

INFORMATION
PAPER

Defining Results-Based Climate Finance, Voluntary Carbon Markets and Compliance Carbon Markets



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1818 H Street NW

Washington, DC 20433

Telephone: 202-473-1000

Internet: www.worldbank.org

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Design and copyediting by Clarity Global Strategic Communications





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ACKNOWLEDGMENTS

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This paper has been jointly developed by the Carbon Markets and Innovation (SCCMI) and the Climate Funds Management (SCCFM) teams of the World Bank. This information paper seeks to distinguish across different types of payments provided against emission reductions by defining results-based climate finance, voluntary carbon markets, and compliance carbon markets. The paper is intended to facilitate further discussion on these topics.



GLOSSARY

Activity-based climate finance (ABCF): Activity-based climate finance refers to climate finance that is made available prior to project implementation and is often used for meeting upfront investment costs. To date, ABCF has accounted for 95 percent of international public climate finance.

Crediting Standards: A crediting standard outlines a set of detailed requirements that must be met for a mitigation activity to generate carbon credits using that standard. These standards are typically maintained by independent bodies and are established using expert inputs. Examples include the UNFCCC's [Clean Development Mechanism](#), the [Gold Standard](#), Verra's [Verified Carbon Standard \(VCS\)](#), and the [World Bank's Forest Carbon Partnership Facility \(FCPF\)](#).

Compliance carbon markets (CCM): Article 6 of the Paris Agreement sets out the framework for the regulated or compliance carbon market where Internationally Transferred Mitigation Outcomes (ITMOs) are traded internationally. Buyers include governments purchasing ITMOs to meet their Nationally Determined Contributions (NDCs), as well as private sector entities.

Corresponding Adjustment (CA): An accounting mechanism established under Article 6 of the Paris Agreement intended to ensure that mitigation outcomes (MOs) are not “double counted”, that is, trading of MOs should not result in more than one country using the same MO to demonstrate achievement of their NDCs.

Emission reduction credits (ERCs): An emission reduction credit (ERC) represents a standard unit to measure an emission reduction equivalent to one metric ton of carbon dioxide (tCO₂e). A generic term for ERCs is a “carbon credit”. When issued by a particular standard, an ERC becomes a named unit, for example, an ERC issued under the Verified Carbon Standard is called a “Verified Carbon Unit” and an ERC issued by Gold Standard is called a “Gold Standard carbon credit”.

Internationally Transferred Mitigation Outcomes (ITMOs): The Paris Agreement sets out principles for cooperation between countries that involves the international transfer of mitigation outcomes. When authorized by the selling country and transferred internationally to another country, an MO

becomes an ITMO. An ERC can be converted to an ITMO through the sovereign act of authorization.

Mitigation Outcome (MO): Under the Paris Agreement, a ton of CO₂ reduction or removal is called a “mitigation outcome” (MO) when the reduction is quantified based on an agreed methodology and independently verified. An MO is an ERC that can be produced from any mechanism procedure, or protocol that is recognized or approved to be eligible under Article 6.2 of the Paris Agreement by Parties to the cooperative approach.

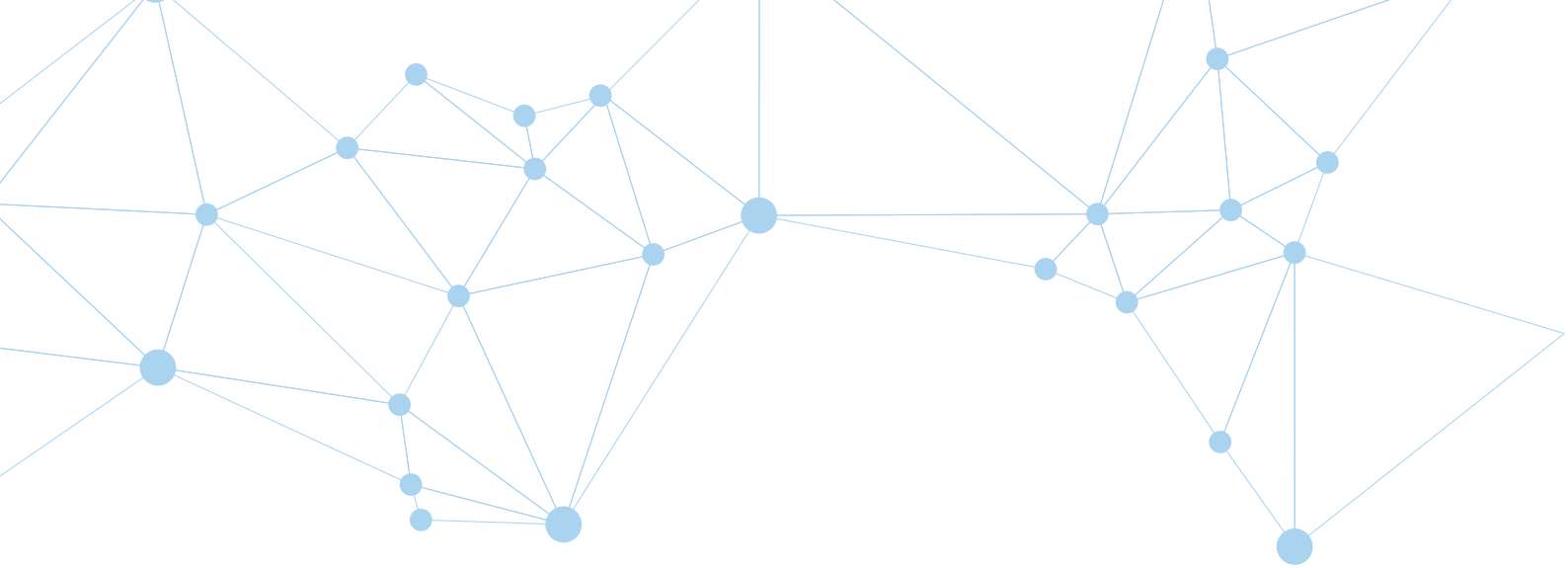
MRV: Monitoring, Reporting, and Verification refers to the process of measuring the amount of greenhouse gas (GHG) emissions avoided, reduced, or removed by a specific mitigation activity over a period of time, and independently verifying the results to ensure robustness and accuracy.

Nationally Determined Contribution (NDC): Under the Paris Agreement, all countries make some commitment to reduce emissions. These commitments are voluntary and are articulated through Nationally Determined Contributions (NDCs) submitted to the United Nations Framework Convention on Climate Change (UNFCCC).

Registry: A platform that maintains information related to the creation, transfer, use, and cancellation of ERCs to enable tracking. The level of sophistication of a registry system can vary, with some serving as data repositories while others may include trading functions.

Results-Based Climate Finance (RBCF): Results-based climate finance (RBCF) is provided upon verifying achievement of agreed climate results but does not involve the transfer of assets from the recipient project. Results could be specified in the form of any milestone (typically verified GHG emissions reduced or removed) that marks progress toward greater climate mitigation.

Voluntary Carbon Markets (VCM): The Voluntary Carbon Market (VCM) operates in parallel to compliance carbon markets. Buyers are corporates with net zero or other voluntary corporate commitments or pledges (i.e., emission reductions are not required under any regulatory mechanism).



INTRODUCTION

Under the Kyoto Protocol, compliance carbon markets (CCM) were primarily in the form of the Clean Development Mechanism (CDM) and Joint Implementation (JI). In 2015, the Paris Agreement introduced a new bottom-up approach to address climate change. Under the Paris Agreement, Parties set non-binding climate targets through their nationally determined contributions (NDCs). Article 6 of the Paris Agreement recognizes cooperation among countries for achieving their NDCs and raising climate ambition. This provides the basis for international CCM, where countries can trade emission reduction (“carbon”) credits with each other. Article 9 of the Paris Agreement stipulates that developed countries shall provide resources to developing countries for climate mitigation and adaptation. Developed countries would also take the lead in mobilizing climate finance from a variety of sources that represents a progression beyond previous efforts.

The objective of this information paper is to outline three avenues for monetizing climate results – results-based climate finance (RBCF), voluntary carbon markets (VCM), and CCM. The paper is intended to describe activities by non-state or private sector actors in these mechanisms, and how their participation can facilitate the achievement of climate benefits in a cost-effective manner.

It is important to note that all three options for monetization discussed in this note require a robust monitoring, reporting, and verification (MRV) framework to demonstrate the achievement of emission reductions against which payments can be made. Furthermore, countries require a consistent policy approach or framework at the national level to ensure transparent and streamlined access to markets for entities operating within their respective jurisdictions and outline their preferred approach for participation in markets.

RESULTS-BASED CLIMATE FINANCE

A vast majority of international public climate finance (about 95 percent) is provided as activity-based climate finance (ABCF). ABCF refers to climate finance that is made available early in the project cycle, typically in the form of loans, grants, equity, or guarantees. RBCF, by contrast, is only provided upon verifying achievement of agreed climate results. Therefore, RBCF provides an additional revenue stream for climate change-related projects and can play an important role in incentivizing climate action, enhancing project viability, and catalyzing private sector investment.

Results could be specified in the form of any milestone (typically, a verified GHG emission reduction) that marks progress toward greater climate mitigation. In this note, we consider RBCF payments made against the achievement of verified emission reductions by an identified mitigation project. Since RBCF is a form of climate finance, it does not involve the transfer of assets from the recipient project. In other words, while a project would be required to demonstrate the achievement of real and additional ERCs to receive RBCF payments, ownership of the ERCs would remain with the host country and would not be transferred to the RBCF provider.¹ They can be used towards demonstrating the achievement of the host country's NDC.²

Sovereign providers of RBCF to developing countries may report RBCF as a contribution of financial resources under Article 9 of the Paris Agreement. RBCF may also be provided by private or non-state actors. In such cases, private sector

providers of RBCF may claim a climate finance contribution that enables the seller country to reduce emissions, while the ownership of the ERCs themselves would remain with the seller country and may be used toward demonstrating achievement of its NDC.

The provision of RBCF requires clear definition of the program or project that will generate emission reductions. The payment amount against the achievement of emission reductions is agreed between the project developer (or recipient)³ and the RBCF provider. During project preparation, the approach for estimating emission reductions ex-ante and arrangements for monitoring and verifying them ex-post should be set out in a project design document. Any additional attributions that the RBCF provider recognizes and means of verifying them should also be identified and agreed. The document may then be validated by an independent third party, if requested. Validation ensures that the selected methodology⁴ for the estimation of emission reductions has been correctly applied.⁵

Once the project is commissioned and commences operation, the actual or ex-post emission reductions would be verified by an independent third party. Upon submission of the verification report confirming achievement of the desired outcomes, the RBCF payment may be released to the project. Verification may be carried out periodically during project operation at specified intervals, or when a sufficient volume of emission reductions has been generated.⁶

1 However, the RBCF provider may require that the project owner not sell the ERCs paid for through RBCF to a third party.

2 Host country refers to the jurisdiction in which the mitigation activity generating ERCs is located.

3 The project developer may be a state-owned entity, a private sector entity, a government ministry or department, or a sub-national government, that is responsible for implementing the project.

4 Providers of RBCF may specify requirements for methodologies – for example, they may deem certain existing methodologies eligible, or they may develop their own methodologies. Hybrid approaches are also possible, i.e., existing methodologies are used where available, and new methodologies are developed where existing methodologies are unavailable or inapplicable.

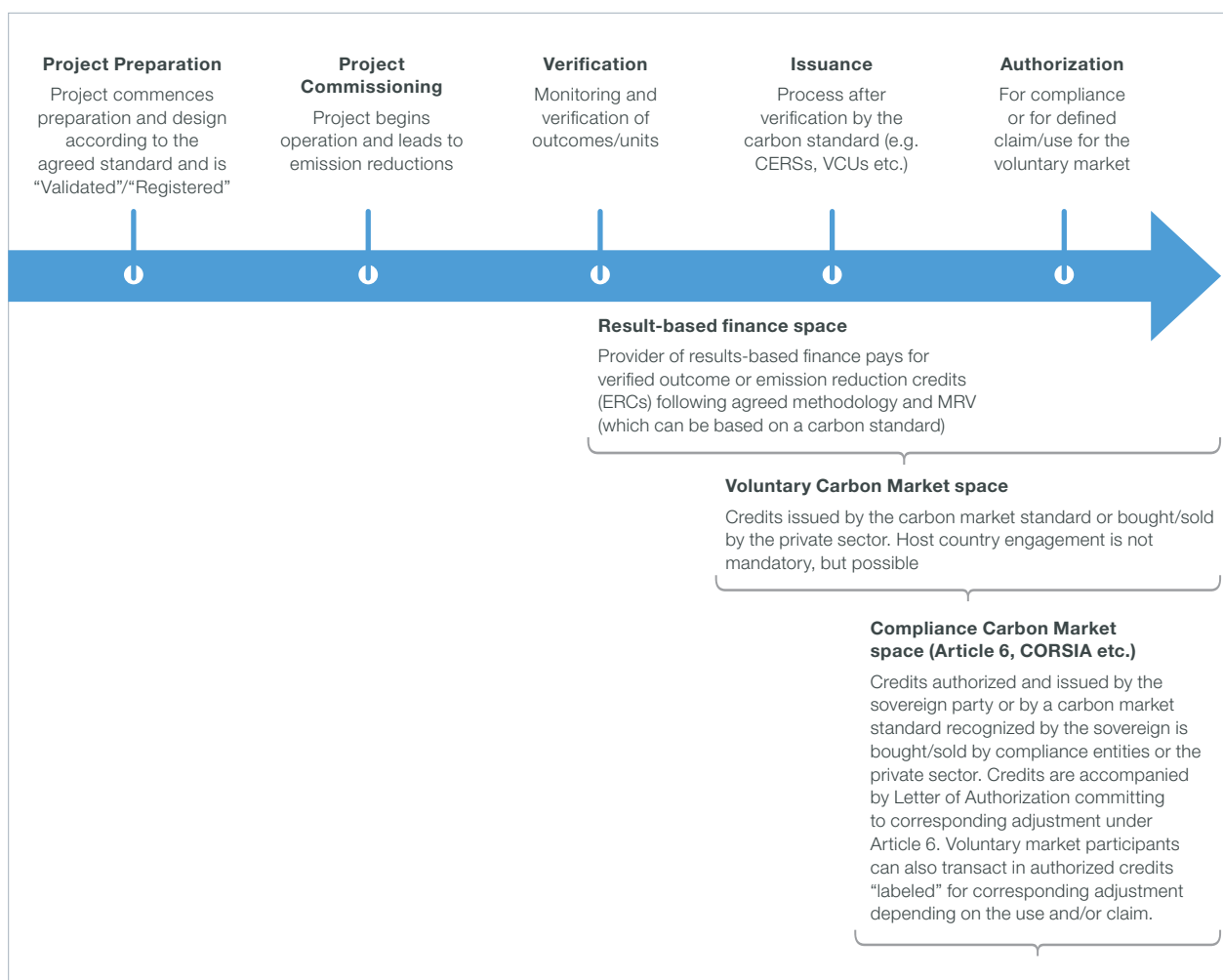
5 Validation may be followed by registration of the project by a standard. While registration is essential for carbon markets (whether voluntary or compliance), it is not necessary for RBCF.

6 The World Bank is also exploring opportunities for incorporating digital MRV, which could enable the generation of ERCs on a near real-time basis. This could create possibilities for innovative approaches for the provision of payments against ERCs.

At present, RBCF is primarily made available through trust funds managed by multilateral organizations. For example, since the launch of its first carbon fund in 1999, the Prototype Carbon Fund, the World Bank has made about US\$2 billion in emission reduction payments across 65 countries. Since their inception, the World Bank has managed about US\$4.5 billion (of which nearly US\$1 billion was from the private sector) in the form of carbon funds that make payments against ERCs.⁷

Figure 1 below describes the types of ERCs used for RBCF, VCM, and CCM. RBCF can operate in the broadest space, that is, it can provide payments against verified emission reductions, ERCs issued by a carbon standard, or authorized ERCs, depending on how “climate results” are defined and agreed between the provider of RBCF and the recipient. VCM typically trade issued ERCs. In addition, they can also trade authorized ERCs, depending on buyer preferences. CCM has the most narrowly defined criteria for eligible credits, focusing exclusively on the trade of authorized ERCs.

FIGURE 1. Results-Based Climate Finance, Voluntary Carbon Markets, and Compliance Carbon Markets



Notes:

- **Letter of Authorization:** Government authorizes the ERCs and commits to CA.
- **Uses and Claims/Label:** “Contribution” or “support” claims by corporate or voluntary market participants.
- From left to right, the figure reflects an increasing degree of oversight or regulation associated with generating an ERC.

Source: World Bank

⁷ Historically, the World Bank’s carbon funds have engaged in a combination of payments for emission reduction results as well as purchases of ERCs that would be eligible in CCM.

VOLUNTARY CARBON MARKETS

Voluntary carbon markets are driven by demand from non-state actors, such as corporations, institutions, and individuals that wish to offset their GHG emissions or contribute to the reduction of GHGs within their jurisdictions. Unlike CCM, activity in VCM is not currently regulated by a state or supervisory body.⁸ Therefore, demand is driven by voluntary buyers, who may have varied objectives.

In addition to the process followed for verifying emission reductions for RBCF, VCM also require certification by a crediting standard.⁹ Based on its processes and requirements, the crediting standard body would register the project and list it in its data management system after validation, and issue credits upon completion of verification. Issuance refers to a specified quantity of serialized units of ERCs being issued to project participants' accounts in accordance with the rules and requirements of the standard. These steps are intended to ensure that the process used for quantifying and generating ERCs for VCM is consistent and robust. Issued ERCs or carbon credits may be traded by private sector entities and used to claim contribution toward the generation of emission reductions from an identified project.

Crediting standards may choose to label units to indicate the eligible uses or claims or highlight other key attributes.¹⁰ Labeling can help distinguish among different use cases¹¹ by transparently listing the characteristics of units. These labels and use cases are still evolving and are expected to become more well defined over time.¹²

It may be noted that there are examples of interactions between voluntary and compliance carbon markets. For example, the voluntary offset project protocols developed by Climate Action Reserve (CAR) were subsequently adapted by the California Compliance Offset Program. While the linkages between global VCM and CCM under the Paris Agreement are still evolving, and the need for their convergence is still debated, some elements will remain common between the two.

Since 2019, VCM have seen rapid growth. In 2020, the total value of the market tracked was \$473 million, the highest annual value since 2012, bringing the cumulative market value to \$6.7 billion. The volume of traded carbon credits in VCM hit record volumes of 188.2 MtCO₂e in 2020, representing an 80 percent increase over 2019. Market transactions in 2021 are likely to be the highest annual value ever tracked, exceeding \$1 billion in November 2021.¹³

8 It may be noted that multi-stakeholder groups such as the Integrity Council for Voluntary Carbon Markets (IC-VCM) and the Voluntary Carbon Markets Integrity Initiative (VCMI) are working to define supply side and demand side integrity, respectively, for voluntary carbon markets.

9 A "crediting standard" outlines a set of detailed requirements that must be met for a mitigation activity to generate ERCs against that standard. These standards are maintained by independent bodies that typically also provide GHG registry services for issuing credits. For example, Verra's Verified Carbon Standard and the Gold Standard Foundation's Gold Standard are among the largest standards by volume of voluntary carbon market credits issued.

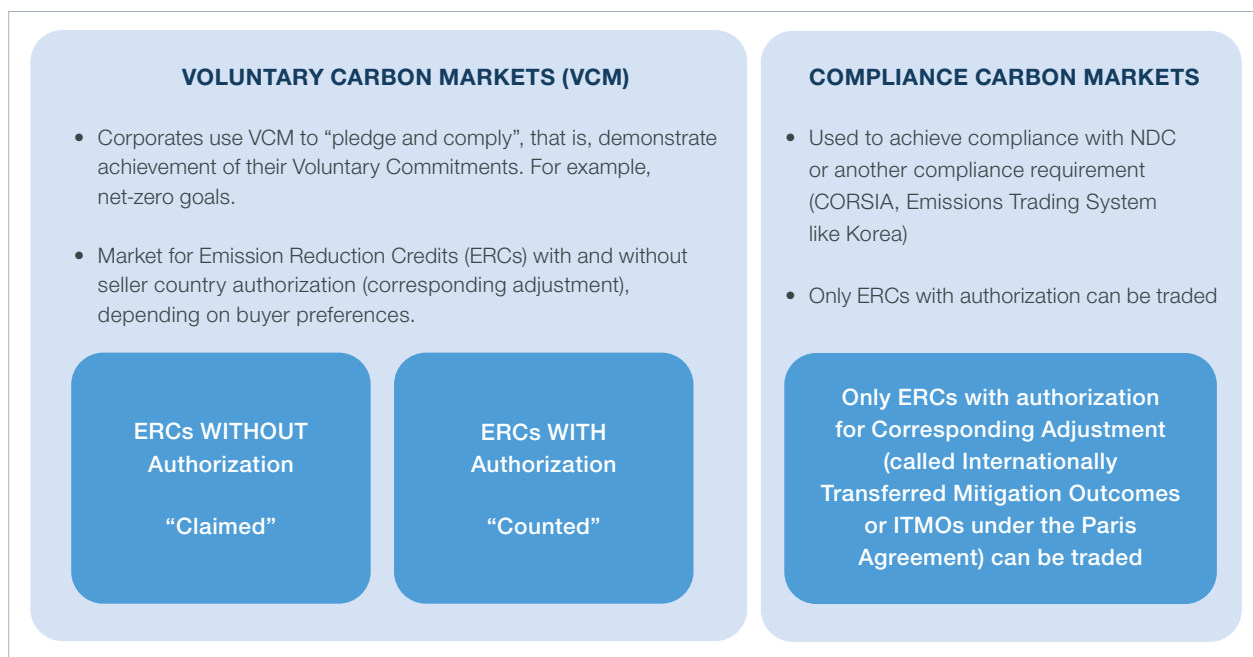
10 "Attributes" may include the type of activity through which the project generates emission reductions (for example, renewable energy and forestry), the jurisdiction of origin, the sustainable development benefits associated with the project, and the approval or authorization received by a project, among others.

11 A "use case" refers to the purpose for which an ERC is used. For example, one "use case" could be to demonstrate achievement of net-zero goals by a corporation. Table 1 summarizes different use cases.

12 The World Bank, together with the International Emissions Trading Association (IETA) has convened an Informal Working Group of Independent Carbon Standards, which includes representation from American Carbon Registry, Climate Action Reserve, Gold Standard, Global Carbon Council, and Verra. The Working Group is working toward consistent terminology, processes and linkages across compliance and voluntary carbon markets, and to provide greater clarity on labels and associated claims and use cases.

13 Ecosystem Marketplace. Voluntary Carbon Markets Top \$1 Billion in 2021 with Newly Reported Trades, a Special Ecosystem Marketplace COP26 Bulletin. November 10, 2021, <https://www.ecosystemmarketplace.com/articles/voluntary-carbon-markets-top-1-billion-in-2021-with-newly-reported-trades-special-ecosystem-marketplace-cop26-bulletin/>

FIGURE 2. International Carbon Markets



Source: World Bank

COMPLIANCE CARBON MARKETS

Compliance carbon markets refer to regulated systems where national, regional, or provincial authorities mandate emissions sources to comply with GHG emission reduction requirements. Several national and regional compliance schemes are established as cap-and-trade systems or crediting mechanisms. The full list of such schemes is available on the World Bank’s [Carbon Pricing Dashboard](#).

This note focuses on international CCM under the Paris Agreement. Article 6 of the Paris Agreement recognizes voluntary cooperation, including carbon markets. Article 6

includes two types of market mechanisms: Article 6.2 and Article 6.4. Article 6.4 or the “Sustainable Development Mechanism” is expected to be the successor to the CDM, establishing a regulated carbon market under the supervision of the Conference of the Parties.¹⁴ Article 6.2, by contrast, provides flexibility for bilateral and plurilateral cooperation across countries for the trading of authorized ERCs.¹⁵ With the agreement on the rules for operationalizing Article 6 at COP26, there is growing interest in carbon markets, and some countries have already initiated requests for proposal to procure authorized ERCs.¹⁶

14 The Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) agreed at COP26 that a Supervisory Body would be established for Article 6.4. Nomination of members and alternate members for the Supervisory Body have been invited, and at least two meetings are to be held in 2022. Significant technical work is expected to be carried out by the Supervisory Body through these upcoming meetings, including the development of provisions for the approval of methodologies, monitoring, verification, issuance, renewal, and other processes.

15 In the language of the Paris Agreement, an ERC authorized for international transfer under Article 6.2 by the seller country government is called an Internationally Transferred Mitigation Outcome (ITMO). Authorization implies commitment by the seller country to undertake a CA to avoid double counting.

16 The first Requests for Proposal (RFP) for ITMOs were launched in 2019 by the KliK Foundation, Switzerland. Other countries that have issued RFPs for ITMOs include the Ministry of Environment – Japan and the Swedish Energy Agency.

Trades of authorized ERCs can only occur between Parties to the Paris Agreement, or between entities authorized by such Parties.¹⁷ Furthermore, the transfer of authorized ERCs from one Party to another must be accompanied by appropriate accounting, through “corresponding adjustment” (CA). CA refers to an accounting adjustment made by the buying and selling countries to their NDC accounting to reflect the transfer of the authorized ERC. It is intended to ensure that an authorized ERC is not double counted, meaning that both countries cannot use the same authorized ERC to demonstrate achievement of their respective NDCs. Commitment to carry out CA is expected to be provided by the seller country through a Letter of Authorization issued prior to transfer of an ERC. Evidence of CA is provided

through the submission of Biennial Transparency Reports to the UNFCCC by the countries.

By carrying out CA, a seller country ensures that the authorized ERC is not counted toward the achievement of its own climate targets. This would mean that the seller country has to undertake additional mitigation action to demonstrate the achievement of its own NDC. Such additional mitigation action would be associated with an opportunity cost, which is expected to be reflected in the price of an authorized ERC. While there are no CA units currently traded in the market, it is expected that authorized credits will be priced significantly higher than ERCs that are not accompanied by such authorization.

LINKAGES BETWEEN VOLUNTARY AND COMPLIANCE CARBON MARKETS

The process for generating ERCs under voluntary and compliance carbon markets is expected to be similar. However, participation in CCM under the Paris Agreement, if the acquiring country intends to use the authorized ERCs for meeting its NDC target, involves the additional mandatory step of obtaining a Letter of Authorization that commits to carrying out CA from the government of the seller country.

Participation in these markets and the associated rules for private sector actors primarily depend on the purpose of their participation, the claim made against the ERCs, and use of the acquired ERCs. Requirements such as approval and/or authorization from the selling countries, measures to ensure avoidance of double counting, linkages with NDCs to prevent overselling, and measures to ensure NDC targets are met and

climate ambition is increased, are likely to play a major role.

Some crediting standard bodies, such as Gold Standard Foundation, have indicated that all the credits on its registry would require CA by 2025. The COP26 text does not make any mention of CA for VCM, and the decision of whether VCM credits should be subject to CA is left to host countries. CAs are likely to be based on aggregate annual volumes of relevant transactions for a country rather than being carried out for each individual market transaction. The question of applying adjustments to VCM transactions is, therefore, not an issue limited to individual activity participants securing Letters of Authorization; rather, it depends on whether host countries intend to incorporate these transactions in their national accounting and reporting under Article 6.¹⁸

17 For example, Switzerland’s Kllk Foundation is authorized to procure ERCs under Article 6.2 to meet legal obligations set out under Swiss CO₂ Law.

18 Some signatories to the [San Jose Principles Coalition](#) have committed to apply corresponding adjustments to support voluntary corporate climate commitments in mitigation outcomes used by corporate actors for voluntary climate goals through international voluntary carbon markets. These include Colombia, Costa Rica, Fiji, Finland, Marshall Islands, Peru, and Switzerland.

It is also important to note that CA is an accounting mechanism, and not a measure of quality or integrity of the ERC. The claims associated with a carbon credit would need to be linked to the underlying characteristics of an ERC.

Transactions in authorized ERCs are not limited to CCM. The private sector can also transact in authorized ERCs. In order to be able to make claims related to contributing toward increasing the ambition of a seller country, CA would be essential. The private sector can also contribute to the achievement of its own country's NDC by securing authorization to participate in CCM and submitting its purchases of authorized ERCs to its country government for use toward demonstrating achievement of its NDC.

In some cases, the private sector may purchase credits internationally for the achievement of compliance requirements under a domestic or regional emissions trading scheme. For example, South Korea's Emissions Trading Scheme (K-ETS) permits a part of the compliance requirement of covered entities to be met using international offsets. In these cases, the need for CA will depend on the rules of the national or regional scheme, and whether the country intends to use the credits generated under such a mechanism to demonstrate achievement of its NDC.

While the labels and claims associated with different types of ERCs are still evolving, the table below summarizes the broad use cases and claims that may be associated with RBCF, VCM, and CCM.

TABLE 1. Summary of Use Cases and Claims

Mechanism	Verification by an Independent Third Party	Registration and Issuance by a Crediting Standard	Letter of Authorization committing to CA by seller country	Claim for Private Sector	Implication for Seller Country
Results-Based Climate Finance	Yes	No*	No	Contribution to climate finance; contribution to meeting existing climate goal	ERC remains in the seller country and can be used toward NDC
VCM without authorization	Yes	Yes	No	Contribution to the generation of emission reductions	ERC remains in the seller country and can be used toward NDC
VCM with ERCs labeled for corresponding adjustment	Yes	Yes	Yes	Contribution to increasing ambition of the seller country	ERC transferred out of seller country and cannot be used for NDC
Compliance Carbon Market (and surrendered to own country government)	Yes	Yes	Yes	Contribution to buyer country's NDC	ERC transferred out of seller country and cannot be used for NDC

* May be required by some providers of RBCF, but not considered an essential feature of RBCF. For example, the World Bank's forest Carbon Partnership Facility (FCPF) requires issuance of credits.

Note: The table illustrates minimum requirements and does not preclude other possibilities. For example, registration for RBCF is not needed, but it is allowed.

