Provisional Translation

Working Group on Financial Infrastructure for Carbon Credit Transactions

Report

20 June, 2025

Contents

1. Introduction

Carbon credits are expected to play an important role in achieving carbon neutrality in 2050 by providing economic incentives for decarbonization efforts and offsetting residual emissions, etc. The transactions are expected to further expand and diversify against the backdrop of rising demand for compliance purposes, etc., triggered by the full-scale operation of the emissions trading system (ETS) in Japan from FY2026. Under these circumstances, as with other financial assets, it is important to ensure investor protection by improving the transparency and integrity of carbon credit transactions for their sound development. Internationally, in November last year, the International Organization of Securities Commissions (IOSCO) released a report, "Final Report on Promoting Financial Integrity and Orderly Functioning of Voluntary Carbon Markets (VCMs)[1]" (hereafter referred to as the "IOSCO Report"), which outlines good practices of the authorities in each jurisdiction for carbon credit markets. Unlike the ETS, these markets do not require mandatory trading participation. The United States and the United Kingdom have also proposed high-level principles from the perspective of ensuring the transparency and integrity of carbon credit transactions.[2]

This "Working Group on Financial Infrastructure for Carbon Credit Transactions," given the current trends surrounding carbon credits (see 2. below for a definition), including J-Credits and overseas voluntary credits, which are traded in Japan, was initiated by the Financial Services Agency of Japan (hereafter referred to as the "FSA") in June last year. The purpose of the working group is to discuss initial issues and examine the trading infrastructure and market practices concerning carbon credits from a practical and professional perspective in order to increase the transparency and integrity of carbon credit transactions and to promote investor protection. This report is a summary of the discussions held by the working group.

Since its inception in June of last year, the working group has held a total of seven meetings to discuss initial issues, while conducting fact-finding regarding carbon credit transactions through interviews with relevant parties, mainly from the financial community. The following section 2. describes the results of the fact-finding related to carbon credit transactions. In section 3, this report summarizes the key issues related to increasing the transparency and integrity of carbon credit transactions.

This report introduces the current status and case studies of carbon credit transactions, and discusses issues from the perspective of transparency and integrity (i.e., financial integrity) of the transaction and infrastructure aspects of carbon credits, in order to deepen market participants' understanding of carbon

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[1] IOSCO website (https://www.iosco.org/library/pubdocs/pdf/IOSCOPD774.pdf); FSA website (https://www.fsa.go.jp/inter/ios/20241120/20241120-2.html).

[2] U.S. Principles for Responsible Participation in Voluntary Carbon Markets (VCMs) (https://home.treasury.gov/system/files/136/VCM-Joint-Policy-Statement-and-Principles.pdf), UK Principles for voluntary carbon and nature market integrity (https://www.gov.uk/government/publications/voluntary-carbon-and-nature-market-integrity-uk-government-principles/principles-for-voluntary-carbon-and-nature-market-integrity).

credit transactions, and to contribute to the sound development of the market. This report does not prescribe the product features and environmental integrity of individual credits, nor does it enter into a discussion of the ETS that is being developed by the competent authorities and is scheduled to be fully operational from FY2026 in Japan.

Furthermore, although this report is written with carbon credits related to the value of greenhouse gas (GHG) reductions in mind, if the actual conditions in terms of transactions and infrastructure are similar to those for other environmental value-related instruments,[3] such as credits related to the value of natural capital conservation, there is room to refer to the key issues related to transparency and integrity described in this report.[4]

A glossary of related terms is attached at the end of this report for reference.

[3] Other examples of environmental value-related instruments include non-fossil certificates, which document the value of electricity derived from the environmentally friendly use of energy sources as a non-fossil fuel power source.

[4] The UK's principles cover both carbon credits and nature credits, while making a distinction between them by mentioning that principles do not intend to suggest that nature credits should be subject to the same disclosure requirements as the carbon credits.

2. Fact-Finding Regarding Carbon Credit Transactions[5]

Since carbon credits are defined in a variety of ways and have a wide range of product features and relevant parties, it is beneficial to first understand these aspects of carbon credit transactions. In the following, based on the results of the hearings, we will review the concept, product feature, trading trends in Japan, and supply-demand factors and then describe the trends of relevant parties.

(1) The Concept of Carbon Credits

Although the concept of carbon credits can be understood in various ways, the following understanding is assumed in this report.

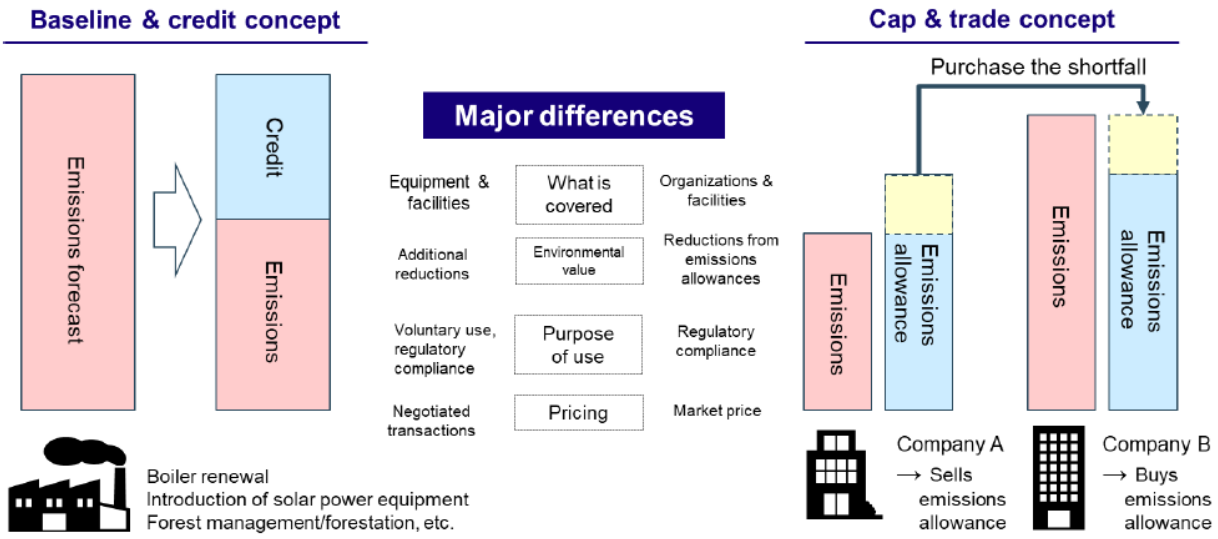
"Carbon credits" or "Credits" are in many cases defined as the differences between the prospected GHG emissions (baseline) and the actual GHG emissions certified as "Credits" through monitoring, etc., and this type of mechanism is called "baseline and credit" (Figure 1, left). As shown in the upper part of Figure 2, some forms of "baseline and credit" are operated by national organizations as standard setters and registries, such as J-Credits and JCM Credits, while others generally referred to as "Overseas voluntary credits" are operated by private standard setters and registries in countries outside of Japan. "Carbon credits" or "credits" that this report will consider are those based on such "baseline and credit" in mind.

On the other hand, a mechanism that sets a certain cap on each company's emissions and allows trading of the difference between the cap and actual emissions under a certain legal system is called "cap and trade" (Figure 1, right). Relatedly, many mechanisms called "emissions trading systems" (ETS) are based on "cap and trade," including those in Europe, South Korea, and China, as shown in the lower row of Figure 2, and the one scheduled to be fully operational in Japan from FY2026. Below, we will also refer to "cap and trade" based "emissions trading systems" in contrast to and in relation to "carbon credits" or "credits" based on "baseline and credit," which are the subject of this report's discussion.

As described above, "baseline and credit" and "cap and trade" are conceptually distinct, but as discussed below, if credits from the former are made available within the latter system, the two will be closely related in terms of supply and demand.

[5] As a broad summary of trends in carbon credits, not limited to financial aspects, there is the "Carbon Credit Report" by the Ministry of Economy, Trade and Industry (METI) in 2022. The GX League's December 2023 "Voluntary Carbon Credit Information Disclosure Study WG Final Report" also summarizes the current status of carbon credits. The Ministry of the Environment's (MOE's) "Carbon Offsetting in Japan (Guidance)" and "Carbon Offsetting Guidelines" also provide a certain conceptual framework.

<Figure 1: “Baseline and Credit” and “Cap and Trade” (Excerpt from Document 1 of the First Meeting of the Working Group)>



<Figure 2: Example of “Baseline and Credit” and “Emissions Trading System (ETS)” (Excerpted and Revised from Document 1 of the First Meeting of the Working Group)

Example of “Baseline and Credit” and “Emissions Trading System”

■ There are various frameworks in Japan and overseas based on “baseline & credit” and “cap & trade.”

Carbon credits based on “Baseline and credit”	
(Japan) J-Credit	・Since FY 2013, national organizations (METI, MoE, and MAFF) have been standard setters and registries. ・Tradable on the Tokyo Stock Exchange Carbon Credit Market. ・The total amount of certified CO2 emissions up to January 2025 was approximately 11.25 million t-CO2.
JCM Credit (Joint Crediting Mechanism)	・A framework in which Japanese companies and governments implement measures in cooperation with each other in terms of technology and funding, and the amount of greenhouse gas emissions reduced or absorbed is distributed among Japan and partner country according to the degree of contribution. ・Joint operation of systems by both governments (measurement, reporting, and verification of emission reductions and removals, approval of credit amounts and uses, etc.)
Overseas voluntary credit	・Credits generated under the operation of private sector standard setters and registries in overseas, such as VCS (Verified Carbon Standard), GS (Gold Standard), ACR (American Carbon Registry), and CAR (Climate Action Reserve). ・There are various projects such as projects to reduce emissions through conservation of forests, land use, and wetlands
National emissions trading system through “Cap and trade”	
(Europe) EU-ETS (Emissions Trading System)	・A European system that started in 2005. In some sectors, so-called “auctioning” have been introduced. In the future, “free allocation” will be phased out, and at the same time, charges based on the “EU Carbon Border Adjustment Mechanism,” which impose carbon prices on imported goods, will be phased in. *After the UK left the European Union, it introduced its own emissions trading system (UK-ETS).
(South Korea) K-ETS	・Since its launch in 2015, auctioning has been gradually introduced. ・Limited use of domestic voluntary credit is permitted.
(China) National Emissions Trading Scheme	・Launched in 2021. A “free allocation” mechanism targeting only the electric power sector at this moment. ・Limited use of voluntary credit generated in China is allowed.

Source: Compiled based on “Summary of Carbon Credit Report,” METI, June 2022; “Secretariat materials for the 1st Study Group on Legal Issues Contributing to Study on Emissions Trading System toward Realization of GX,” May 2024; ICAP (International Carbon Action Partnership); and JETRO website, etc.

(2) Product Features

Carbon credits are similar in that they all recognize a certain economic value in GHG reduction efforts and make them tradable. However, as described below, the product features of credits are diverse and interrelated, including methodology, credibility, co-benefits, and risks associated with credit transactions (including reputational aspects), which are also reflected in the supply, demand, and price of credits. In general, credits based on established methodologies, with higher credibility, more co-benefits, and lower risk tend to be in greater demand and priced higher.

Information on credits can usually be found through project description and other documents published on the websites of the respective standard setters and registries. This report is not intended to define the product feature of carbon credits per se, but may refer to them in the context of how they should be explained at the time of transaction, etc.

(i) Methodology of Carbon Credit Generation

There are various types of methodologies for carbon credit generation, such as emissions reduction/avoidance or removal, technology-based or nature-based, etc. For example, a method that uses a facility to directly capture GHGs from the atmosphere is removal and technology-based, while a method that avoids anticipated deforestation through significant forest conservation is emissions reduction/avoidance and nature-based. Depending on these types of methodologies, the credibility, co-benefits, risks, and prices described below may differ[6].

<Figure 3: Type of Methodologies>

	Emissions Reduction/Avoidance	Removal
Technology-based	Introduction and installation of renewable energy sources, improvement of equipment efficiency, etc.	Using a facility to directly capture GHGs from the atmosphere, etc.
Nature-based	Avoiding anticipated deforestation through significant forest conservation, etc.	Absorption of GHG by afforestation, etc.

(ii) Credibility

There are various perspectives on the credibility of credits, i.e., whether or not individual credits and projects actually contribute to GHG reductions. For example, irreversibility and permanence (measures must be taken to address the risk of ex post loss of emission reduction or removal due to wildfires, etc.), and additionality (the emission reductions would not be achieved without the benefit of the credits).

[6] There are 75 different methodologies for J-Credits (https://japancredit.go.jp/about/methodology/).

Sometimes these are also referred to as environmental integrity or supply integrity.

While credibility is a matter of product feature, it constitutes the core value of credits in terms of their contribution to the reduction of GHG emissions. Thus the concerns about their credibility may reduce the demand and price for credits and affect confidence in the market as a whole.[7] Therefore, ensuring the credibility of credits is an extremely important prerequisite for the sound development of carbon credit transactions.

The credibility of credits is ensured for example through the assessment process at the time of issuance by the standard setters and registries. By way of example, J-Credits, which are managed by the METI, the MOE, and the Ministry of Agriculture, Forestry and Fisheries (MAFF), are issued through a validation/verification by registered examining authorities and deliberation by a certification committee. The standard setters and registries for overseas voluntary credits include Verified Carbon Standard (VCS) and Gold Standard (GS), which conduct validation, verification, and issuance. Other efforts to ensure credibility include the credibility assessment of credits by the carbon credit rating agency (see below), and the development of Core Carbon Principles for credibility standards by the Integrity Council for Voluntary Carbon Markets (ICVCM), an independent international non-profit governance body.

(iii) Co-benefits (Ancillary Value)[8]

In addition to the GHG reduction value described above, carbon credits may have certain ancillary values, or co-benefits. For example, carbon credits derived from forest conservation may have a natural capital conservation value. Demand for credits may increase due to these co-benefits.

(iv) Risks

Risks associated with carbon credits include the risk of price fluctuations due to changes in supply and demand, reputational risk from using less credible credits (risk of a decline in users' reputation), risk of political and regulatory changes, and unsettlement risks, including counterparty risk at the time of transaction (credit risk of the other party to the transaction), operational risk (risk of incurring losses due to inadequacies in the company's business processes, activities of officers and employees, or systems), risk associated with generation process (risk that the generation, issuance, and delivery of credits may not actually take place due to the emergence of credit risk on the developer's side or failure of the generation project). In general, the price of high-risk credits tends to be lower than that of low-risk credits.

(3) Transaction Trends

Looking at the current trading trends in Japan, J-Credits and overseas voluntary credits are mainly

[7] See IOSCO Report, p. 32.
[8] See MOE's Carbon Offsetting in Japan (Guidance), p. 4.

traded.

J-Credits, as described above, are "baselines and credits" operated by the government (MOE, METI, and MAFF) and implemented in Japan. Since the introduction of this system in 2013, including its predecessors, J-VER (Japan-Verified Emission Reduction) and Domestic Credit (Domestic Emission Reduction Certification System), both introduced in 2008, 1,211 projects have been registered, and the cumulative amount certified is approximately 11.25 million t-CO2 (as of January 2025). In the past, J-Credits were mainly traded over the counter, and the trading status of J-Credits was unknown except for the biannual government sales. The "Carbon Credit Market" was established on the Tokyo Stock Exchange (TSE) in 2023, allowing J-Credits to be traded on the market. As a result, trading is continuously conducted on a daily basis, and contract prices and trading volumes are disclosed to the public on a daily basis, improving the liquidity and price transparency of credits. Cumulative trading volume in the TSE Carbon Credit Market as of 11 April 2025 is 792,952t-CO2 (daily average: 2,172t-CO2)[9].

As for overseas voluntary credits, they are traded over the counter directly between two parties or via marketplace matching, and some are traded on the market. The scale of overseas voluntary credit trading in Japan is not necessarily clear, but looking abroad, one trading platform in the U.S. has cumulatively traded more than several hundred million tons of carbon credits.[10] On the other hand, the IOSCO Report notes that due to the variety of project types, standards, and methodologies, and the varying level of buyer experiences, the majority of current carbon credit is traded over the counter.[11]

In Japan, since individuals are currently not subject to the various offset-related regimes described below, are not required to purchase credits for offsetting purposes, and are not allowed to open accounts for credit transactions, corporations are assumed to be the main entities involved in transactions, and there are examples of transactions by both small and large companies. As described below, there have been discussions overseas to explore the possibility of selling to individuals through the creation of related products, such as tokens and investment trusts.[12]

In general, the market for carbon credits is at the nascent stage, with a relevant regime still in the process of development and demand and supply still in the process of expansion.

Some forecasts of the future carbon credit market size project growth against the backdrop of factors such as the large publicly estimated increase in demand for removal credits to achieve net zero by offsetting residual emissions that are difficult to reduce. For example, one of them estimates that the size

[9] Document 1 of the first meeting and document 2 of the fourth meeting of the Working Group. The GX Credits of the GX League can also be traded in the TSE Carbon Credit Market.
[10] Document 1 of the fourth meeting of the Working Group. In Europe, the European Securities and Markets Authority (ESMA) has published a Market Report on trading trends in the EU-ETS. (https://www.esma.europa.eu/sites/default/files/2024-10/ESMA50-43599798-10379_Carbon_markets_report_2024.pdf).
[11] See IOSCO Report, p. 21.
[12] See 2.(6)(iv) and (vi) below.

of the global carbon credits market, with a broad forecast range based on multiple scenarios, would be from 7 to 35 billion USD in 2030, and from 45 to 250 billion USD in 2050.[13]

(4) Factors Affecting Demand

There are three main purposes for acquiring carbon credits: (i) for reporting and disclosure related to offsetting emissions, (ii) for compliance purposes (to fulfill obligations under carbon pricing, such as ETS and carbon taxes), and (iii) for earning profit through resale. Therefore, factors that may affect demand include availability for these purposes.

First, with regard to the availability for reporting and disclosure, the current GHG accounting and reporting system under the Law Concerning the Promotion of the Measures to Cope with Global Warming allows the reporting of net amounts after offsetting with J-Credits and JCM Credits.[14] In addition, the reporting of net amounts after offsetting with certain credits is allowed in the reporting of joint energy conservation projects and the reporting of the use of non-fossil energy under the Act on Rationalizing Energy Use and Shifting to Non-fossil Energy. In relation to voluntary private sector programs, it may also be possible to use the responses to questionnaires from ESG evaluation organizations, etc., and the international initiative RE100, which aims for companies to cover 100% of the electricity used by their business with renewable energy sources. There are also examples of companies voluntarily offsetting and disclosing outside these programs or mechanisms in order to explain and appeal to investors and other stakeholders about their environmental considerations.

Second, with regard to availability for compliance, it is indicated that the ETS in Japan, which is scheduled to be fully operational in FY2026, will allow offsetting with J-Credits and JCM Credits.[15] Overseas, for example, some external credits are available for up to 5% of the taxable amount in Singapore's carbon tax.

The availability in these reporting and disclosures programs and ETS have a significant impact on the demand for credits. As for SMEs, since few SMEs are covered by these regimes and they are still in the process of measuring their GHG emissions amount, some pointed out that SME's demand for carbon credit is still limited at this moment. On the other hand, it was also pointed out that demand for offsetting and disclosure purposes may increase among SMEs as their efforts to measure emissions and decarbonize their entire supply chains progress.

Third, with regard to demand for the purpose of earning profit through resale, etc., there is a certain level of demand overseas, backed by needs for diversification of assets and expectations of medium- to

[13] https://www.msci.com/www/blog-posts/frozen-carbon-credit-market-may/05232727859
[14] See Figure 2 for an overview of JCM Credits.
[15] At the time of preparation of this report, the threshold for offsetting amounts is a matter for future consideration.

long-term price increases. On the other hand, in Japan, since the market is still at the nascent stage, such demand is considered to be limited at this point.

(5) Factors Affecting Supply

There are two major factors that affect the supply of carbon credits: (i) costs incurred in the credit generation process, including planning, registration, implementation, measurement, reporting, and verification of emission reductions/removal, and (ii) the prospect of marketability and resale value. Costs associated with credit generation include the time required to generate credits, administrative costs, and costs associated with dealing with various risks in the generation process, as described above in 2(2)(iv). If these costs are large, they will be a factor that reduces the supply. On the other hand, if high marketability and high resale value are expected, they will be a factor to increase the supply.

Many of the members of this Working Group commented that the current supply in Japan is limited. In particular, the Working Group members who come from high-emission industries have pointed out that the supply is not sufficient to meet the potentially large demand for offsets for use in the ETS, which will be fully operational from FY2026. It was also pointed out that, at present, the time and administrative costs involved in the process of credit generation are high, and that in order to resolve such supply constraints, it is important to improve efficiency, such as through the use of digital technology in the generation process.[16]

In order to increase the liquidity of carbon credits, the TSE has established the Market Maker Scheme for the TSE Carbon Credit Market. In this scheme, market makers continuously place sell and buy orders within a certain price range and above a certain volume to indicate the prevailing level to participants other than market makers and to increase execution opportunities, thereby improving liquidity. This is also expected to increase the marketability and contribute to an increase in the credit generation amount (number of project registrations and certifications).

(6) Current Status of Each Function in the Trading Ecosystem

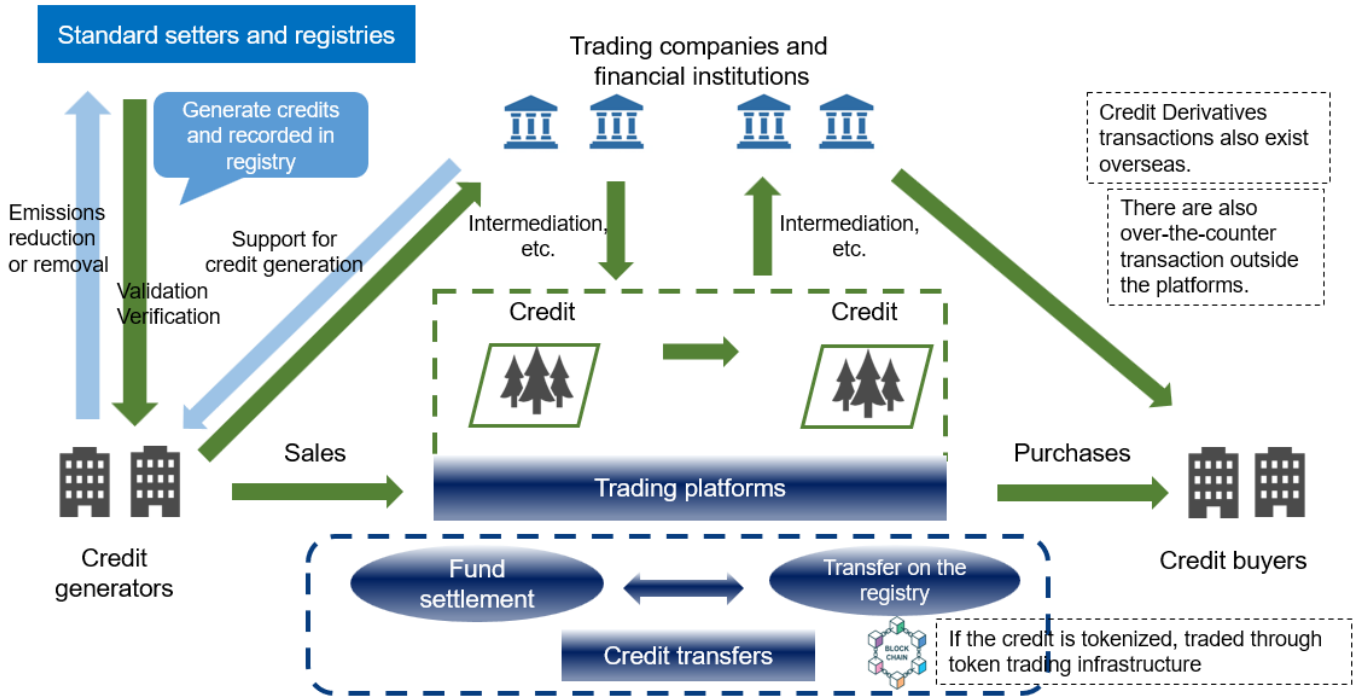
The carbon credit trading ecosystem is composed of entities that perform a variety of functions. In this Working Group, hearings with entities that make up this ecosystem, mainly from the financial community, have been conducted for stock-taking transactions and practices of carbon credits, such as J-Credits and overseas voluntary credits.

Specifically, based on the results of interviews with relevant parties, mainly from the financial community, including exchanges and marketplaces, major financial institutions, regional financial institutions, securities firms, trading companies, insurance companies, tech companies, overseas

[16] The MOE is studying the digitization of J-Credits and will begin the actual operation of a support system for measuring, reporting, and verifying (MRV) GHG emissions using blockchain technology for solar power generation methodologies in FY2025.

investors, and rating agencies, the following results are summarized by function: trading platform, intermediary, credit generation, etc. The details can be found in the documents of the Working Group meetings posted on the FSA website.[17]

＜Figure 4: Ecosystem of Carbon Credit Transactions (Excerpted and Revised from Document 1 of the First Meeting of the Working Group)



(i) Trading Platforms

Trading platforms provide functions such as matching buyers and sellers, trade execution, and settlement for carbon credit transactions. There are two main types of trading platforms: exchange-type and marketplace-type.

The exchange-type trading platform is a competitive matching system similar to that of the stock market, etc. Based on the principle of price competition, in which a lower offer shall have precedence over higher offers, and a higher bid shall have precedence over lower bids, the execution price and contract volume are determined where the sell and buy orders at that time are most closely matched. Since market transactions aim to integrate many supply and demand factors to achieve efficient price formation, in many cases, (i) trading is not conducted on a credit-by-credit basis, but rather on a category-by-category basis with a certain degree of typification and standardization based on methodologies, etc., and (ii) in order to enable pure price discovery, information such as who is placing the order and whose

[17] FSA website (https://www.fsa.go.jp/singi/carbon_credit/index.html)

order were executed is withheld from both buyers and sellers.[18] In each of the overseas markets, market transactions are also conducted in which transactions are made possible by certain standardized contract types, enabling efficient transactions by facilitating matching, execution, and settlement.[19]

In particular, in the TSE Carbon Credit Market, with regard to J-Credits, 75 different methodologies are classified into 8 subcategories based on supply and demand trends and actual price formation based on how the credits are used, such as offsetting, and trading is categorized and standardized for each subcategory. According to the TSE, different prices are actually formed for each of the credit subcategories. For example, the price of renewable energy (electricity) credits increased from 3,645 yen on 28 June 2024 to 6,600 yen on 7 February 2025 against the backdrop of growing demand for answering the ESG evaluation agency's questionnaire or RE100 to offset Scope2 GHG emissions, etc. The price of energy-saving credits also rose from 1,635 yen on September 30, 2024, to 6,600 yen on February 7, 2025, partly due to attention paid to the possibility of utilizing the above-mentioned GHG accounting and reporting system and the ETS. The settlement date is the fifth business day from the day of execution (T+5). Other requirements and procedures for market participants, rules and regulations regarding transactions, and daily execution price and contract volume are available on the TSE's website.[20]

The marketplace-type trading platform is for matching over-the-counter transactions. It is different from the exchange-type one in that the seller sets the selling price and volume and takes the initiative in price formation, and the buyer can confirm information on the seller and individual credits on the trading platform before conducting transactions. In Japan, there are some marketplaces that can trade some overseas voluntary credits in addition to J-Credits.[21] Overseas, there are also marketplace-type trading platforms.[22] The marketplace type is characterized by the fact that transactions are conducted on an individual credit-by-credit basis, allowing transactions to be conducted even for credits that are not in large supply, and by the fact that matching is facilitated compared to purely over-the-counter transactions that do not use a trading platform.

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[18] Documents 2 and 4 of the fourth meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20250128/02.pdf https://www.fsa.go.jp/singi/carbon_credit/siryou/20250128/04.pdf) .
In the TSE Carbon Credit Market, sellers designate in advance the individual credits to be delivered in settlement at the time of the sell order, and buyers receive information on the designated credits after the contract is executed and before settlement. In addition, from the perspective of reducing counterparty risk, as described below, the TSE has implemented a settlement process in which the TSE acts as an escrow agent.

[19] For example, one trading platform in the U.S. has T+0 settlement, API integration with registries, etc., to improve transaction efficiency. (https://www.fsa.go.jp/singi/carbon_credit/siryou/20250128/01.pdf (p. 25))

[20] A trading system for the GX Credits of the GX League was also introduced in November 2024.

[21] Document 3 of the fourth meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20250128/03.pdf).
These credits can also be traded in the Carbon Credit Market of Tokyo by the Tokyo Metropolitan Government, which began operating in March 2025 (https://carbon-market.metro.tokyo.lg.jp/). Some of these marketplaces facilitate transactions by posting carbon credit ratings (see below).

[22] Document 1 of the fourth meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20250128/01.pdf).

In Japan, both of these exchange- and marketplace-type trading platforms currently provide spot transaction platforms. On the other hand, overseas, trading platforms for derivatives trading are provided, and there are examples of active trading in practice. Specifically, as with other financial instruments and commodities, derivatives trading where underlying assets are emission allowances or carbon credits is active.[23] In most cases, derivatives transactions are structured so that the final settlement method for open positions at maturity is physical settlement (i.e., the actual transfer of credits against the payment) rather than settlement for difference based on a clearing index. In addition, as with derivatives transactions in markets for other financial instruments and commodities, various measures are taken under each country's system to prevent unfair trading and protect investors.[24] These derivatives transactions have been pointed out for their significance in responding to the need for hedging against price fluctuation risk, their significance in thickening liquidity, their price discovery function, and their function in improving market transparency and efficiency through activating the market.

(ii) Intermediaries

Carbon credits are an intangible product with diverse types, purposes, and functions, and their practice is developing rapidly. Therefore, it is important for financial institutions with a certain level of trading experience, credibility, and resources to act as intermediaries to promote carbon credit transactions. The importance of intermediaries is also pointed out in the IOSCO Report.[25] In Japan, regarding the scope of business regulation, the FSA's "Q&A on the Handling of Carbon Credits" intends to clarify when financial institutions can handle carbon credits, and in fact, many financial institutions are participating in the intermediary business.[26]

The TSE Carbon Credit Market (J-Credit) has opened its doors to a relatively wide range of participants, with participants from a wide variety of industries registered (321 participants as of April 2025).[27] Various financial institutions also participate in the market, and in addition to their own offsets, they sell and buy credits on the market for off-market suppliers and users who wish to sell or buy credits. Some of these financial institutions also play the role of market makers as mentioned above.

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[23] A futures market operated by one U.S. operator is actively trading futures on certain standardized credits traded in the spot market. There are also examples of derivatives trading in Singapore and Europe (https://www.fsa.go.jp/singi/carbon_credit/siryou/20250128/01.pdf). Regarding the standardization of contract forms, ISDA has published the Verified Carbon Credit Transaction Definitions.

[24] For example, the U.S. Commodity Futures Trading Commission (CFTC) guidance mentions position limits and monitoring measures that exchanges may establish.

[25] See IOSCO Report, p. 21.

[26] FSA, Q&A on the Handling of Carbon Credits (https://www.fsa.go.jp/news/r4/sonota/20221226.html).

[27] The registration requirements as a participant in the market are limited to (i) being a corporation, government, local government, or voluntary organization (but not individuals), (ii) having established a bank account or a credit account necessary for settlement of market transactions, and few other requirements. In addition, from the perspective of confirming a qualified invoice issuer, it is not allowed for participants to act as agents for orders from others.

In the over-the-counter transactions, financial institutions are also involved as intermediaries. In addition to major financial institutions intermediating, introducing, and providing information on domestic and foreign credits,[28] regional financial institutions have also been expanding their intermediation and generation support, especially in the "local production for local consumption" approach, in which credits generated through local forests are sold to local companies. Local companies are beginning to purchase these credits with a certain premium, recognizing their value in contributing to local decarbonization and forest protection while also contributing to local revitalization and regional development by channeling the profits from credit sales to the local community.[29]

(iii) Support for Credit Generation

As mentioned above, some have pointed out that the current supply of carbon credits is inadequate. However, there are examples of companies or financial institutions that are trying to increase the supply of carbon credits in Japan and abroad by providing funding and advice through their involvement in the carbon credit generation process. For example, they have provided capital and credit support as sponsors of carbon credit generation projects, provided funds as external financial institutions, invested in or partnered with companies in charge of the generation process, established carbon funds to receive funds from investors to generate and distribute carbon credits, or generated and sold credits for multiple small-scale solar power projects as a project manager.[30] Also, as noted above, adopting the "local production for local consumption" approach, regional financial institutions are supporting local credit generation.

(iv) Structuring Finance-Related Products Using Carbon Credits, Etc.

There are more examples of using carbon credits etc. to structure new types of finance-related products. For example, there are examples of companies contributing to local communities by allocating part of the amount of corporate bonds issued to the purchase of credits and offsetting them locally (although different from carbon credit usage), donating non-fossil certificates to loan users under certain criteria,[31] and returning profits from issuing and selling credits based on eco-driving to automobile insurance

[28] Documents 2, 3, and 4 of the first meeting of the Working Group.
[29] Document 3 of the second meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20240910/03.pdf). Other points raised include the importance of inter-regional collaboration as well as intra-regional collaboration.
[30] Document 3 of the second meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20240910/03.pdf), document 3 of the third meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20241119/03.pdf), document 5 of the fifth meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20250225/05.pdf).
[31] Document 2 of the second meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20240910/02.pdf), document 3 of the second meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20240910/03.pdf), document 4 of the second meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20240910/04.pdf).

subscribers in the form of coupons.[32] Overseas, there are examples of companies and financial institutions participating as investors in the aforementioned carbon funds, carbon credits or related products being included in the portfolios of investment trusts, or investment trusts whose financed emissions are offset in advance by using carbon credits.[33] In addition, as described below, there are also moves toward the structuring of finance-related products using fintech.

(v) Risk Management and Credibility Rating of Carbon Credits

In the same way that insurance is provided for risks associated with other financial instruments, there is a movement to utilize insurance for risks associated with carbon credits. As mentioned above, carbon credits are subject to the risk of price fluctuations due to changes in supply and demand, reputational risk from using less credible credits, risk of political and regulatory changes, and unsettlement risks, including counterparty risk at the time of transaction, operational risk, and risk associated with generation process. In Japan, there are some cases where insurance products are provided to cover various expenses related to crisis management in the event that reputational risk materializes.[34] Overseas, although they are still in their infancy, there are some moves toward the provision of reinsurance as well as carbon credit insurance.

Just as credit rating agencies and ESG rating agencies contribute to the functioning of the market by performing certain signaling functions, there are now some institutions that evaluate the credibility of carbon credits as well (carbon credit rating agencies). For example, several carbon credit rating agencies based abroad provide ratings on overseas voluntary credits for a fee, and in some cases, these ratings are provided on affiliated trading platforms. In Japan, there is a case in which a service has been developed and provided to efficiently organize information on the credibility of overseas voluntary credits by utilizing AI on the long and English-language project documents.[35]

(vi) Tech Utilization

There are some examples where carbon credit practices and products are being streamlined and upgraded through the use of various digital technologies such as blockchains, APIs, AI, and fintech. In particular, a blockchain can be used to address concerns about double-counting and double-transfer by recording information related to the attribution of carbon credits on a blockchain, which is difficult to tamper with. Also, it is pointed out that issuing multiple corresponding tokens on the blockchain with a

[32] Document 4 of the third meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20241119/04.pdf).
[33] https://kraneshares.com/krbn/
https://www.robeco.com/en-int/media/press-release/robeco-introduces-carbon-offset-share-classes
[34] Document 4 of the third meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20241119/04.pdf).
[35] https://www.osakagas.co.jp/company/press/pr2024/1781324_56470.html

certain carbon credit as the underlying asset opens the way for decentralized ownership of the value of GHG reductions by a large number of people.[36]

In Japan, from this perspective, some startups have been attempting to tokenize carbon credits.[37] There are also examples of demonstration experiments of transactions among a certain number of participating businesses in cooperation with major financial institutions.[38] In relation to the registry, the possibility of real-time trading through the use of blockchain and API integration with exchanges is being explored.[39] There is also an example of a marketplace operated by a local government in which the operator procures credits and issues tokens backed by such credits to buyers.[40]

In addition, there are projects that aim to promote cross-border transactions through the settlement of carbon credits in stablecoins, and projects that work with local governments to incentivize individuals to contribute to the environment by issuing non-fungible tokens (NFTs) linked to carbon credits on the local government metaverse.[41] In the context of carbon credit rating, there are other examples of streamlining the carbon credit rating process through the use of AI to analyze vast amounts of documents, satellite images of forests, and other information.

Overseas, similar initiatives are being explored, and there are examples of demonstration experiments in which carbon credit tokens are used to pay dividends on green bonds in order to return emission reduction efforts to investors and reduce issuance costs for the issuing company.[42]

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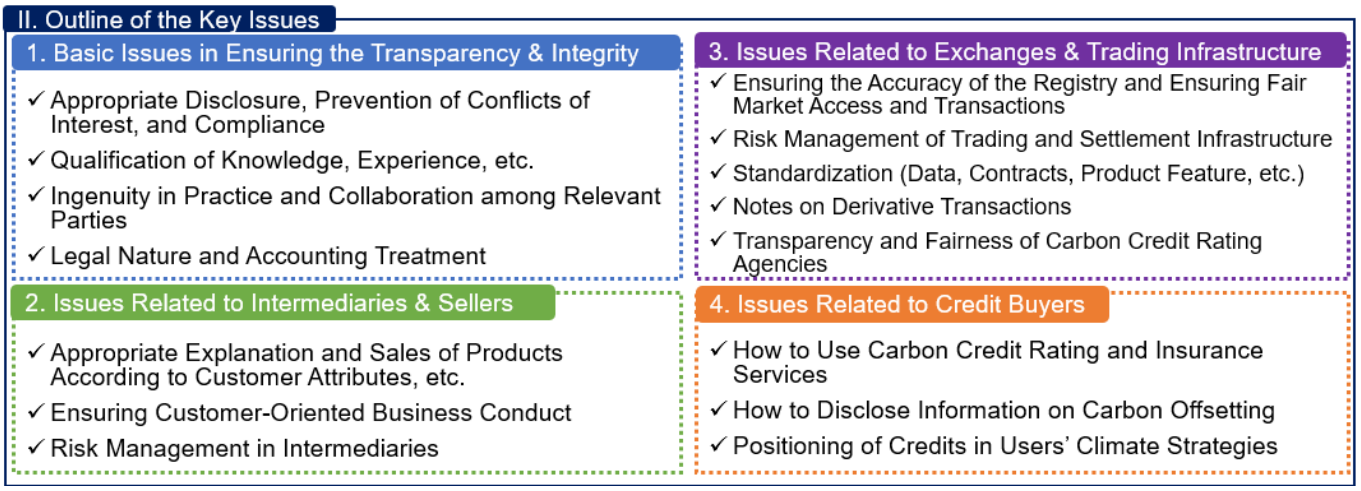
[36] World Economic Forum, 2023, "Blockchain for Scaling Climate Action - White Paper" (https://www3.weforum.org/docs/WEF_Blockchain_for_Scaling_Climate_Action_2023.pdf).
[37] Document 5 of the second meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20240910/05.pdf).
[38] Press Release on the Start of Blockchain-Based Carbon Credit Market Demonstration (https://prtimes.jp/main/html/rd/p/000000215.000051725.html).
[39] For the former, the aforementioned efforts by the MOE to utilize blockchains and IoT, and for the latter, document 4 of the fourth meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20250128/04.pdf (page 21)).
[40] Carbon Credit Market of Tokyo (https://prtimes.jp/main/html/rd/p/000000259.000095916.html).
[41] Document 5 of the second meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20240910/05.pdf).
[42] Project Genesis 2.0. (https://www.bis.org/about/bisih/topics/green_finance/genesis_2.htm).

3. Key Issues on Improving the Transparency and Integrity of Carbon Credit Transactions

Based on the above-mentioned stocktaking of transactions, and with reference to the discussions in the IOSCO Report, etc., this Working Group has summarized the key issues related to improving the transparency and integrity of carbon credit transactions. Specifically, as follows: (i) basic issues that could be relevant to all stakeholders, (ii) issues related to intermediaries and sellers, (iii) issues related to exchanges and trading infrastructure, and (iv) issues related to buyers.

<Figure 5: Outline of the Key Issues>



(1) Basic Issues in Ensuring the Transparency and Integrity

(i) Appropriate Disclosure, Prevention of Conflicts of Interest, and Compliance

Appropriate disclosure of information related to carbon credit transactions by relevant parties is crucial to ensure the transparency and integrity of transactions. For each entity, disclosure can have the following situations: (i) disclosure by the standard setters and registries, (ii) disclosure on the trading platform, (iii) explanation by the sellers to the buyers, and (iv) disclosure by the buyers regarding offsets.

In each situation, it is important that information that could influence the decision-making of trading participants shall be sufficiently disclosed. In particular, (i) for standard setters and registries, it is important that various information regarding the product feature of the credits they certify is disclosed. (ii) For trading platforms, it is important that various information on products handled, transaction volume, transaction price, eligibility, and transaction methods, including settlement, are appropriately provided.[43] (iii) Explanations by sellers are discussed below in "3(2)(i) Appropriate Product Explanation and Sales According to Customer Attributes, etc.." (iv) Information disclosure by the buyer is discussed later in "3(4)(ii) Disclosure Regarding Carbon Offsetting (Nature of Credits, etc.)."

[43] See IOSCO Report Good Practice 12.

The prevention of conflicts of interest is extremely important to ensure the integrity of the market. Cases where potential conflicts of interest may exist include, for example, carbon credit rating agencies/certifiers receiving compensation from the generator, or the same entity performing multiple functions, such as the roles of both trading platform and seller. In such cases, it is important to take appropriate measures to prevent conflicts of interest among the relevant parties.[44]

Compliance with applicable laws and regulations is also a prerequisite for ensuring the transparency and integrity of transactions. It is important to comply with obligations of explanation, governance-related obligations, etc. under civil law and applicable financial regulatory laws. It is also important to avoid inviting suspicion of abuse of a superior position, such as the sale of unnecessary credits in excess of the buyer's emissions or sales tied to other products with little relevance or necessity. There is also a variety of voluntary guidelines and guidance, etc., that are not legally binding, such as those provided by governments, industry associations, etc., and it is recommended that best practices be utilized by referring to these as appropriate.[45]

(ii) Qualification of Knowledgeand Experience,

The carbon credit market is still in its infancy, and many have pointed out that it is not easy to understand the complex, diverse, and rapidly changing nature of related systems and products. Therefore, it is important to build the capacity of each stakeholder in the ecosystem to cultivate knowledge and experience (literacy) on the matters described in "2. Fact-Finding of Carbon Credit Transactions" of this report for example, such as treatment under the relevant framework, product feature, and trading practices of carbon credits.[46]

In addition to the knowledge and experience of buyers who use credits, it is also important for sellers who sell credits to have sufficient knowledge and experience to conduct "3(2)(i) Appropriate Product Explanation and Sales According to Customer Attributes, etc." described below. In addition to buyers and sellers, it is also important to build the capacity of the various players in the ecosystem.

(iii) Ingenuity in Practice and Collaboration among Relevant Parties

As discussed above in 2(6), "Current Status of Each Function in the Trading Ecosystem," the carbon credit market is in its infancy, and much ingenuity is being displayed in various contexts, including trading practices and product formulation. It is expected that the relevant parties will refer to good

[44] See IOSCO Report Good Practice 17.
[45] While best practices can change as practices evolve, examples of relevant documents provided by the government up to the time of this report include the "Carbon Credit Report" by the METI, "Carbon Offsetting in Japan (Guidance)" and "Carbon Offsetting Guidelines" by the MOE, as mentioned above.
[46] See IOSCO Report Good Practice 4. Training and study sessions in collaboration with external parties, in addition to efforts to improve literacy at all levels within the company through internal training programs, are considered beneficial, given that the carbon credit ecosystem is comprised of a diverse range of parties.

examples and best practices and link them to the development of the market.

In addition, as mentioned above, the carbon credit trading ecosystem is interrelated with various actors, including trading platforms, intermediaries, insurance companies, rating agencies, sellers, buyers, and standard setters and registries. Collaboration among these parties is also important for the smooth and sound development of the market.[47] For example, there are examples of business companies and financial institutions establishing networks to support structuring and disseminating carbon credit related know-how and information, API integration between trading platforms and standard setters and registries, disclosure of ratings by carbon credit rating agencies on trading platforms, and collaboration between financial institutions and overseas trading platforms.[48]

Collaboration within and outside the region is also important. For example, there are examples of regional financial institutions, business corporations, and local governments working together to establish carbon credits within a region, or multiple regional financial institutions collaborating across regions to share practices and knowledge related to sustainability, including carbon credits, and attempting to horizontally spread leading practices and other information among regions.[49]

International collaboration is also important, given the existence of diverse carbon credits internationally and the diverse transaction and financial infrastructures. As mentioned above, several examples of collaboration with overseas parties from the perspective of gathering information on leading overseas practices, etc. can be seen. Efforts by private initiatives, such as ICVCM, VCMI (Voluntary Carbon Markets Integrity Initiative), ISDA (International Swaps and Derivatives Association), etc., have been conducted in order to promote the international interoperability of credits and trading practices. In this Working Group, the importance of paying attention to such international discussions was pointed out from the viewpoint of enhancing standardization and interoperability.[50] In particular, it was indicated that this matter is highly important from the viewpoint of Japanese companies that are operating their business globally.

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[47] See IOSCO Report Good Practice 3.
[48] Document 3 of the first meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20240610/03.pdf (page 9)), document 4 of the fourth meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20250128/04.pdf), document 3 of the fourth meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20250128/03.pdf), Tokyo Metropolitan Government Carbon Credit Market, and document 2 of the first meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20240610/02.pdf).
[49] Document 4 of the second meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20240910/04.pdf).
[50] The APEC Business Advisory Committee (ABAC) also noted the importance of increasing interoperability for voluntary credits.

(iv) Legal Nature and Accounting Treatment

It is important that the legal and accounting nature of carbon credits be clarified to ensure predictability and stability in the handling of transactions (including effectuation requirements and perfection requirements for transfer.). This is also important for increasing the number and sophistication of transactions (including collateralization and derivatives).[51]

Regarding the legal nature of carbon credits, there are international discussions on private law at the International Institute for the Unification of Private Law (UNIDROIT), and in Japan, a report by the Financial Law Board proposes that J-Credits are "Other Proprietary Rights" under private law.[52] As for the accounting treatment, the Japanese Institute of Certified Public Accountants (JICPA) has also organized its view in Research Report No. 17 of the Accounting System Committee.[53] It would be beneficial for further necessary clarification to be made based on these results.

(2) Issues Related to Intermediaries and Credit Sellers

(i) Appropriate Explanation and Sales of Products According to Customer Attributes.

It is important for the intermediary/seller of carbon credits to provide an appropriate explanation of the product features according to the attributes of the customer., when selling the product. This is a prerequisite for customer and investor protection and is required regardless of whether the seller is a financial or non-financial institution.

As mentioned above, carbon credit clients are basically corporations, but their objectives, knowledge, and experience are diverse. The product feature of carbon credits is also diverse, including the type of credits (J-Credit or overseas voluntary credit), the type of methodology (emissions reduction/avoidance or removal, technology-based or nature-based), the degree of credibility, the existence of co-benefits (ancillary value), and the degree of risk. In the trading of carbon credits, there may be information asymmetry, especially in relation to buyers who do not have sufficient knowledge and experience. It was pointed out at the Working Group that, for example, selling credits ineligible for offsetting under a certain program without sufficient explanation to a buyer who intends to use them within that program would

[51] See IOSCO Report Good Practice 1.

[52] Financial Law Board, Summary of Discussion (https://www.flb.gr.jp/epage/edoc/publication61-e.pdf).
In addition, the "Study Group on Legal Issues Contributing to the Examination of an Emissions Trading System for the Realization of GX" is identifying legal issues and organizing ideas on so-called emission allowances under Japan's legal framework (https://www.env.go.jp/earth/ondanka/page_01417.html). In addition, in the "Research Report on the Green Transformation League Operating Project Fund (Research Project on Legal Issues of Emissions Trading System, etc.)," a legal study on carbon credits in addition to emission allowances is conducted (https://www.meti.go.jp/meti_lib/report/2023FY/000278.pdf).

[53] Release of the Research Report No. 17 of the Accounting System Committee, "Research Report on Accounting for Environmental Value Transactions - Addressing New Transactions to Solve Climate Change Challenges - " and "Summary of and Response to Comments on Exposure Draft" (https://jicpa.or.jp/specialized_field/20230921dfg.html). In addition, the National Tax Agency's "Regarding the Tax Treatment of JCM Credit Transactions" (https://www.nta.go.jp/law/bunshokaito/hojin/160701/index.htm) provides a response to inquiries regarding the tax treatment of JCM Credit transactions.

be problematic from the viewpoint of investor protection.

Therefore, from the perspective of customer and investor protection, it is important for the seller to provide appropriate explanations so that the buyer can understand the product features of the credit, while taking into account customer attributes, such as the buyer's purpose, knowledge, and experience. In particular, as discussed in "2(2)(ii) Credibility," credibility constitutes the core value of credits in terms of contributing to the reduction of GHG emissions, and therefore, robust explanation is important.

In addition to carbon credits themselves, when providing carbon credit related products, tokens, or services, it is also important to provide appropriate explanations on how carbon credits are incorporated and the product features of the incorporated credits. When offering such products, tokens, or services, sometimes the recipients are individuals. Compared to corporations, individuals have more diverse objectives, knowledge, and experience, and are typically considered to have a higher need for customer and investor protection. Therefore, it is particularly important for providers to provide sufficient and robust explanations to client individuals[54].

(ii) Ensuring Customer-Oriented Business Conduct

When the intermediary/seller is a financial institution, it is important to provide information to the buyer based on the purpose of the "Principles for Customer-Oriented Business Conduct.[55]" The Working Group also noted that it is important to require accountability at least as required for other financial instruments.

Even in cases where the intermediary/seller is not a financial institution, since it is undesirable for the degree of customer protection to differ depending on the type of business of the seller, it is important to provide information from the same perspective.

(iii) Risk Management in Intermediaries

Intermediaries play an important role in pooling different orders, providing market information and liquidity, etc.[56] As with other financial assets, reducing risks, such as operational errors by intermediaries in executing and delivering orders, should lead to the creation of a smooth trading environment. Therefore, intermediaries are expected to appropriately manage operational risk, technology risk, and other risks.[57]

[54] In cases where the information to be provided by the seller on an exchange-type trading platform is standardized, the adequacy of such information provision is uniquely a matter of the "disclosure on the trading platform" described above. The description in this item does not naturally require the seller to provide separate information outside of a market transaction in such cases.
[55] Principles for Customer-Oriented Business Conduct (https://www.fsa.go.jp/news/r6/20240926/02.pdf).
[56] See IOSCO Report, p. 21.
[57] See IOSCO Report Good Practice 16.

(3) Issues Related to Exchanges and Trading Infrastructure

(i) Ensuring the Accuracy of the Registry and Ensuring Fair Market Access and Transactions

Since the credit registry is maintained at the standard setters and registries and is an important infrastructure for identifying who owns the credits, it is important that its accuracy is ensured.[58] In particular, eliminating the possibility for one credit to be transferred, used, or posted multiple times is important for ensuring market integrity.[59] In addition, it is important to ensure smooth transfer and registration procedures through the use of the above-mentioned technologies and collaboration with relevant parties. It is worth noting that some seek the establishment of a common data platform utilizing a blockchain in cooperation with multiple standard setters and registries.[60]

Regaring the eligibility of participants for trading platforms, a broad and fair distribution of trading opportunities would be beneficial from the perspective of enhancing price transparency and market efficiency by ensuring market liquidity.[61]

To ensure fair transactions on trading platforms, it is important for operators to (i) set, (ii) monitor, and (iii) enforce appropriate rules.[62] Specifically, the operator should (i) formulate and clarify various rules for increasing predictability and ensuring fair trading, (ii) appropriately monitor trading conditions for compliance with such rules and the absence of fraudulent, deceptive, or abusive trading, and collect and manage transaction data necessary for this purpose. If a violation of the rules or a fraudulent transaction occurs, the operator should take appropriate measures and take disciplinary action in accordance with the rules. It is also important for operators to ensure that they have adequate resources to implement these practices.[63]

(ii) Risk Management of Trading and Settlement Infrastructure

Risks associated with the trading and settlement infrastructure include operational risk, counterparty risk, and other unsettlement risks. Robust risk management in the trading infrastructure is important because it facilitates the functioning of the market and enhances its integrity and stability.[64]

With regard to operational risk, automation is beneficial for eliminating the possibility of errors or arbitrary decisions that could happen when operation is performed by human labor. In this case, appropriate system management is expected, such as the use of highly reliable and secure systems.[65]

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[58] See IOSCO Report Good Practice 8.
[59] Some standard setters and registries outside of Japan have conducted public consultations on the potential use of blockchains (https://verra.org/verra-concludes-consultation-on-third-party-crypto-instruments-and-tokens/).
[60] Document 6 of the second meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20240910/06.pdf)
[61] See IOSCO Report Good Practice 10.
[62] See IOSCO Report Good Practice 11, 18, 19.
[63] See IOSCO Report Good Practice 20.
[64] See IOSCO Report Good Practice 16.
[65] In the IOSCO Report, detailed good practices are described, including the development of a business continuity plan (BCP).

Reducing the unsettlement risk is important to ensure the efficiency and stability of transactions and the sound development of the market. For example, the TSE Carbon Credit Market, for example, reduces counterparty risk by suspending the performance of a party's obligations and canceling contracts when its counterparty fails to deliver credits or transfer payment to the escrow accounts for credit and fund settlement opened by the TSE. In addition, there were some cases where the credit risk of the operating entity in this case was considered to be further managed by utilizing a trust to provide bankruptcy remoteness.[66] In addition, there have been examples of attempts to reduce the unsettlement risk by shortening the settlement period through automatic execution of the settlement flow by API integration.[67] It is expected that operators will take appropriate measures to reduce unsettlement risk by referring to these examples.

(iii) Standardization (Data, Contracts, Product Feature, etc.)

The standardization of transactions is beneficial in overcoming fragmentation and expanding and scaling markets.[68] There is concern that the fragmentation of trading systems, such as data, contracts, and product feature, will hinder trade between different systems and fragment the market. Especially in an international context, the need to increase interoperability among different regimes in different countries is also pointed out.

With regard to data, the standardization of data formats and data subjects, such as product features and transaction practices, would contribute to the accumulation of highly usable data in the market as a whole. As for contracts, the formulation of forms in trading platforms and the formulation of standard contracts in the ISDA mentioned above will contribute to standardization. For the standardization of product features, there are initiatives, such as the ICVCM.

(iv) Considerrations on Derivative Transactions

As mentioned above, there are examples of derivatives transactions being actively conducted abroad to perform such functions as providing hedging instruments and enhancing liquidity. In the IOSCO Report, it is suggested that the contract specifications for carbon credit derivatives include sufficient details, such as delivery requirements and procedures, and the specifications of the underlying credit.[69] The U.S. Commodity Futures Trading Commission (CFTC) in its "Guidance Regarding the Listing of Voluntary Carbon Credit Derivative Contracts" issued in October 2024 also states that the credibility of the underlying carbon credit is important for physically settled derivative contracts, and recommends that

[66] Document 4 of the fourth meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20250128/04.pdf (p. 24)).
[67] One trading platform in the U.S. is using T+0 settlement through API integration (document 1 of the fourth meeting of the Working Group (https://www.fsa.go.jp/singi/carbon_credit/siryou/20250128/01.pdf(p.25)).
[68] See IOSCO Report Good Practice 5.
[69] See IOSCO Report Good Practice 14.

the quality of the credit, delivery requirements, and other aspects of the credit be sufficiently specified in the terms and conditions of the derivative contract.[70] ISDA has also published a set of definitions for derivative transactions of verified credits.

In light of the above, in preparation for a future in which derivatives trading will take place in Japan, it is important to advance research aimed at developing an environment that will ensure credibility, sophisticate risk management, standardize transactions, and organize legal issues.

(v) Transparency and Fairness of Carbon Credit Rating Agencies

As discussed above, carbon credit rating agencies perform signaling functions on the carbon credit credibility. As pointed out in the IOSCO Report, there may be concerns about conflicts of interest if the same entity is responsible for both rating and monitoring in the generation process, etc. In this regard, since the best practices for ESG rating agencies, such as measures to prevent conflicts of interest, may be applicable to carbon credit rating agencies. Indeed, some carbon credit rating agencies based overseas have already endorsed the International Capital Market Association's (ICMA's) "Code of Conduct for ESG Ratings and Data Products Providers." It would be beneficial for carbon credit rating agencies to implement these best practices to enhance transparency and fairness.

[70] CFTC website (https://www.cftc.gov/PressRoom/PressReleases/8969-24).

(4) Issues Related to Credit Buyers

(i) How to Use Carbon Credit Rating and Insurance Services

As a buyer, the credibility of credit can be efficiently ascertained by utilizing carbon credit rating. In addition, by utilizing insurance services, the risks associated with credits, including those related to credibility, can be managed. Widespread use of these risk management methods could lead to more sophisticated risk management by buyers and more sophisticated services through economies of scale at rating agencies and insurance companies.[71]

However, it is important for a buyer not to completely rely on these services and fail to understand the product features and credibility of the credit. As a buyer, it is important to have an appropriate understanding of these, since credibility information may be used for disclosure, as discussed below.

(ii) How to Disclose Information on Carbon Offsetting (e.g., Nature of Credits)

When carbon credits are used to offset one's own emissions, it is important to disclose the details of the offsetting, including the product features of the carbon credits used, in order to prevent misunderstanding by stakeholders and to receive appropriate evaluation of one's efforts to address climate change.

In this context, the International Sustainability Standards Board's (ISSB's) standard that was finalized in June 2023[72] and the Sustainability Standards Board of Japan's (SSBJ's) standard published in March 2025,[73] both require that if the disclosing entity has a net GHG emissions target, the disclosing entity shall explain the carbon credits it plans to use to achieve that target. Here, it is required to disclose the method and extent of reliance on the credits, the certifying entity, whether the basis is nature or technology, whether the method is reduction or removal, and information necessary to understand the credibility of the credits.[74]

The MOE's "Carbon Offsetting in Japan (Guidance)" and "Carbon Offsetting Guidelines" also require the disclosure of the scope of offsetting, the amount of credits to be used for offsetting, and the details of offsetting to ensure transparency. The Claims Code of Practice published by the VCMI, an international private sector initiative for the use of credits, describes the way of disclosure according to three levels of labeling, as to how much and what kind of credits were used for the difference between the emission reduction targets and actual emissions.

In case of offsetting by the buyer, the buyer is expected to make appropriate disclosures about the credits used for offsetting based on these disclosure standards, guidelines, etc.

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[71] In relation to insurance companies, it was noted that the more insurance is used, the more valid the law of large numbers will become in structuring the product.

[72] ISSB website (https://www.ifrs.org/projects/completed-projects/2023/climate-related-disclosures/#final-stage).

[73] SSBJ website (https://www.ssb-j.jp/jp/ssbj_standards/2025-0305.html).

[74] IOSCO Good Practice 21 also describes disclosure related to credit usage.

(iii) Positioning of Credits in Users' Climate Strategies

It is important for users of carbon credits to give priority to emission reduction efforts within their own value chain and consider offsetting with credits as a complementary measure. The MOE's "Carbon Offsetting in Japan (Guidance)" and "Carbon Offsetting Guidelines" also state that offsetting should not be used to justify a decision not to reduce emissions. Similar content is also stated in the principles of the United States and the United Kingdom.

4. Conclusion

As mentioned above, this Working Group and this report have identified the current status of carbon credit transactions and summarized the key issues related to improving the transparency and integrity of carbon credit transactions. The report also noted that the carbon credit market is in its infancy, that related systems and products are complex, diverse, and rapidly changing, and that capacity building (improving literacy) is therefore important for all relevant parties. It was also pointed out that it is important to promote collaboration among relevant parties, that appropriate explanations should be provided at the time of sale, that it is necessary to ensure transparency of transactions and markets through disclosure, that risk management and other measures should be taken, and that alignment with international discussions should be considered.

Moving forward, it is expected that the relevant parties will further deepen their individual efforts based on the key issues outlined above. This may include capacity building, the strengthening of collaboration and dialogue among relevant parties in Japan and overseas, the formation and sharing of best practices on how to provide explanations at the time of sale, etc., and necessary clarification of the legal nature and accounting status.

The IOSCO Report and the principles of the United States and the United Kingdom set forth high-level content related to the transparency and integrity of carbon credits. In Japan, it is expected that the report will lead to the formulation of high-level principles in Japan for the transparency and integrity of carbon credit transactions, taking into account the key issues in this report.

Glossary[75]

(Alphabetical Order)

Terminology	Description
Additionality	The emission reductions would not be achieved without the benefit from the credits.
Baseline and credit	See 2(1).
Cap and trade	See 2(1).
Carbon credit or Credit	See 2(1).
Carbon credit market	An exchange-type trading platform for trading carbon credits. For example, the Tokyo Stock Exchange opened the Carbon Credit Market in October 2023.
Carbon credit rating agency	An agency that provides services of assessing the credibility of credits issued or to be issued and providing relevant information to buyers.
Carbon neutrality	A state in which anthropogenic GHG emissions and anthropogenic GHG removals are in balance.[76]
Carbon offset	An initiative to "know, reduce, and offset," in which members of society, including citizens, companies, NPOs/NGOs, local governments, and the government, recognize their own greenhouse gas emissions and make a proactive effort to reduce them, while at the same time compensating for all or part of the emissions that are difficult to reduce through carbon credits, etc.[77]
Co-benefit	Ancillary values regarding carbon credits other than the greenhouse gas reduction value, such as improved air and water quality, afforestation and forest conservation, and the conservation of biodiversity through these.[78]
Counterparty risk	Credit risk of the other party to the transaction.
Credibility	The extent to which individual credits and projects actually contribute to GHG reductions
Emissions reduction/avoidance (methodology)	See Figure 3.
Emissions trading system (ETS)	See 2(1).
Environmental integrity	Integrity in terms of the environment with regard to each credit.
Exchange-type	A competitive matching system similar to that of the stock market, etc., based on the principle of price competition, in which a lower offer shall have precedence over higher offers, and a higher bid shall have precedence over lower bids, the execution price and contract volume are determined where the sell and buy orders at that time are most closely matched.

[75] The above-mentioned METI's 2022 "Carbon Credit Report" and MOE's "Carbon Offsetting in Japan (Guidance)" and "Carbon Offsetting Guidelines" also include glossaries at the end, which should be referred to as necessary.
[76] METI's 2022 "Carbon Credit Report."
[77] MOE's "Carbon Offsetting in Japan (Guidance)."
[78] MOE's "Carbon Offsetting in Japan (Guidance)."

Financial Integrity	Transparency and integrity of the transaction and infrastructure aspects of carbon credits.
Financed emissions	Emissions from investment/loan recipients that are attributed to financial institutions.[79]
Greenhouse gas	The seven substances stipulated in the Kyoto Protocol as substances that cause climate change when they accumulate in the Earth's atmosphere. The seven substances are carbon dioxide (CO2), methane (CH4), nitrous oxide (dinitrogen monoxide/N2O), nitrogen trifluoride (NF3), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6).[80]
IOSCO Report	The report titled "Final Report on Promoting Financial Integrity and Orderly Functioning of Voluntary Carbon Markets (VCMs)," released in November 2024 by the International Organization of Securities Commissions (IOSCO).
Irreversibility/Permanence	Measures must be taken to address the risk of ex post loss of emission reduction or removal due to wildfires, etc.
J-Credit	See Figure 2.
JCM Credit (Joint Crediting Mechanism)	See Figure 2.
Market maker scheme	Scheme where market makers continuously place sell and buy orders within a certain price range and above a certain volume to indicate the prevailing level to participants other than market makers and to increase execution opportunities, thereby improving liquidity.
Marketplace-type	Platform for matching over-the-counter transactions. It is different from an exchange-type one in that the seller sets the selling price and volume and takes the initiative in price formation, and the buyer can confirm information on the seller and individual credits on the trading platform before conducting transactions.
MRV (Measurement, Reporting and Verification)	The process of measuring, reporting, and verifying greenhouse gas (GHG) emissions.
Nature-based	See Figure 3.
Net-zero	A state in which the amount of GHG emissions and the amount of GHG removal are in balance over a certain period of time.[81]
Operational risk	The risk of incurring losses due to inadequacies in the company's business processes, activities of officers and employees, or systems.
Over-the-counter transaction	A trading method in which the seller and buyer agree on the price, quantity, etc. directly, without going through an exchange or other venue.[82]
Overseas voluntary credit	See Figure 2.
Registry	A credit register maintained by an electronic system to accurately manage the generation, holding, transfer, etc. of carbon credits.[83]

[79] "Addressing the Challenges of Financed Emissions" (https://www.fsa.go.jp/singi/transition_finance/siryou/20231002/01.pdf).
[80] MOE's "Carbon Offsetting in Japan (Guidance)."
[81] MOE's "Carbon Offsetting Guidelines."
[82] https://www.jpx.co.jp/glossary/a/2.html
[83] MOE's "Carbon Offsetting in Japan (Guidance)."

Removal (methodology)	See Figure 3.
Reputational risk	Risk of a decline in users' reputation.
Residual emissions	Emissions from where emissions are unavoidable even with maximum emission reductions.[84]
Standard setters and registries	Entities operating carbon credit mechanisms, monitoring/certifying in carbon credit generation, and managing registries.
Scope 1, 2, 3	A company's own GHG emissions (Scope 1), GHG emissions required for the composition of energy procured from other companies (Scope 2), and GHG emissions by a company's suppliers and customers, and GHG emissions at the final consumption stage of products, etc. (Scope 3).
Technology-based	See Figure 3.
Trading platform	A platform that provides functions such as matching of buyers and sellers, trade execution, and settlement for carbon credit transactions.

[84] METI's "Working Group towards Creating a Negative Emissions Market" (https://www.meti.go.jp/shingikai/energy_environment/negative_emission/pdf/20230628_1.pdf).

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(As of June, 2025)

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