Steering Committee meeting held in August 2021 to extend the J-Credit Scheme beyond 2030, and allow forest management projects to use aerial laser measurement, in addition to conventional ground survey, for monitoring carbon sequestrations/removals.

In particular, for J-Credits from renewable energy, the value as certificates is recognized by international initiatives such as CDP and RE100, and even after the minimum price of FIT certificates was lowered in November 2021, winning bid prices have risen, so they continue to be recognized as high-quality credits that can be used as certificates. In addition, an application for the use of J-Credits in CORSIA was submitted in February 2022 on the assumption that the

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[25] Action Plan of the Growth Strategy, June 2021
https://www.cas.go.jp/jp/seisaku/seicho/pdf/ap2021en.pdf
"In light of accelerated expansion of voluntary credit markets internationally, we will take concrete measures to increase the depth of the domestic market (credit market) in Japan in which carbon reduction value can be traded, and thereby promptly respond to the desires of companies that are pioneering climate change measures.
Specifically, in light of the growing corporate demand for carbon credits with carbon reduction value, such as J-Credits and Non-fossil Fuel Energy Certificates, at first we will review the existing carbon credits mechanisms and promote voluntary and market-based carbon pricing."

credits can be used to offset emissions from flight arrivals and departures in Japan.

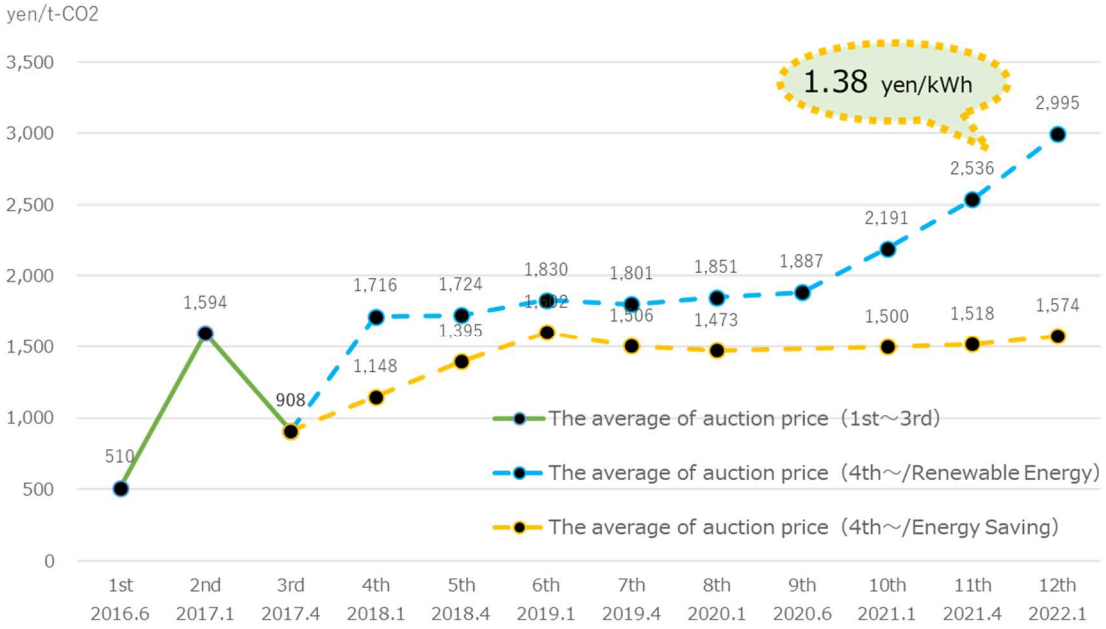

Figure 5 Shift in J-Credit auction results

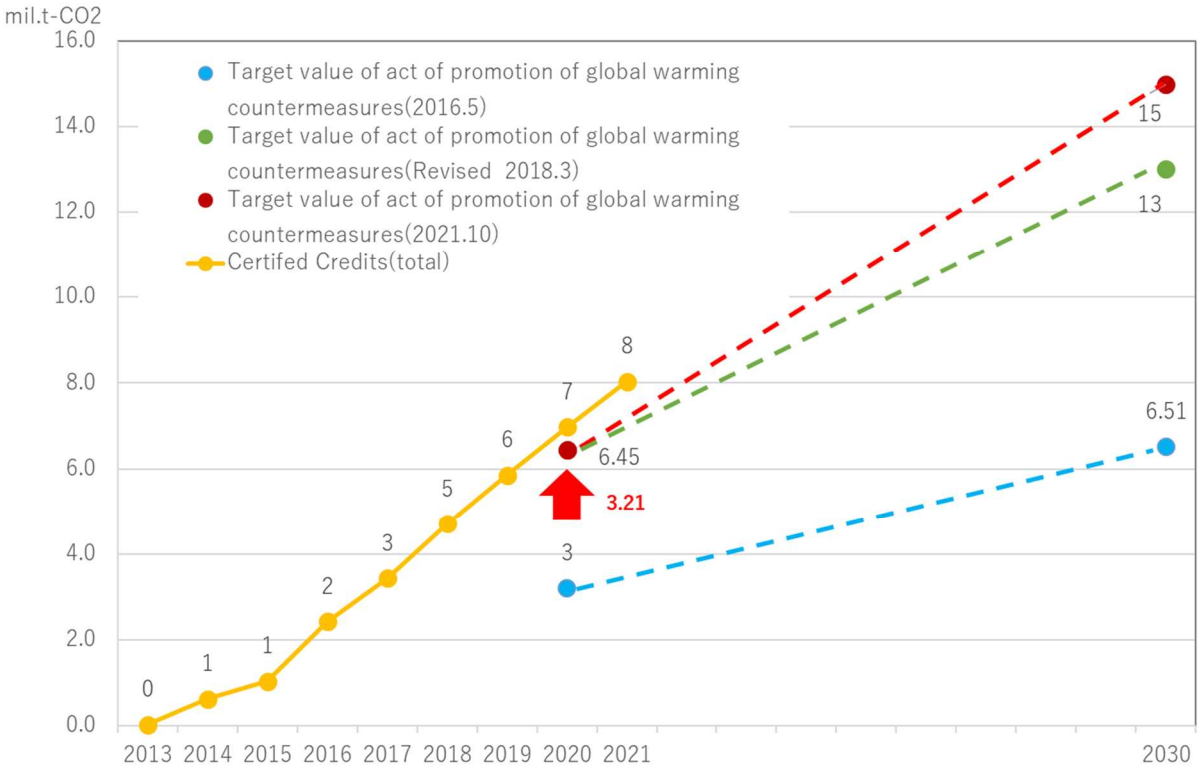

Figure 6 Shift in quantity of certified J-Credits (as of March 10, 2022)

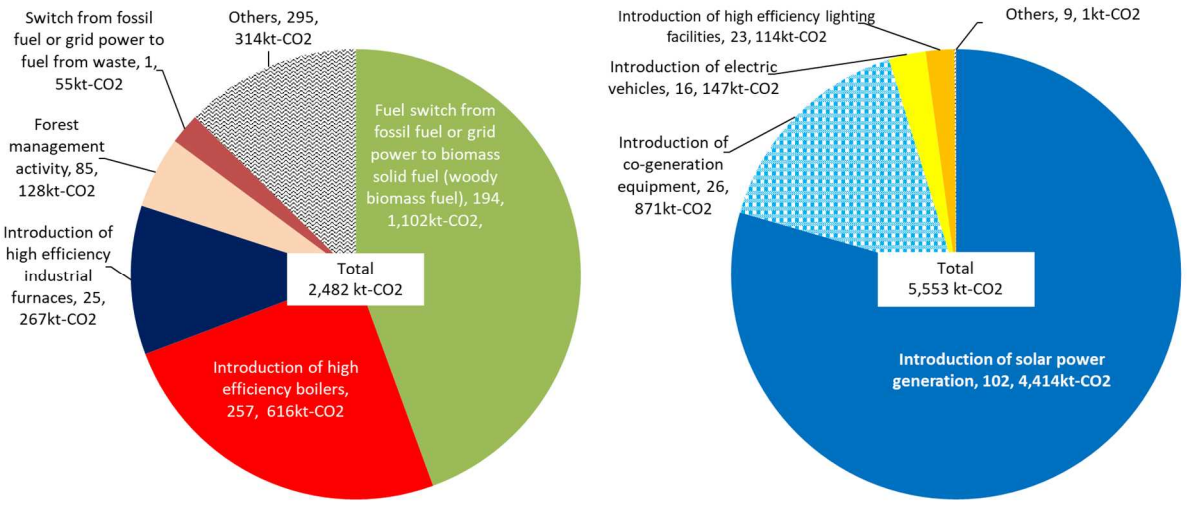

Figure 7 Breakdown of certified J-Credit methodologies (as of March 10, 2022)

3.2.2. JCM

With regard to the JCM, the Paris Agreement's Article 6 rules were agreed at COP26, and as progress is expected in global emissions reductions using the market mechanisms specified in Article 6, Japan led negotiations for the Article 6 rules and became the first country in the world to implement JCM, which Article 6 positions as a market mechanism. The Plan for Global Warming Countermeasures (decided by Cabinet in October 2021) states that "Japan will construct and implement a JCM to quantitatively assess Japan's contribution to the reduction and sequestration/removal of greenhouse gas emissions achieved through the dissemination of excellent decarbonizing technologies, products, systems, services and infrastructure and implementation of countermeasures in developing countries, etc. and to use this JCM to achieve its NDC. Through these efforts, the goal is to secure a cumulative total of 100 million tCO2 of international emissions reductions and removals by FY2030 through public-private partnerships."

In addition, a study group on ideal Economic and other approaches for achieving worldwide carbon neutrality has indicated the following four points as the main issues for further expanding utilization of the JCM in the future.

1. Raising international recognition of the JCM through initiatives in the implementation of Article 6 rules of the Paris Agreement.
2. Expansion of JCM partner countries.
3. Scaling up of projects and diversification of funding sources.
4. Improved Scheme management, including JCM project composition that focuses on private funding based on demand among private companies.

JCM partner countries as of January 2022 are Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Vietnam, Laos, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, Thailand and the Philippines (17 countries), and 205 projects have been adopted under the JCM financing support of the Ministry of the Environment and 11 projects have been adopted under METI's Demonstration.

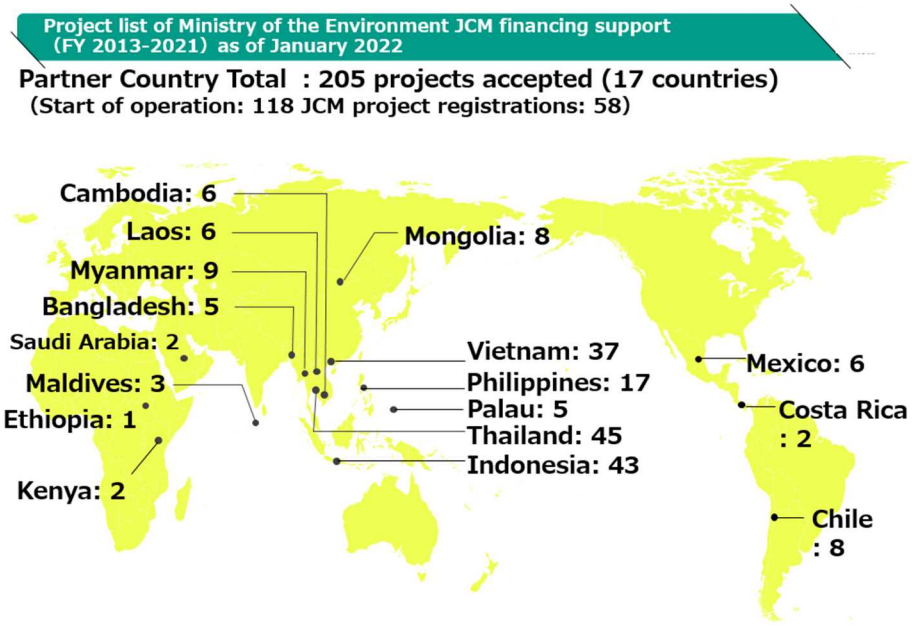

Figure 8 Project list of Ministry of the Environment JCM financing support (as of January 2022)

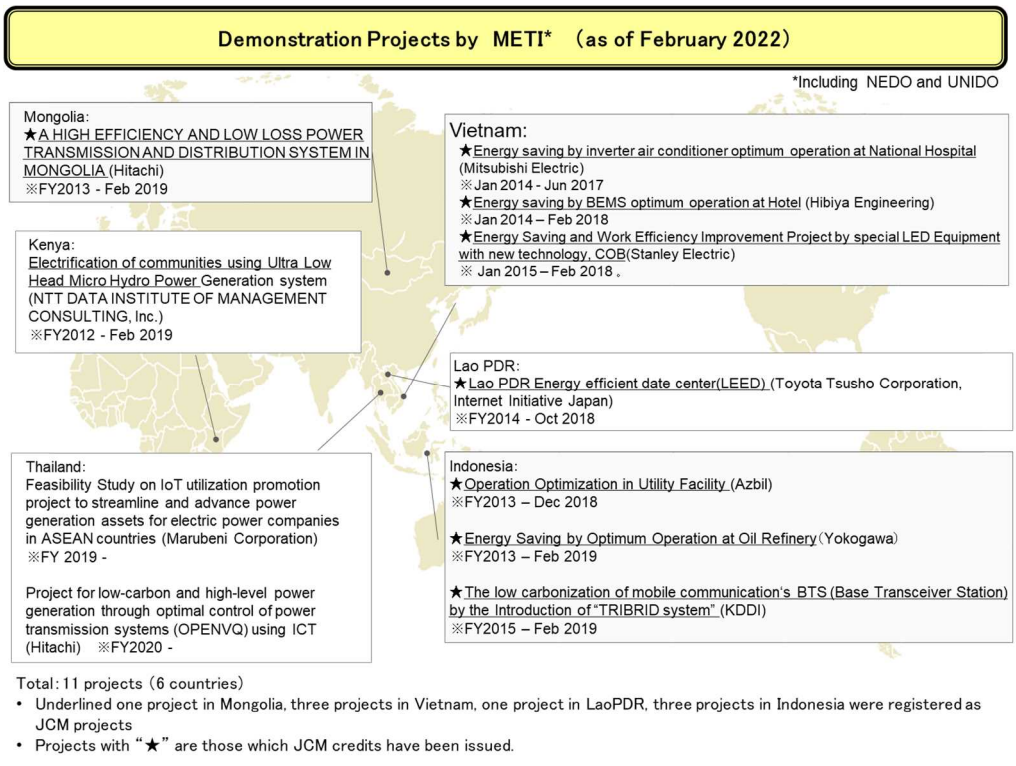

Figure 9 Demonstration Projects by METI (as of February 2022)

3.2.3. Emissions Trading Systems in Tokyo and Saitama Prefectures

Tokyo and Saitama Prefectures have introduced their own emissions trading systems that provide the ability to trade excess reductions and offset credits. The following table outlines the credits, etc. that are traded in each system.

Table 12 Credits, etc. handled in the Tokyo emissions trading system

Name of credit, etc.		Summary
Excess reductions		Amount reduced by covered facilities in excess of reduction obligations
Offset credits	Small and mid-sized facility credits in Tokyo	Reductions through measures based on certification standards at small and mid-sized facilities in Tokyo
	Renewable energy credits	Environmental value of renewable energy ・ Other reductions: green energy certificates or environmental value under another system, such as the equivalent amount of new energy electricity generated under the RPS Law ・ Environmental Value Equivalent: environmental value created by city-certified equipment
	Credits outside Tokyo	Reductions through energy conservation measures at large facilities outside Tokyo (only the amount in excess of reduction obligations)
	Saitama linked credits	Excess reductions certified by the Saitama Prefecture Target Setting Emissions Trading System, small and mid-sized facility credits

Table 13 Credits, etc. handled in the Saitama emissions trading system

Name of credit, etc.	Summary
Excess reductions	Amount reduced at large-scale facilities (facilities covered by the system) in excess of reduction obligations
Other gas reductions	Part of the reduced amount of other gases (GHG other than energy-related CO2) at a large-scale facility (facility covered by the system), which is allowed as a reduction by said facility
Small and mid-sized facility credits in Saitama Prefecture	Amount of energy-related CO2 reduced at small and mid-sized facilities (those other than large-scale facilities) in Saitama Prefecture
Credits outside Saitama Prefecture	Amount of energy-related CO2 reduced in excess of reduction targets at facilities outside Saitama Prefecture equivalent in size to large-scale facilities

Renewable energy credits (Environmental Value Equivalent)	Environmental value equivalent of renewable energy created by solar, wind, hydro, geothermal, and biomass renewable energy power generation equipment certified under this system
Renewable energy credits (Other reductions)	Renewable energy environmental value (e.g., green energy certificates) certified under another system, which can be used as credits under this system
Forest removal credits	Certified removals based on a system such as the Saitama Prefecture Forest CO2 Removal Certification System or the J-Credit Scheme (forest management related), which can be used as credits under this system
Tokyo linked credits	Credits created under Tokyo's Total Reduction Obligations and Emissions Trading System, which can be used as credits under this system

3.2.4. Use of Carbon Credits by Domestic Businesses

Like the examples of international credit utilization, carbon credits can be used in product and service units and in facility and organization units in Japan as well. The table below shows examples.

Table 14 Examples of voluntary credit use in Japan

Category of carbon credit use	Examples
Products and services	● INPEX CORPORATION ➢ Supplies LNG, Natural gas, propane offset by carbon credits from forest conservation projects, etc. to Shizuoka Gas, Toho Gas, Ome Gas, Horikawa Sangyo, Kanbara Gas, Seibu Gas, Honjo Gas, and Astomos Energy, etc. ● Mitsui & Co., Ltd. ➢ Supplies LNG offset by carbon credits from forest conservation projects to Hokkaido Gas. ● Marubeni Corporation ➢ Offsets ethylene marine transport with carbon credits in cooperation with the Navigator Holdings Ltd. Group, a leading owner of chemical and gas carrier ships. Also have begun to sell Neutr-Al, a carbon-neutral aluminum ingot that uses carbon credits to offset GHG that are technologically difficult to reduce and arise in all supply chains from bauxite mining (source of aluminum ore) to alumina production, aluminum smelting, and transport.

	● Idemitsu Kosan Co., Ltd. ➢ First attempt by the Group to use carbon credits in the marine transport of crude oil between Japan and the Middle East for the purpose of reducing CO2 emissions from fuel consumption during the marine transport of crude oil. ● Japan Airlines Co., Ltd. ➢ Implements JAL Carbon Offset, a program that allows passengers to voluntarily participate in carbon offsetting. ● All Nippon Airways Co., Ltd. ➢ Implements ANA Carbon Offset Program, which allows passengers to voluntarily participate in carbon offsetting. For domestic flights, carbon credits from forest management in Iwate Prefecture are used, and for international flights, carbon credits from afforestation activities in the province of Quirino, Philippines are used. ● Nippon Yusen Kabushiki Kaisha (NYK Line) ➢ Implements carbon offset for CO2 emissions produced in one voyage between Japan and the Middle East by the ARIES LEADER, NYK's environmental flagship car carrier, toward the realization of carbon-neutral marine transport service. ● Mitsubishi Corporation ➢ Mitsubishi Corporation announced that it signed a joint agreement with South Pole, one of the industry's largest carbon credit developers, to jointly consider the Next Generation Carbon Removal Purchase Facility project. Targeting technology-derived carbon removal businesses (DACCS, BECCS, mineralization, biochar, enhanced weathering, etc.), the facility will develop and sell carbon credits, provide revenue sources to those businesses through carbon credit sales, and provide opportunities to carbon credit consumers to purchase those credits.

Event	● Expo 2025 Osaka, Kansai, Japan ➢ The residual emissions from the Expo will be offset by (1) donating or purchasing carbon credits to offset the Expo's carbon emissions, (2) indirectly contributing to carbon emissions reduction by supporting the creation of decarbonized regions in local governments, etc., and (3) changing the behavior of visitors, etc. to reduce carbon emissions. The committee is currently studying the possibility of (1) to (3) above, and plans to release a revised version of the "EXPO 2025 Green Vision" in 2022.
Facilities and organizations	● Takeda Pharmaceutical Co., Ltd. ➢ Implements carbon offset to address scope 1-3 emissions, in addition to energy conservation and renewable energy, to achieve carbon zero (no offset) by 2040. Procured carbon credits must conform to strict standards, including additionality, measurability, transparency, registration, and third-party verification, and information on used carbon credits is posted on the company's website. ● Mitsui & Co., Ltd. ➢ Mitsui & Co., Ltd. apply the carbon credits generated by renewable energy and Mitsui's company-owned forests to the electricity used at all of its business sites including all branch offices and training centers across Japan, essentially making it carbon neutral.

3.2.5. Conducting opinion hearings

In preparing this report, we conducted interviews with the following companies and received various opinions on the issues shown in the table below.

Table 15 List of hearing companies [26]

Sector	Date	Companies
Energy (Gas)	2022/1/18	・INPEX CORPORATION ・Osaka Gas Co., Ltd. ・Tokyo Gas Co., Ltd. ・Toho Gas Co., Ltd.
Energy (other)	2022/1/27	・JGC HOLDINGS CORPORATION

[26] In addition, we have received various opinions on the discussions at the study group from companies that were not able to conduct the hearings.

Financial	2022/1/24	・MUFG Bank, Ltd. ・Mizuho Bank, Ltd.	・Sumitomo Mitsui Banking Corporation
Exchange	2022/1/24	・Japan Exchange Group, Inc.	・Tokyo Financial Exchange Inc.
Trading company	2022/1/26	・Mitsubishi Corporation ・Sumitomo Corporation ・Marubeni Corporation	・Mitsui & Co., Ltd. ・ITOCHU Corporation
Airlines	2022/1/27	・Japan Airlines Co., Ltd.	・ALL NIPPON AIRWAYS CO.,LTD.
Domestic original efforts business operators	2022/2/1 2022/2/3	・Japan Association for the 2025 World Exposition ・Japan Blue Economy Association ・Dream Incubator Inc. ・Kanagawa Prefecture , Kawasaki City	

Table 16 Main issues and opinions in interviews with businesses and credit-related entities

Point	Opinion
Guarantee of quality when using overseas voluntary credits that have not undergone corresponding adjustments	・ There are requests to clarify who will guarantee and certify quality when using overseas voluntary credits that have not undergone corresponding adjustments.
Application of voluntary credits that have not undergone corresponding adjustments to "direct emissions" in domestic schemes	・ Basically, since the amount of NDC contribution credits issued is small, there are requests for application of direct emissions during the transition period. ・ In the other hand, there are views that voluntary credits and NDC contribution credits should be completely separated.
Display when assigning carbon credits to products and services to promote environmental value	・ The issue of CN notations on products with credit offsets from the viewpoint of consistency with the IPCC Sixth Assessment Report was raised at interview. ・ Since the use of carbon credits is related to reputation, there are also requests for the development of disclosure rules.
Expectations for promoting the creation of new carbon credits such as technology-based removal credits (DACCS,	・ There are demands for the construction of a new framework from the perspective of promoting new technologies. ・ Since the current situation is not economically viable, so there are requests to consider ways to improve price predictability, such as clarifying the price formation mechanism and

BECCS) and Blue Carbon	introducing a purchase guarantee from the government as in Australia. ▪ As technology-based removal credits and Blue Carbon are expensive, there are demands for incentives such as subsidies in addition to the carbon credits price determined by the market price.
Design of Carbon Credit Market	▪ Both demand and supply aspects need to be considered, and there are expectations for incentivizing the issuance of carbon credits the purchase of carbon credits. ▪ It was also commented that the concept of accounting standards for carbon credits needs to be reorganized, and that there is a need to provide sufficient preparation time for the revision of accounting standards so that a smooth response can be achieved.

4. Issues to be tackled for the appropriate use of carbon credits in Japan

As described above, also in Japan, voluntary use of carbon credits such as J-credits and JCM by companies has progressed to a certain extent. However, in order to promote the appropriate use of these carbon credits, from the perspective of helping to realize a carbon neutral society in a way that contributes to economic growth not only in Japan but worldwide, there are issues to tackle in three areas: demand, supply, and circulation. They are described below.

4.1. Issues involving demand

- There are many carbon credits exchanged in Japan, including J-credits, JCMs, and voluntary credits of overseas origin, and the certification entities and methodologies for each are diverse. In this context, the handling of carbon credits has not been sufficiently clarified in various domestic schemes to promote corporate efforts to reduce emissions.
- Some companies are hesitant to utilize carbon credits because the differences between various carbon credits are unclear and they are unable to determine how to utilize the credits and how to claim them to their stakeholders.

4.2. Issues involving supply

- The uncertain outlook for the demand of carbon credits in Japan is hindering the expansion of carbon credit supply. While carbon credits generated from carbon sequestration/removal projects are expected to play an inevitably important role in achieving carbon neutrality in the future, the potential of credit supply from existing forest management methodology has been barely materialized, and the types of other carbon credits that can be used in Japan are limited, pointing to the necessity to expand the generation and retirement of removal carbon credits.
- Carbon removals from new technologies such as DACCS and BECCS, and carbon sequestration from nature such as carbon storage in agricultural lands and blue carbon, which could be reflected in Japanese inventory in the future. However, they are not currently reflected in the national inventory, or their calculation and monitoring methods have not yet been established. Therefore, we cannot promote these initiatives only with domestic carbon credits (J-credits) issued under the current methodology based on the national inventory.
- As services focusing on low-carbon activities in daily life and local communities become more apparent, policies to promote these initiatives using carbon credits are not sufficient.

4.3. Issues involving circulation

- The circulation of carbon credits in Japan is mainly OTC transactions, and the volume and prices of trading are uncertain, which is the reason why the various types of carbon credit prices do not fully function as a carbon price based on the characteristics of those carbon credits. As a result, the predictability of the return on investment for carbon credit generating projects and the predictability of procurement for carbon credit consumers are low, which is also an obstacle in terms of increasing the demand for and supply of carbon credits.

5. Importance of Carbon Credit Utilization for Carbon Neutrality in Japan

Based on the purpose of this report as indicated at the beginning of this report and the issues for the appropriate use of carbon credits in Japan as indicated in Section 4, this section explains the significance of the use of carbon credits as a way to achieve carbon neutrality in Japan, and why it is important. And this section summarizes three perspectives: the role at the time of achieving carbon neutrality, the role during the transition toward carbon neutrality, and carbon pricing to encourage companies to change their behavior.

5.1. Importance of carbon credits for carbon sequestration/removal in achieving carbon neutrality.

- Japan's goal of carbon neutrality by 2050 means a situation where anthropogenic GHG emissions and GHG removals are in balance.[27] In order to reach this state, expansion of GHG removals is of necessity. Carbon credits trading could be a useful tool to bridge between entities with residual emissions remaining after all possible emission reduction efforts on one side and agents involved in the implementation of removal projects on the other. Development of carbon sequestration/removal projects can be incentivized when carbon credits generated are transferred to others. Going toward 2050, enabling environment needs to be established to expand the volume of carbon credits generated from carbon removal and carbon sequestration projects through not only enhancing the already-established forest management methodology but also promoting technology-based carbon removal credits (DACCS, BECCS), as well as blue Carbon and other new carbon sequestration methodologies.

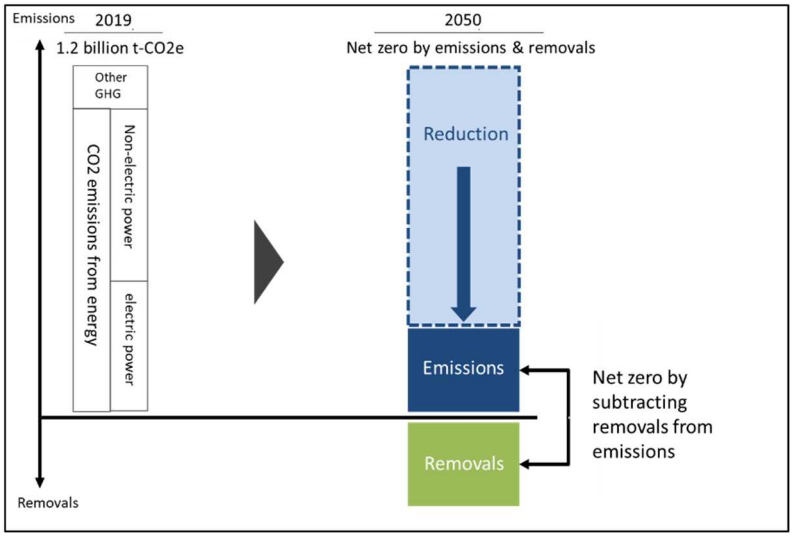

Figure 10 Image of achieving carbon neutrality in 2050 in Japan

[27] The IPCC Sixth Assessment Report defines carbon neutrality as follows.
"Condition in which anthropogenic CO2 emissions associated with a subject are balanced by anthropogenic CO2 removals. The subject can be an entity such as a country, an organisation, a district or a commodity, or an activity such as a service and an event"
https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Annex_VII.pdf

5.2. Importance of Emission Reduction Carbon Credits in the Transition toward Carbon Neutrality

- From the perspective of achieving a steady transition toward carbon neutrality, it is also extremely important to work toward achieving Japan's ambitious reduction targets (e.g., 46% decrease by 2030). Toward the achievement of these goals, it is necessary to have an economically rational perspective, that is, to incentivize not only initiatives of some businesses, but also emissions reduction initiatives by a wide variety of entities, and to proceed with reduction initiatives whose marginal reduction costs are lower among a range of initiatives in society overall. In addition, when businesses use carbon credits, they can also jointly participate in others' reduction projects by way of purchasing carbon credits. From these perspectives, in the period of transition toward carbon neutrality, it is important to appropriately use carbon credits from carbon reduction through means such as the introduction of renewable energy, energy-saving equipment, CCS and REDD+.

5.3. Importance of Pricing Function by Publicly Announcing the Price of Carbon Credits

- If a price is assigned to emission reductions, carbon sequestrations/removals through carbon credits, and if the trading of these credits improves the predictability of the volume and price of each trade, the trading prices of the various carbon credits themselves could function as voluntary, market-based carbon pricing in Japan related to each of the initiatives of emission reduction, carbon sequestration/ removal.[28] This price signal can be referenced in the business and financing plans for various emission reduction investments, including those not necessarily aimed at issuing carbon credits, as well as in policy making by the government. From this perspective, it is important to develop a market where carbon credit prices are publicly announced, and pricing signals are provided.

In addition, as we head toward carbon neutrality, in order to make steady progress in reducing our own emissions, our own emissions reductions should be prioritized, and the use of carbon credits is recommended if there are still residual emissions despite these efforts.

[28] As the market matures and more consideration is given to futures contracts on carbon credits, this could lead to the issuance of longer-term price signals.

6. Direction and specific measures toward the appropriate use of carbon credits

Based on the trends in the supply and demand of carbon credits in Japan as summarized in section 3, issues for the appropriate use of carbon credits as summarized in section 4, and the importance of carbon credits for carbon neutrality as summarized in section 5, it is necessary to take further actions to promote carbon credits in terms of both supply and demand.

In this report, the study group proposes the following concrete measures for the appropriate use of carbon credits from the three perspectives of demand, supply, and circulation.

6.1. Demand side

6.1.1. Showing the roadmap for utilization considering the diversity of carbon credits

- Clarification of the roadmap for using carbon credits

There are various types and characteristics of carbon credits, and it is important for businesses and other entities to utilize carbon credits based on their types and characteristics. In particular, it is important to promote the reduction of Japan's domestic emissions and achieve the goal of carbon neutrality through the use of domestic carbon credits in the system, and therefore, carbon credits can be classified into the following four characteristics from the perspective of whether they contribute to emissions reductions in Japan.

（１） Credits that contribute to achieve Japan's NDC

Carbon credits created from projects that are reflected in the inventory implemented domestically and carbon credits adjusted (corresponding adjustment) for international transfers under the Paris Agreement can be regarded as carbon credits that contribute to Japan's NDC.

(Specific examples)

・ J-Credits[29], JCM[30]

（２） Domestic voluntary carbon sequestration/removal credits outside the scope of the J-Credit Scheme

Sequestration/removal projects that are technologically immature, that are not yet proven to robustly monitor the climate impact and that have not yet been reflected in Japan's GHG inventory, but that are necessary for the achievement of carbon neutrality for Japan can have certain potential of future carbon crediting.

(Specific examples)

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[29] The J-Credit scheme is expected to play a role in contributing to the achievement of NDC in Japan through crediting emission reduction, carbon sequestration, and carbon removal activities that are promoted in line with domestic inventories providing a wider range of project developers with certain incentives.

[30] Whether voluntary credits with corresponding adjustments applied in accordance with the rules of Article 6.2 of the Paris Agreement as is done so with JCM as well as whether carbon credits issued based on Article 6.4 can be utilized for Japan's NDC in the same way as JCM also are an issue to be considered.

- Carbon credits issued from domestic technological projects such as DAC and blue carbon projects and other possible nature-based projects

（3） Domestic and international voluntary credits that contribute to the positive cycle of economic growth and environmental protection.

Among voluntary credits that have not undergone corresponding adjustments and Japanese voluntary credits, credits in which Japanese companies' technologies are utilized and Japanese companies are investing in project implementation are categorized as carbon credits that contribute to the positive cycle of economic growth and environmental protection.

(Specific examples)

- Voluntary credits created by the following projects
  - Seed capital projects in novel technology, etc.
    (e.g., projects in which it is anticipated that the purchaser, by purchasing credits, will become a creator at some point through helping to accelerate the social implementation of novel technology, participating in business, etc.)
  - Projects in which Japanese companies invest
  - Projects using Japanese technology
    (e.g., projects with certification monitored by satellite technology using Japanese technology)
  - Projects in which Japanese companies enter long-term credit offtake contracts
    (e.g., projects that help to increase the quantity of domestic credits in circulation, particularly sequestration/removal credits)
  - Projects that help to improve Japan's energy balance
    (e.g., projects in which hydrogen used in credit creation is expected to be used in Japan)

（4） Carbon credits instrumental in contributing to emissions reductions at the global level and incentivizing local and individual behavioral change

Voluntary credits from overseas that do not fall under (1)～(3) also can be regarded as credits that contribute to the reduction of emissions worldwide, through the emissions reductions in the country. Likewise, domestic voluntary credits created from activities toward regional carbon neutral and with the aim to promote behavioral change among residents can be regarded as credits that can contribute to emissions reductions through regional and individual behavioral change.

(Specific examples)

- International Voluntary Credits that do not fall under (1) ~ (3)
- Local community Contribution Credits
- Low carbon credits in daily life

When evaluating these credits in the domestic system, the methods of use should be organized as follows for each of the above categories.

A) In a system such as the emissions accounting, reporting, disclosure system under Act on Promotion of Global Warming Countermeasures(hereinafter, SHK system) which aims to accurately determine the emissions of Japanese companies, carbon credits that fall under only category (1) should be allowed to be used, but carbon credits that fall under categories (2) through (4) should not be allowed to be used because they do not necessarily accurately show the impact on domestic emissions compared to (1).

B) The purpose of the GX League, for which the METI has announced the basic concept, and the evaluation of environmental impact mitigation in public and private procurement by the national and local governments, are aimed at evaluating efforts by Japanese companies to contribute to emission reductions. However, it is possible to consider a system that can evaluate not only efforts that can be reflected in accurate emissions at the present time, but also efforts that have value from a broader perspective, such as investments for future expansion of sequestrations/removals, and economic growth. In such a system, not only the carbon credits categorized in (1) above, but also those categorized in (2), which do not necessarily show the impact on domestic emissions included in the Japanese inventory, but contribute to the expansion of future sequestrations/removals, and (3), which contribute to the positive cycle of economic growth and environmental protection, should be allowed to be used, taking into account the purpose of each system. On the other hand, credits that are categorized as (4) should not be allowed to be used.

C) Even under the SHK system, the system should allow the use of carbon credits, including not only ((1) to (3)) but also ((4)) in the above categories, if the purpose is to evaluate voluntary corporate efforts, which is separated from numerical reporting such as voluntary reporting.

In addition, on the assumption that information disclosure is properly implemented when utilizing carbon credits, a wide range of voluntary utilization of carbon credits by private entities, etc. (e.g., disclosure to financial institutions, offering offset products and services to the market, etc.) based on voluntary decisions should be allowed.

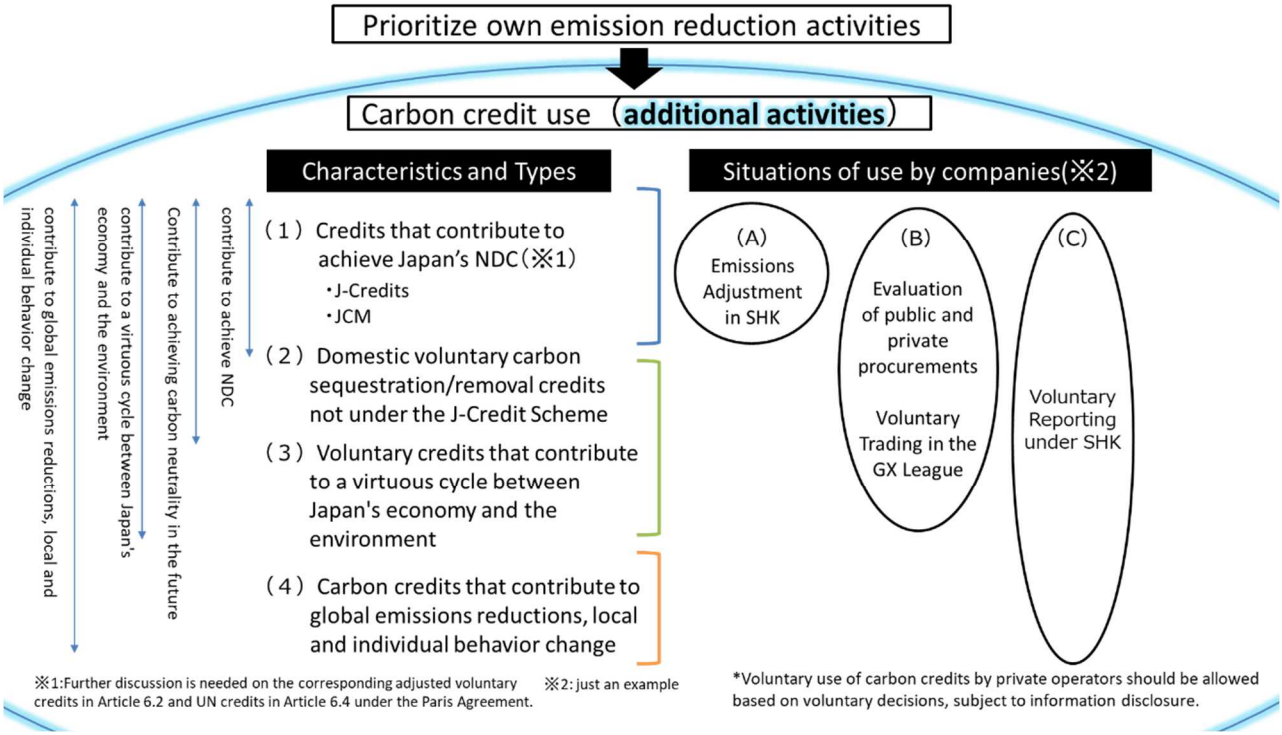

Figure 11 Image of carbon credit utilizationin the domestic systems

Evaluations of carbon credits in domestic systems, etc. need to be discussed for each system based on the intent of the system while referring to the above categorization, and also the direction should be considered as follows regarding categorization based on the usage venue, such as existing an individual system (SHK system), public procurements (Act on Promoting Green Purchasing, Carbon neutral ports[31]), GX League and Carbon Neutral Action Plans where credits are anticipated to be used by businesses.

i. GHG emissions accounting, reporting, and disclosure system (SHK system)[32]

・ Purpose

To require those who emit GHG above a certain volume to calculate and report their emissions to the government, which then compiles and discloses the data reported. To establish a base for voluntary initiatives by having businesses calculate their own emissions, and to promote and build momentum for voluntary initiatives among citizens and businesses overall by disclosing and visualizing data.

・ Direction of study

[31] The formation of carbon neutral ports is an initiative of port administrators (local governments), private operators, and other related parties, and the users of credits are not limited to local governments, but also include private operators.

[32] https://ghg-santeikohyo.env.go.jp/

The SHK system requires each business to calculate its own GHG emissions, and to use accurately calculated credits/certificates to offset these emissions. In the SHK system, credits, etc. that can be used in the adjustment of adjusted GHG emissions include domestic certified emissions reductions (J-Credits, domestic credits[33], offset credits (J-VER)[34], CO2 emission reductions from green energy) and overseas certified emissions reductions (JCM credits).

With the revision of the Act on the Promotion of Global Warming Countermeasures in May 2021, the SHK system began heading away from the currently required disclosure request procedures and toward open data for GHG emissions reports from businesses (enforcement in FY2022 anticipated). As a result, businesses' receipt of carbon credits, etc. used in the adjustment of adjusted GHG emissions will also be publicly disclosed.

However, at the second SHK System Study Group meeting in November 2021, a proposal was made to consider encouraging voluntary reporting on the receipt of carbon credits, including voluntary credits other than carbon credits used in the adjustment of adjusted GHG emissions. It states that the use of carbon credits is an additional act done on top of one's own emissions reduction actions and that is consistent with the thinking in this report, and therefore, the study should be pursued in this direction.

From November 2021, electricity consumers became able to directly procure non-fossil certificates, and in response to this, at the first meeting of the Study Group on Calculation Methods in the SHK System in January 2022, a policy proposal was made to handle non-fossil certificates procured by electricity consumers so that CO2 calculated as [the amount of electricity on a certificate × a nationwide average factor] would be deducted from CO2 emissions derived from electricity supplied by another party. At the 62nd meeting of the System Study Group （Advisory Committee for Natural Resources and Energy） in February 2022, a policy proposal was made so that it would be possible to use grid-derived power supplied by a retail electric utility if an electricity consumer directly procured non-fossil certificates, which also is consistent with the thinking on certificates in this report, so the study should be pursued in this direction. Furthermore, the calculation of emissions from the use of gas and heat (steam, hot water, ice water), including the introduction of emissions coefficients by supplier, adjusted emissions coefficients, and emissions coefficients by menu, should be considered in the same way as emission factors for electricity. In terms of demand, as the use of credits in the SHK system increases, it will become an incentive for small- and medium-sized companies to issue credits and may lead to further CO2 emissions reductions.

ii. Act on Promotion of Procurement of Eco-Friendly Goods and Services by the State

[33] Domestic credits issued under the predecessor system of the J-Credit System
[34] Offset credits(J-VER) issued under the predecessor system of the J-Credit System

and Other Entities (Green Procurement Act)

・ Purpose

The purpose of this Act is to establish a society that can develop sustainably with reduced environmental load, by setting forth necessary matters for promoting the procurement of Eco-Friendly Goods, etc. by the State, Incorporated Administrative Agencies, etc., local governments, and Local Incorporated Administrative Agencies, the provision of information concerning Eco-Friendly Goods, etc., and a shift of demand to Eco-Friendly Goods, etc., thereby contributing to ensuring healthy and cultured living of both the present and future generations of the citizens.

・ Direction of study

This sets forth a Basic Policy in order to comprehensively and systematically promote the procurement of Eco-Friendly Goods, etc. by the State, Incorporated Administrative Agencies, and special public corporations, as well as regulates the designated procured goods that are types of Eco-Friendly Goods, etc. on which priority is particularly placed by the State and other institutions in their procurement, and the standards of judgment for these. And the use of carbon offset products and services should be considered in the Green Procurement Act.

On December 15, 2021, the Study Group on Designated Procured Goods met to study the addition, revision, etc. of designated procured goods under the Basic Policy, as well as standards of judgment for these. The Group also proposed a study policy and agenda for FY2022. In FY2022, the handling of carbon offset products and services is to be studied.

iii. Carbon neutral ports (CNP)

・ Purpose

Harbor areas are import hubs for decarbonized energy such as hydrogen and ammonia fuel, as well as areas where there is plenty of room for CO2 reduction through the use, etc. of these. Therefore, intensively carrying out progressive initiatives toward carbon neutral in harbor areas is believed to be an effective and efficient way to achieve carbon neutrality by 2050 in Japan. In addition, with heightened interest in SDGs (Sustainable Development Goals) and ESG investments (investments in consideration of environmental, social, and governance factors), not only conventional viewpoints such as cost, speed, and service, but also initiatives conscious of the environment are becoming an important factor in the competitiveness of international ports. Therefore, the Ministry of Land, Infrastructure, Transport and Tourism has decided to build carbon neutral ports (hereinafter, “CNP”), in part by establishing an acceptance environment that enables stable imports, storage, etc. of hydrogen, fuel ammonia, etc. in large quantities at low prices, improving port functions in consideration of carbon neutral, and partnering with industries congregated on the waterfront.

・ Direction of study

The Ministry of Land, Infrastructure, Transport and Tourism published a “Manual for Drafting a ‘Carbon Neutral Port (CNP) Formation Plan’ (First Edition)” and port managers will develop a plan and related stakeholders will take actions based on this plan.

This manual and the collection of prior initiatives mention the use of carbon offsets through J-Credits, JCM, and J-Blue Credit as an example of a countermeasure at the emissions source. In the future, the use of carbon credits that contribute to the achievement of carbon neutrality in Japan should be encouraged, and not limited to the credits listed in the examples.

iv. Voluntary emissions trading initiatives in the GX League

- Purpose

In February 2022, the METI released the GX League Basic Concept, a framework based on voluntary participation by companies that sets the direction for its establishment in FY2023 and beyond. Discussions will begin in FY2022 to prepare for the establishment of the GX League together with the 440 companies that support the basic concept.[35] And also the GX League will be a platform for industry-government-academia collaboration among businesses that regard efforts to achieve carbon neutrality by 2050 and national greenhouse gas emission reduction targets by 2030 as opportunities for their own growth, and that are actively working to reform the entire economic and social system, including stakeholders, to achieve emission reductions and increase industrial competitiveness.

Under the GX League Concept, companies that voluntarily set emission reduction targets will report annually on their efforts to achieve them and evaluate their progress at the midpoint of the targets.

- Direction of study

The GX League should also consider the handling of carbon credits as a framework that not only evaluates efforts to reduce domestic emissions, but also evaluates investments for future growth. Therefore, discussions on the utilization of carbon credits by supporting companies should be promoted, including not only carbon credits that contribute to NDC such as J-credits and JCM, but also sequestration/removal voluntary credits in Japan that contribute to the achievement of carbon neutrality in Japan, and voluntary credits in Japan and abroad that contribute to the positive cycle of economic growth and environmental protection.[36]

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[35] Regarding CO2 emissions by supporting companies, total emissions in the FY 2018 SHK will be about 320 million tons, which is about 28% of Japan's total emissions. In addition, emissions associated with the supply of electricity from the energy conversion sector to the residential sector, etc., are expected to account for more than 40% of the total.

[36] The GX League Basic Concept also provides a direction for approaches other than voluntary emissions trading, and in those approaches, the use of carbon credits based on voluntary decisions should be allowed as one of the voluntary uses by private companies that are not subject to systems by the national or local governments.

v. Nippon Keidanren (Japan Business Federation) Carbon Neutral Action Plan: Governmental follow up

・ Purpose

In November 2021, the Keidanren's past “Commitment to a Low Carbon Society” was revised to the “Carbon Neutral Action Plan.” In the industrial sector, each industry voluntarily establishes reduction goals and pursues countermeasures. The government regularly evaluates and verifies the plans and progress of each industry（Follow Up）

・ Direction of study

From the perspective of evaluating and verifying whether or not domestic emissions reductions were being steadily implemented toward the achievement of the reduction goals in the global warming mitigation plan, sectoral follow up working groups of government administrative divisions in FY2021 decided to take into consideration only the use of carbon credits that help to achieve domestic reduction goals, namely, J-Credits and JCM, in relation to “Reductions by Domestic Corporate Activities” (Pillar No. 1). (Decisions about other carbon credits will be made based on industry explanations of their contribution to the achievement of domestic reduction goals.)

With regard to other initiatives (Pillar No. 2: Strengthening of inter-entity collaboration; Pillar No. 3: Promotion of international contributions; Pillar No. 4: Development of innovative technology), some initiatives do not lead directly to domestic emissions reductions, so when evaluating and verifying these, decisions on the handling of carbon credits were left up to industry. Industry indicated its intention to evaluate and verify with the expectation of an appropriate decision based on discussions within and outside Japan regarding carbon credits in terms of what kind of carbon credit utilization would be appropriate in light of the intent and purpose of the initiative.

The above consolidation should be referred to when utilizing carbon credits to achieve reduction targets at businesses.

In follow up working groups of governmental administrative divisions in FY2021, there was an industrial group that used carbon credits as actual reduction results (Pillar No. 1) in domestic corporate activities in FY2020.

6.1.2. Promotion of information disclosures based on diversity of carbon credits

- Promotion of information disclosures when using carbon credits

Private sector companies are choosing carbon credits to utilize from a variety of options, including certification standards and methodologies, as individual carbon credits are issued from various projects. Therefore, when private companies offset emissions using carbon credits or offset the carbon footprint of products and services they provide to the market, it is important to properly promote the value and characteristics of the carbon credits to external stakeholders including consumers. In such cases, carbon offset implementers should disclose the retirement of credits, and purchasers of products and services should claim that they have procured carbon offset products and services, so that appealing to both parties is less likely to be problematic.[37]

From this perspective, it is desirable for businesses that utilize carbon credits to disclose such information to external stakeholders regarding the properties related to carbon credits, such as the following.[38]

- Amount of carbon credits utilized
- Information on carbon credits
  Monitoring start/end date (vintage), region, project name, methodology, type (emission reduction/carbon sequestration/removal), standard, co-benefits, corresponding adjustment
- Information on Offset Coverage
  Retirement year, emissions from business activities
  (Carbon footprint of the products or services covered)

It is also desirable to disclose the reasons for credit selection and background information on

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[37] GHG Protocol Corporate Standard Chapter 11 (Setting GHG Targets) states that since there is no consensus on how to address double counting of offsets, companies should set their own policies to address this issue.
https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf
"This can occur when a GHG offset is counted towards the target by both the selling and purchasing organizations. For example, company A undertakes an internal reduction project that reduces GHGs at sources included in its own target. Company A then sells this project reduction to company B to use as an offset towards its target, while still counting it toward its own target. In this case, reductions are counted by two different organizations against targets that cover different emissions sources. Trading programs address this by using registries that allocate a serial number to all traded offsets or credits and ensuring the serial numbers are retired once they are used. In the absence of registries this could be addressed by a contract between seller and buyer."
As shown in this example, double counting occurs when the emission sources to be reduced are included in more than one target. However, if double counting is limited to multiple targets dealing with the same emission sources, it is probably not an issue.

[38] The information shown in the examples is information that can be found in the major voluntary credit registries such as VCS and GS.
VCS registry https://registry.verra.org/#/home GS registry https://registry.goldstandard.org/

the business activities, products, and services subject to offsetting. When companies refer to discussions on international initiatives or implement offsets in accordance with their own internal rules on how to utilize carbon credits, it is also effective to indicate such discussions or rules. And, with regard to the carbon footprint of emissions from business activities or products/services subject to offsetting, it should also be disclosed how the carbon footprint was calculated. Based on the above information disclosures, it is desirable for stakeholders such as investors and consumers of products and services to evaluate the use of such carbon credits, referring to their own judgment criteria and external reference standards.[39]

In addition, with regard to the name of such offsetting products and services with carbon credits, it is necessary to be careful not to misunderstand consumers, especially when using expressions based on scientific findings, such as carbon neutral. And credit users should provide their own explanations as to their own considerations in using such names, and further discussion should be held as to what names are appropriate. In terms of disclosures of such information, especially from the perspective of investors, it is necessary to promote disclosure of carbon credit utilizations by businesses in order to promote appropriate evaluation by investors. For example, the TCFD Consortium should discuss disclosure policies related to carbon credit use, and consider including them in "TCFD Guidance 3.0" (tentative) or other documents.[40]

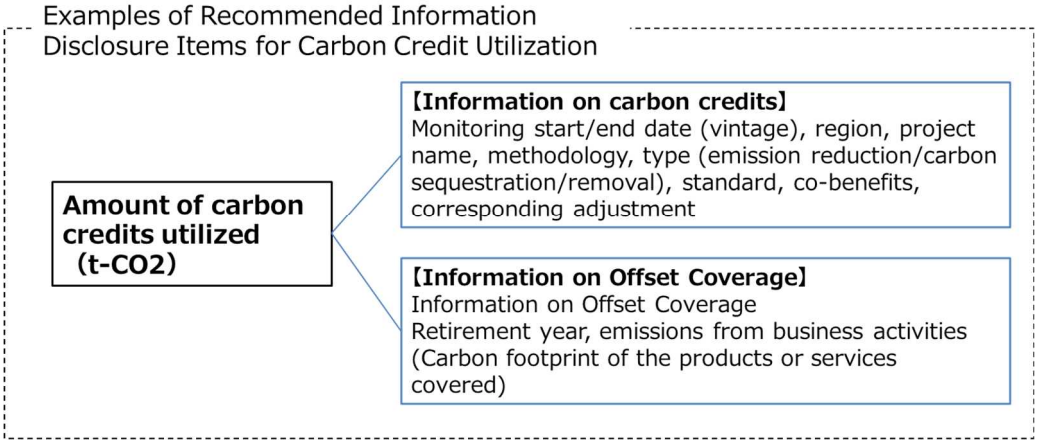

Figure 12 Examples of Recommended Information Disclosure Items for Carbon Credit Utilization

[39] Section 2.2 of this report provides examples of the key requirements of ICROA as representative external criteria.

[40] On March 21, 2022, the U.S. Securities and Exchange Commission (SEC) proposed new rules requiring listed companies to disclose climate change risks.
Under "Disclosure Regarding Climate-Related Impacts on Strategy, Business Model, and Outlook," companies are required to disclose the role of carbon credits and certificates in their climate change strategies. It was also mentioned that the attributes of carbon credits and certificates should be disclosed, including the amount of carbon credits and certificates, project description, location, registry, and certification body, etc., and that detailed description would also help avoid greenwashing. https://www.sec.gov/rules/proposed/2022/33-11042.pdf

6.2. Supply side

6.2.1. Expansion of the issuance of carbon credits that can be instrumental in the achievement of NDCs

- Stable supply of carbon credits generated from projects for emission reductions, carbon sequestrations, and carbon removals under the J-Credit scheme and JCM

The J-Credit scheme and JCM should be implemented in line with their own policy objectives set under the Growth Strategy Action Plan, the Global Warming Prevention Plan, etc.

Revision of the J-credit scheme is being prepared with the aim to support small- and medium-sized companies for their emission reductions including through improved program-type projects as an effective tool to consolidate individual activities run by small- and medium-sized companies, while ongoing process of further revision and development of methodologies based on feedbacks and suggestions from project developers is being kept under way. In addition, the Forestry Subcommittee, newly established under the Steering Committee, is tasked to debottleneck the methodologies of improved forest management for ease of project development while ensuring the credibility of the J-credits generated therefrom, and plans to draw a draft revision by the summer of 2022, which is expected to help scale up issuance of credits. It is important to note that improved forest management projects not only generate decarbonization values through J-credits but also provide multi-faceted solutions for a wide range of social, economic, and environmental issues. Therefore, a systemic approach should be pursued in such a way that J-credit suppliers disclose their co-benefits in the form of narratives or quantitative evaluations while purchasers of forest-based J-credits with potential premium values beyond carbon based on the information disclosed by the supply side are appreciated properly by investors and the general public. Furthermore, it is important to promote the issuance of credits under the biochar methodology through the use of program-type projects. From the perspective of promoting GHG reductions other than CO2, it is also important to promote the issuance of credits for GHG emission reductions from agriculture and livestock.

Under the JCM, efforts to achieve the goals of the Global Warming Action Plan should be accelerated by developing projects not only through project implementation based on conventional government financial support, but also through implementation based mainly on private funding. And it is also important to consider rulemaking, including the development of methodologies for CCS projects, in order to generate DACCS and BECCS-derived credits in the future.

In addition, carbon credit issuance by NEXI and other government-affiliated financial institutions should also be considered based on specific projects.

And issuance of J-credits and JCM from emission reductions such as renewable energy and energy efficiency during the transition period is also important as indicated in Section 5.2.

6.2.2. Potential crediting from natural sequestrations and carbon removals methodologies other than the J-crediting scheme

The creation of credits derived from sequestration by Soil Carbon and blue Carbon, carbon removals such as DACCS and BECCS, and other NETs (negative emissions technologies) needs to be promoted.

- Promote the issuance of nature-based domestic voluntary credits

There is little basis in Japan for the creation of voluntary credits from nature-based removal projects outside forests like in other countries as accounting methodologies for those types of projects have not been established. These activities that are not eligible for the registration under the J-Credit scheme but has a potential to be reflected in future inventories should be promoted as a means to boost emission reductions, carbon sequestrations, and carbon removals. Regarding blue carbon credits, relevant ministries and JBEs working together to improve and refine the calculation method for inventory registration and promote the issuance of voluntary credits.

- Promote development of NETs (Negative Emission Technologies) and issuance of NETs credits

In order to provide appropriate incentives for the development of NETs (negative emission technologies) by Japanese companies, policies should be considered to encourage the introduction and expansion of NETs-related credits, including voluntary credits, as well as support for research and development. In particular, the following rules should be developed: (1) consolidation of the positioning of NETs credits (relationship with other credits), (2) development of trading rules that ensure both quality reliability and price transparency, and (3) attribution of emission reduction contribution in capture and storage and utilization.

In the future, studies should also be conducted with a view to providing necessary policy support at the issuance stage of NETs credits.

- Promote investment and procurement commitments for future expansion of carbon sequestration/removal credit generation

At present, carbon sequestration/removal credits are expensive to generate globally, and require increased investments for the expansion their supply in the future. With a to promoting these efforts, an enabling environment needs to be created in a way that those making investments in carbon sequestration and removal projects to support future crediting while making a long-term commitment to future procurement of those credits can be incentivized through, for example, voluntary initiative led by private companies in the GX League and other frameworks. In the transition phase toward the expansion of carbon removal credits such as DACCS and BECCS, it is also important to promote the use of CCS-derived credits.

6.2.3. Promotion of behavioral change by products, services, and events that use carbon credits

- Promotion of creating low-carbon credits in daily life and credits that contribute to communities

The promotion of individual and community behavior change toward low carbon should be considered by creating credits from daily life and low carbon activities in the community that have not been carbon credited so far, and using them to offset familiar events and products, etc.

6.3. Circulation and trading of credits

6.3.1. Establish a carbon credit market

Based on the importance of the pricing function of carbon credits as indicated in Section 5.3, a market should be established in Japan where the prices of various types of carbon credits are publicly announced and widely traded. In establishing such a market, it is necessary to consider how to improve the liquidity of trading, whether the publicly announced prices will act as an appropriate signal, and whether additional information on various types of credits will also be circulated.

As the first step, a demonstration project to establish a market for J-credits, which are widely traded by domestic businesses, should be implemented by utilizing METI's budgeted projects, taking into account the above-mentioned perspectives.

In addition, with an expectation that ESG funds from around the world will be induced and that the market will grow as a movement to bring the information hub of the carbon-neutral era to Japan. In the future, it is recommended that both public and private sector players should consider not only the pricing effect of carbon credits, but also a broader form of carbon credit trading market that includes internationally recognized voluntary credits.

6.3.2. Clarify legal, accounting, and tax treatment of carbon credits to ensure transaction stability

In order to promote the circulation of carbon credits in Japan, clarification of the legal, accounting, and tax treatment of carbon credit trading should also be considered. At this time, the study should be promoted from the perspective of promoting the appropriate use of carbon credits, based on the clarification of the classification of carbon credits and their treatment in the domestic system as presented in this report.

7. Conclusion

Through discussions in study groups and interviews, this “Carbon Credit Report” in the first half outlines carbon credit-related trends in Japan and overseas and in the second half clarifies issues in the appropriate use of carbon credits, the significance of using carbon credits, the direction and specific measures to create an environment for their appropriate use as of now.

As noted in international trends, rule-making for carbon credits is rapidly progressing mainly in the private sector by various entities, including discussions of IC-VCM and the GHG Protocol, and the governments are reflecting these trends in its systems. Actually, in drafting this report, industry actors in various sectors, including energy, trading companies, finance, and exchanges, were publicly interviewed, and even unofficially, opinions were exchanged multiple times with a wide variety of people involved with credits. Going forward, the public and private sectors should work together to regularly update the report so that it is possible to respond flexibly yet speedily to the daily changing external environment.

Given the view that discussion of carbon credits is proceeding primarily overseas, in addition to regular report updates, Japan’s thinking and opinions on carbon credits should also be communicated to the world based on domestic discussions in updates.

Further, in this study group, out-tasked government direction and specific measures suggested in this study group should continue to be studied flexibly and swiftly while reflecting discussions in updates of this report. With this report as a starting point, indefinitely continuing public and private discussion of carbon credits is expected to promote the appropriate use of carbon credits to realize carbon neutrality in Japan.

Glossary of Key Terms

Term	Explanation
Paris Agreement	An international framework agreed at the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC), in which all countries are invited to participate. It was agreed that the long-term goal for greenhouse gas emission reductions (mitigation) is to keep the temperature increase well below 2°C and to continue efforts to limit it to 1.5°C, and that anthropogenic greenhouse gas emissions will be net zero in the second half of this century. And it was also agreed that each country shall prepare, submit, and maintain a reduction target (NDC) and submit and update the NDC every five years.
Nationally determined contribution (NDC)	Contribution which a Party to the Paris Agreement prepares, communicates to the Secretariat of the United Nations Framework Convention on Climate Change, and maintains in accordance with Article 4, paragraph 2 of the Paris Agreement. It corresponds to an emission reduction target of GHGs.
Carbon neutral	A Condition in which anthropogenic CO2 emissions associated with a subject are balanced by anthropogenic CO2 removals. The IPCC Sixth Assessment Report defines carbon neutrality as follows. “Condition in which anthropogenic CO2 emissions associated with a subject are balanced by anthropogenic CO2 removals. The subject can be an entity such as a country, an organization, a district or a commodity, or an activity such as a service and an event” https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Annex_VII.pdf Various proposals and discussions on the definition of "carbon neutral" are underway at ISO and other international initiatives, and discussions are also underway on how to claim "carbon neutrality" when carbon credits are used to offset the emissions of entities, products, and services.
Carbon offsetting	Offsetting all or a part of entity’s greenhouse gas (hereinafter referred to as “GHG”) emissions that are difficult to reduce, through retirement or cancelation of credits, while recognizing its own GHG emissions and proactively making efforts to reduce such emissions.
Retirement	The act that an account holding entity transfers carbon credits to the retirement account for the purpose of evaluating its own measures on GHG emission reductions while making the carbon credits not to be further transferred.

Carbon credit	In this report, carbon credit refers to certified projects such as boiler renewal, introduction of solar power generation equipment, and forest management, which allow the difference between baseline and actual emissions and sequestrations/removals to be traded between the national government and companies, etc. through MRV (monitoring, reporting, verification).
Baseline	Estimated emissions and sequestrations/removals if that project did not exist
Baseline-and-credit	See Carbon Credits
Avoidance /Reduction	GHG emissions decrease compared to the baseline as a result of project implementation. (In this report, referred to as emission reduction)
Sequestration/ Removal	GHG sequestration/removal will be increased compared to the baseline as a result of project implementation.
Cap-and-trade	A mechanism that establishes certain emissions rules (allowance) for emissions of organizations and facilities, and if actual emissions exceed the allowance, excess emission limits are purchased from companies with emissions below the limit.
MRV: Measurement, Reporting and Verification	A generic term for the measurement, reporting (preparation of reports), and third-party verification required to issue credits.
Certificates	A scheme that certify the amount of electricity and heat from renewable energy sources in units of kWh or kJ. In addition, by guaranteeing the attributes of these (e.g., date/time, place, method of power generation), buyers can overwrite the attributes for externally procured electricity using a separately procured certificate.
CORSIA	The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) is a scheme developed by the International Civil Aviation Organization (ICAO) as a means of achieving its global reduction targets.
Corresponding adjustments	To adjust GHG emissions covered by NDCs, by adding the quantity of internationally transferred mitigation outcomes first transferred for use towards NDCs of other countries or for other international mitigation purposes on the amount of GHG emissions covered by a NDC of the transferring country, and by subtracting the quantity of internationally transferred mitigation outcomes acquired and used towards a NDC of the acquiring county from the amount of GHG emissions covered by a NDC of the acquiring country, in accordance with Article 6 of the Paris Agreement and its relevant decisions to avoid double counting.

Study Group on Preparation of Operational Environment to Ensure Proper Use of Carbon Credits toward Realizing Carbon Neutrality

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Financial Services Agency
Ministry of Agriculture, Forestry and Fisheries
Forestry Agency
Ministry of Land, Infrastructure and Transport
Japan Exchange Group, Inc.
Tokyo Financial Exchange Inc.

Organizer

Environmental Economy Office, Ministry of Economy, Trade and Industry

Study Group on Preparation of Operational Environment to Ensure Proper Use of Carbon Credits toward Realizing Carbon Neutrality

Event history

1st, Wednesday, December 8, 2021 9:00～11:00
Agenda:①Carbon credits trends
②Issues of carbon credits
Expert adviser: Shuji Naito, Consultant, Mizuho Research & Technologies

Hearing of industry opinion, January 18 - February 3
Agenda: Issues of carbon credits
Sector: Energy, Exchange, Finance, Trading Company, Airline, Domestic voluntary

2nd, Monday, February 14, 2022 10:00～12:00
Agenda: Aim and issue of Carbon Credit Report under hearing of industry opinion

3rd, Thursday, March 24, 2023 15:00～17:00
Agenda: Draft of carbon credit report