



Carbon Markets

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LIST OF ABBREVIATIONS

A6.4ER	Article 6.4 emission reductions
CER	Certified Emission Reduction
CA	Cooperative Approaches
CDM	Clean Development Mechanism
ETS	Emissions trading system
GHG	Greenhouse gas emissions
ITMO	Internationally transferred mitigation outcomes
JI	Joint Implementation
LDC	Least Developed Countries
NDC	Nationally Determined Contribution
NMA	Non-market approaches
PA	Paris Agreement
QELRO	Quantified Emission Limitation and Reduction Objective
SDG	Sustainable Development Goals
SDM	Sustainable Development Mechanism
SIDS	Small Island Developing States
UNFCCC	United Nations Framework Convention on Climate Change
VCC	Voluntary carbon credit
VCM	Voluntary carbon market
VCS	Voluntary carbon standard
VER	Voluntary emissions reduction



1. THE GLOBAL CONTEXT: FROM KYOTO TO PARIS

1.1. KYOTO PROTOCOL

International carbon markets started to gain attention during the signature of the Kyoto Protocol in 1997, when the topic of emissions reduction was at the center of the discussions. At this point, developed countries agreed on targeting reductions in their greenhouse gas (GHG) emissions by funding offset projects in developing countries, who would not have such obligations but could opt to reduce their own emissions and sell credits to the developed ones (Höhne 2015).

The Protocol inaugurated three mechanisms to assist countries in reducing emissions:

1. **Emissions Trading** → A cap-and-trade mechanism that limits the total amount of emissions from all the entities engaged (companies, organizations)
2. **Clean Development Mechanism (CDM)** → A project-based mechanism where reductions are the result of investment in green projects. It allowed developed countries to fund GHG emissions-reducing projects in developing countries and claim the saved emissions as part of their own efforts to meet international emissions targets.
3. **Joint Implementation (JI)** → Another project-based mechanism, but in this case developed countries can carry out emissions reduction or removal enhancement projects in other developed countries. It represented a project-based transfer between two so-called Annex I countries with 'Quantified Emission Limitation and Reduction Objective' (QELRO) targets.

These mechanisms enhanced the market's flexibility and played a relevant role concerning the private sector, since they encouraged an enhanced level of engagement and buy-in that may not have been possible through traditional modes of regulation. Kyoto represented the first step in establishing a solid carbon pricing framework at the international level, which set the scene for the present structure under the Paris Agreement (Höhne 2015).



1.2. ARTICLE 6 OF THE PARIS AGREEMENT

After the initial steps towards emissions reduction under Kyoto's umbrella, the Paris Agreement (PA) ushered in a new era in climate change governance, especially in improving the role of carbon markets.

The Agreement defined ambitious climate change mitigation targets and the goal to limit the increase in global temperatures to 1.5°C above pre-industrial levels. Based on the idea of global cooperation and that countries have common but differentiated responsibilities, the PA created the concept of **Nationally Determined Contributions (NDCs)**. Countries could indicate their mitigation (and in some cases adaptation) targets voluntarily and could also identify the instruments and measures to achieve them. The NDCs were meant to be revised and stepped up every five years.

Article 6 of the PA established the international accounting rules required to govern a global carbon market and, although lacking in details, it also defined the rules for international cooperation between countries to reduce emissions and achieve their NDCs. The Agreement also established rules to avoid double counting. In practice, if a country transfers an emission reduction, it will adjust its GHG balance sheets so that the reduction is not counted toward its own pledged "contribution," while a country receiving the transfer can apply the reduction to its own GHG balance sheet.

According to Michaelowa et al (2019), the Paris Agreement changed the international climate regime from a top-down approach based on mandatory emissions commitments to a bottom-up system of voluntary government pledges. The Agreement does bring additional challenges, since rules for accounting and baselines are more complex when all countries have mitigation targets. Besides, the fact that every country has obligations restricts their ability to make additional reductions since they are busy with activities and projects to meet their own targets.

The market and non-market based mechanisms created by the Paris Agreement will be described in detail in Section 2.



2. TYPES OF CARBON MARKETS

International carbon markets can be mandatory or voluntary. Mandatory markets, or compliance markets, are established by regimes at different levels of government, while voluntary schemes include the non-compulsory participation of companies and individuals in reducing emissions.

While compliance offset market credits may be purchased by voluntary, non-regulated entities in some instances, voluntary offset market credits—unless explicitly accepted into the compliance regime—are not allowed to fulfill compliance market demand. Table 1 below gives an overview on the major differences between the two types of markets.

Table 1: Voluntary vs. compliance markets

	Voluntary Market	Compliance Market
Exchanged commodity	Carbon offsets, facilitated by a project-based system.	Allowances, facilitated by a cap-and-trade system.
How is the market regulated?	Functions outside of the compliance market.	National, regional or international carbon reduction regimes E.g. Article 6, Kyoto Protocol, California Carbon Market, EU Emissions Trading System
What is the price?	Voluntary credits tend to be cheaper because they cannot be used in compliance markets. The price is impacted by project type, project size, location, co-benefits, and vintage.	Compliance credits tend to be more expensive because they are driven by regulatory obligations.



	<i>Voluntary Market</i>	<i>Compliance Market</i>
Who can purchase credits?	Businesses, governments, NGOs, and individuals.	Companies and governments have adopted emission limits established by the United Nations Framework Convention on Climate change.
Where are credits traded?	Currently no centralized voluntary carbon credit market. Project developers can sell credits directly to buyers through a broker or an exchange, or sell to a retailer who then resells to a buyer.	Companies that surpass their emission targets can sell their surplus credits to those looking to offset emissions. Credits can be sold under regulated emissions trading schemes.

Source: Adapted from carboncredits.com

2.1. MANDATORY CARBON MARKETS (COMPLIANCE OFFSET)

As described above, the Kyoto Protocol and the Paris Agreement emerged as the most relevant mechanisms at the international level. However, the Kyoto era ended in 2020, and there is still uncertainty on the transition between the two regulatory frameworks. As agreed at COP26, a full transition of Clean Development Mechanism (CDM) activities and a carry-over of Certified Emission Reductions (CERs) from activities registered after 2013 into the first NDC implementation period is allowed¹. Still, as substantive requirements for this transition remain unclear and without clear guidance, a lot of burden will be placed on host country institutions and their approval of the transition.

¹ Transitions are allowed to the A6.4M if the transition is requested by 31 December 2023 and the approval is granted by the host party by 31 December 2025. CER transition is permitted for activities registered after 2012.



Looking to the future, although the relevant technical work will continue through 2022 and 2023, with the adoption of the Article 6 rulebook at COP26, international market-based mechanisms can now be implemented under the Paris Agreement.

Article 6 sets out guidelines for voluntary international collaboration using both market mechanisms and non-market approaches. Key elements include:

- **Article 6.2**, which establishes rules on how governments can engage in cooperative approaches that involve the trading of carbon credits or emission allowances (internationally transferred mitigation outcomes, or ITMOs);
- **Article 6.4**, a crediting mechanism for mitigation activities, seen as a successor to the Kyoto Protocol’s Clean Development Mechanism (CDM), and
- **Article 6.8**, which promotes non-market approaches (further details in section 2.2).

2.1.1. Key mechanisms

Paragraphs in Article 6.2 and 6.4 also establish key mechanisms with detailed guidelines as follows:

Cooperative approaches – Article 6.2²

Goal

Cooperative approaches (CA) allow room for countries to cooperate bilaterally under their own agreed rules. This makes it possible for mitigation measures to be implemented in one country and the resulting emission reductions to be transferred to another and counted towards its NDC.

Key features

- The final COP26 outcome on Article 6.2 contains [14 pages of guidance](#), including a detailed definition of ITMOs:
 - CAs must be applied to all ITMOs to avoid double counting.

² Article 6.2 is not a mechanism, but establishes rules for voluntary “cooperative approaches”.



- The guidance now differentiates between three types of use of ITMOs: a) for NDCs, b) for other international purposes (meaning international regimes outside the PA, such as the International Civil Aviation Organization for aviation and the International Maritime Organization for shipping, and c) for other purposes, meaning the voluntary carbon market (VCM).
- An international registry and Article 6 database to be established for recording and tracking ITMOs.
- The outcome also strongly encourages participating parties and stakeholders to commit to contribute resources for adaptation, in particular through contributions to the Adaptation Fund, with a reference to how this is made in the A6.4M.
- Although it is subject to UNFCCC guidance, it is not under direct international supervision.

Sustainable development mechanism – Article 6.4

Goal

The Sustainable Development Mechanism (SDM) sets up a new market mechanism that would replace Kyoto's CDM and focuses on creating an international carbon market that would generate emissions credits. The buyer-seller split depends on the relative wealth of countries, as well as the ambition of their climate goals and the carbon intensity of their energy and industrial systems.

Activities will generate long-term emissions reduction in the host nation, which normally consists in developing countries that sell credits. The emissions reductions achieved using this mechanism can be transferred from the country in which they were achieved to another country and then counted towards its NDC.

CAs must be applied to Article 6.4 emission reductions (A6.4ERs) which are authorized by host countries for the three types of use defined under Article 6.2.

Key features

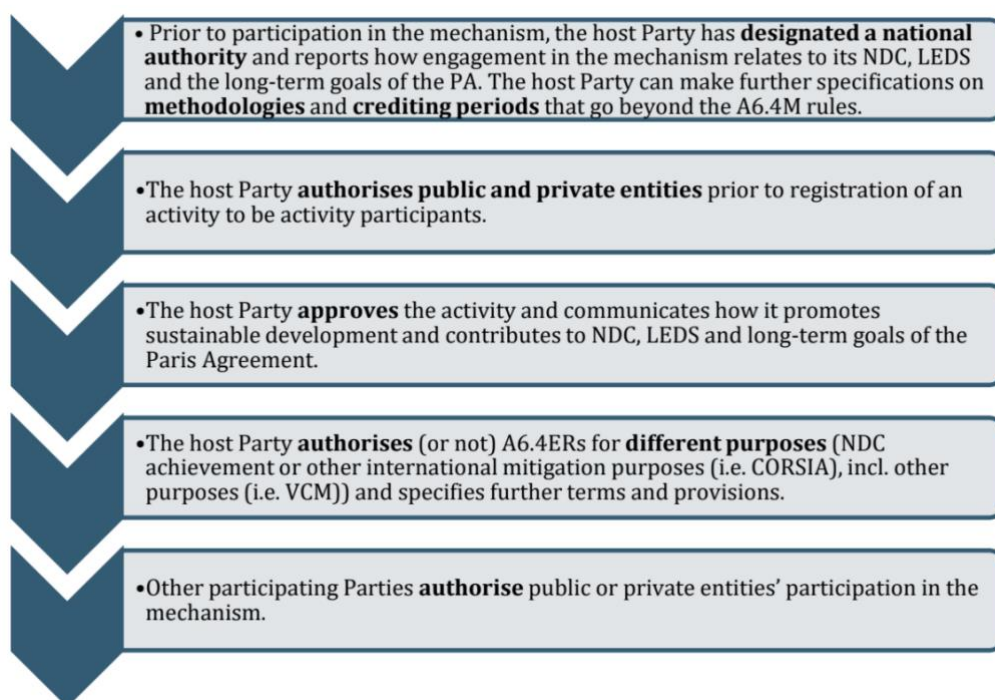
- Only A6.4ERs with CAs can be used towards NDCs or international mitigation purposes.
- Crediting periods are a maximum of 5 years (renewable twice) or 10 years with no renewal.



- Baselines will be set based on a best-available technology benchmark, with a benchmark derived from average emissions of a best performing comparable activity or based on actual or historical emissions that are adjusted downwards.
- Activities must credibly demonstrate additionality, including to existing policies, and avoid lock-in of emissions. Activities in Least Developed Countries (LDCs) and Small Island Developing States (SIDS) may use a simplified approach to demonstrate additionality.
- Adaptation share of proceeds will be delivered to the Adaptation Fund and consist of an in-kind levy of 5% of A6.4ERs issued.
- This mechanism is managed by a UNFCCC body and has rules recognized at the international level. The [16 page decision](#) outlines participants' responsibilities and provides guidance on activity design. Figure 1 illustrates the host country responsibilities and the authorization process.

As Figure 1 shows, Article 6.4 defines some responsibilities for the host countries, which includes the power to authorize entities and approve activities.

Figure 1: Host country responsibilities and the approval and authorization process in the A6.4M



Source: Kessler et al 2021

2.1.2. Advantages and challenges of Art 6.2 and 6.4



Article 6 can present multiple benefits that justify countries' engagement such as revenue generation, technology transfer, capacity building, financing high-cost measures, and sustainable development co-benefits. However, before engaging in Article 6, a host country should carefully assess its own situation to ensure that the export of an ITMO undermines neither the achievement of the current NDC nor future NDC ambition since every emission reduction sold and transferred to another country, makes it harder for host countries to meet both their current NDC and future NDCs (NewClimate Institute, 2018).

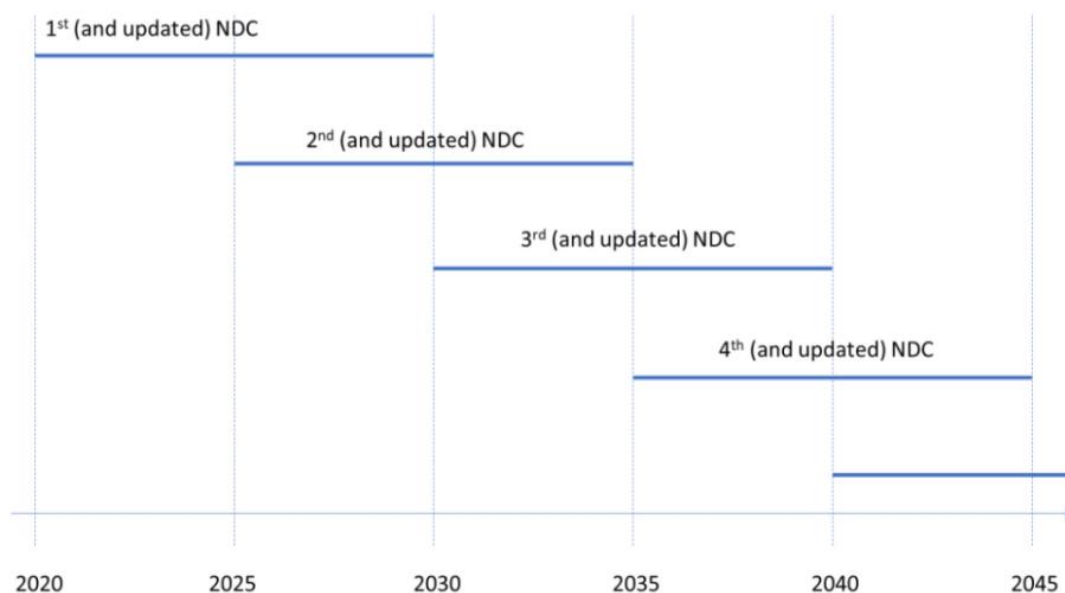
This happens because the Paris Agreement does not allow double counting, which means that if a host country sells emission reductions internationally, it cannot use that emission reduction towards achieving its own NDC. Thus, a country must always weigh the potential benefit of transferring an emission reduction unit against the option of using that reduction for the country's own ambitious efforts to reduce emissions as part of its NDC or future ratcheted NDCs. (NewClimate Institute 2020)

Depending on the final rules and scopes, countries may be able to choose to engage in activities either under Article 6.2 or under Article 6.4. While Article 6.2 envisages decentralized cooperative approaches between countries, 6.4 establishes a mechanism with centralized oversight. The former offers potentially more flexibility to countries that can establish their own rules but is likely to be less efficient and less transparent than Article 6.4 and provides less fungibility of mitigation outcomes.

Mitigation outcomes must be used in the same NDC implementation period in which they were generated (UNFCCC 2021a, Annex, para. 8). This will generate challenges once overlapping NDC periods exist.



Figure 2: Overlapping NDC periods as per “common timeframe decision



Source: Kessler et al 2021

2.2. NATIONAL AND REGIONAL MARKETS

Apart from carbon trading between developing and developed countries, some countries have established their own domestic or regional carbon trading systems. These systems usually focus on the biggest emitters, typically power producers and manufacturing companies. In these cases, the government works out how much companies can emit and still allow the country to meet its national commitment under the Kyoto Protocol. The European Union (EU), the UK and the state of California are some examples of national and regional markets that already have mandatory carbon markets.

In most cases, compliance programs exist as regional or national cap-and-trade emission trading schemes. In these cases, each company receives a number of carbon credits per year. If a company generates less emissions than this number, it has a surplus. On the other hand, some companies produce more than their numbers and search to purchase credits to offset their emissions (mandatory).

Within the sectors covered by the scheme, only a limited quantity of emission permits (allowances) are issued, namely just enough to allow the reduction target to be met. These allowances are established by a law or regulation and cannot be adjusted based on demand increases (UBA 2021).



Examples of national and regional markets

European Union Emissions Trading System (ETS): Launched in 2005, it was the world's first carbon market. The cap-and-trade scheme limits emissions in 10,000 installations of the power sector. The ETS issues credits called EU Allowances (EUAs) that allows firms to emit one ton of carbon.

Mexico: The carbon market in Mexico consists in a blended approach where the carbon tax is combined with a credit offsetting mechanism. The carbon tax raises governmental funds that will be used, in turn, to develop and promote climate change mitigation actions. The ETS operates alongside the tax, covering CO₂ emissions from all sectors.

2.3. VOLUNTARY CARBON MARKETS

The increased awareness about the importance of emissions reduction and the challenges faced at the local level have led some in the business community and civil society to engage voluntarily in offsetting emissions, even though they are often not required by law to do so. Voluntary carbon markets (VCMs) have gained recognition as an important tool to complement and support compliance efforts made by governments.

Voluntary Emissions Reduction (VER)

VERs are credits originating from the voluntary CO₂ market. All VERs must be verified by an independent third party. Currently, VERs are mostly used by companies who are looking to voluntarily offset the emissions generated during their business activities in order to show social responsibility and establish a healthy and green corporate image. An increasing number of companies are investing in VER projects in order to reduce their carbon footprint and to reach a "zero emission" status.

In these markets, organizations choose to voluntarily offset emissions that otherwise would not be possible, or very expensive, to eliminate, by purchasing carbon offsets from third-party projects that generate emission reductions or sequester carbon from the atmosphere.

Interest and activity in the voluntary market is growing. Since VCMs came into operation, approximately 1.2 billion tons of CO_{2e} have been transferred. According to Ecosystem Marketplace (2020), 612 million carbon credits were issued between



2007 and 2019 from baseline-and-crediting programs that targeted mainly the voluntary market, including 142 million in 2019 alone.

The classical approach of the voluntary market consists of the purchase and cancellation of credits generated by **baseline-and-crediting programs**. Businesses, institutions and individuals can buy credits to offset their carbon emissions voluntarily. Companies in this marketplace have the opportunity to work with businesses and individuals who are environmentally conscious and are choosing to offset their carbon emissions because they want to. So far, voluntary offsetting has occurred almost exclusively through such programs.

The pricing of carbon credits in the VCM is not as straightforward as it is in the compliance market. This is due to the many types of environmental projects that are available. Prices vary widely according to the category of the project (e.g. renewable energy vs. forestry) and even within a particular category. Several factors contribute to how a carbon credit is priced, including:

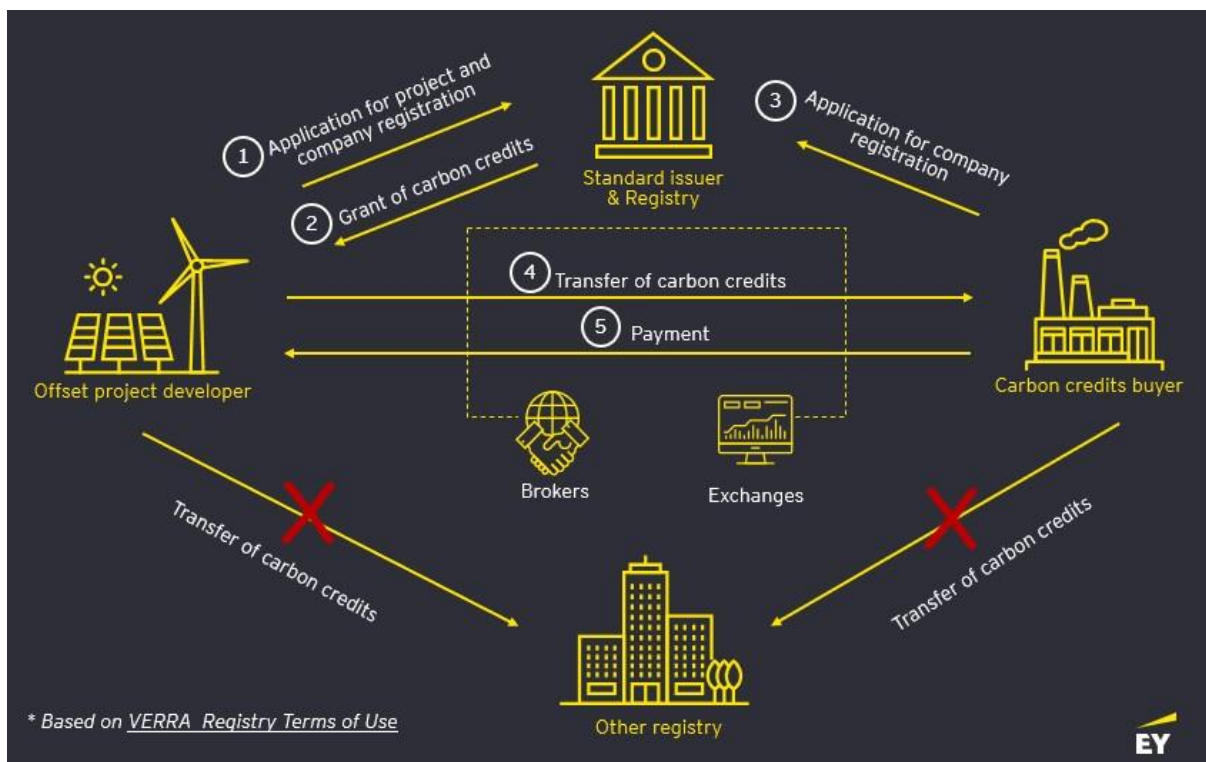
- **Size of project:** Larger projects that produce higher volumes of carbon credits are often associated with a lower price. Smaller projects are often more expensive to implement and produce fewer carbon credits.
- **Location of offset:** Locations where there is conflict and higher risk may make the project more expensive.
- **Vintage:** This depends on the year the emission reduction occurred—older projects are typically priced lower.
- **Quality:** The standard in which the project was certified can affect the price.
- **Co-benefits:** A co-benefit is any positive impact that is produced by the project above and beyond GHG emissions. For instance, if a project creates jobs for local communities or increases biodiversity, these would be considered co-benefits.

Community-based projects for example—which are usually very localized and typically designed and managed by local groups or NGOs—tend to produce smaller volumes of carbon credits. It is also often more expensive to certify them. However, they usually generate more co-benefits and contribute to the UN Sustainable Development Goals (SDGs), for instance through improved welfare for the local population, better water quality, or the reduction of economic inequality (Favasuli, 2021).



VCMs have a significantly more fluid market mechanism, with the pricing determined by voluntary supply and demand and not being limited to one country or region. Therefore, they are considerably less susceptible to regulatory mandates and policy. Figure 3 below shows how a voluntary carbon market works, with the main actors and stages.

Figure 3: How a voluntary carbon market works



Source: Burzec and Lewis 2021

In a VCM, private entities or entitled standard-setters, are responsible for the project certification. Developers of projects resulting in the avoidance, decrease or removal of carbon emissions can apply to these entities to certify and prove the amount of carbon emissions avoided, decreased or removed. As a result of certification, the developer can obtain voluntary carbon credits (or "VCCs"). One carbon credit represents 1 ton of CO_{2e} emission reduction.

Such VCCs are stored at a personalized account in a registry owned or retained by the entity that certified the project. The developer can either retire the credits, i.e. annul them to claim the reductions they represent, or sell them to another entity owning an account at the registry. There are various ways in which VCCs can be traded and various institutions are involved in the process: brokers, exchanges, retail traders, advisors. VCCs issued by a given entity and stored in a registry



managed or retained by this entity cannot be transferred to a registry of a different certifying entity (Burzec and Lewis 2021).

There are a number of entities that use different methodologies for measuring and verifying carbon emissions reduction. These entities provide a robust verification process to ensure the credibility of emissions reduction projects. The most widely used standards are detailed in the next section.

2.3.1. Implications of Article 6 for the voluntary carbon market

Even though the adopted Article 6 rules do not directly regulate the voluntary use of carbon credits or related claims, they set a standard for a high-integrity VCM.

Article 6.8 sets the framework to facilitate the use and coordination of non-market approaches (NMA), which has made it possible for countries to buy voluntary carbon credits, as long as Article 6 rules are respected. It does not involve the transfer of mitigation outcomes and will not be regulated by Articles 6.2 and 6.4. COP26 defined that this article should include social inclusivity, financial policies and measures, circular economy, blue carbon, just transition of the workforce, and adaptation benefit mechanism.

Article 6.2 rules enable—but do not require—stakeholders on the VCM to seek an authorization and a CA for mitigation outcomes for purposes other than towards NDCs, including voluntary offsetting (see Section 2.1.2 above).

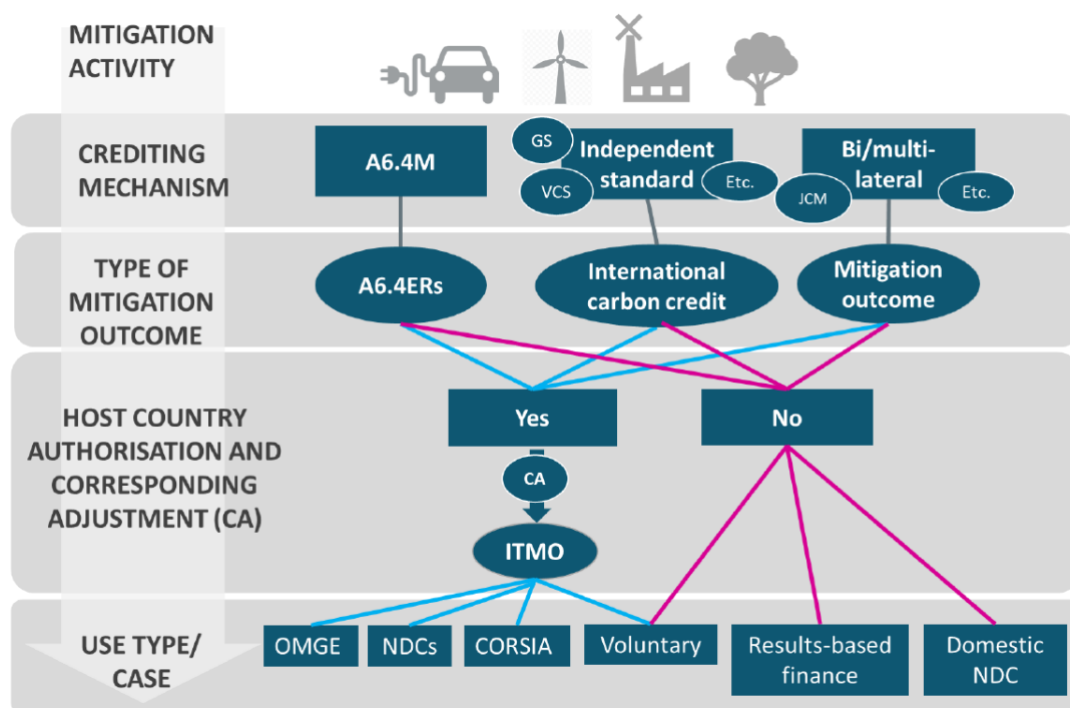
A6.4M is available for voluntary carbon market actors and private entities can be authorized by host countries to become activity participants. A6.4ERs with CAs for which a host country authorization is required can also be used towards voluntary offsetting. This implies among other things that there is no distinction made whether mitigation out-comes are inside or outside the NDC's scope.

The Article 6.4 rules do not discuss the legitimacy of mitigation outcomes without CAs. The use and claims that can be made in association to non-authorized A6.4ERs thus remains under debate by the carbon market actors.

Figure 4 describes the future interplay of generation of mitigation outcomes, the A6.4M and the Article 6.2 guidance regarding different types or use cases on the international carbon market.



Figure 4: Generation of mitigation outcomes for different uses within and outside Article 6



Source: Kessler et al 2021

2.3.2. Advantages and challenges

Voluntary carbon markets present multiple benefits, especially in regards to their lower development and transaction costs in comparison to compliance schemes. Besides, participants from all geographical locations or business sectors can freely register their projects, sell and buy carbon credits. It is also easier and faster to register a project and sell carbon credits in a voluntary market than in the compliance schemes. This happens because VCM do not need national approval or verification among international bodies such as the UNFCCC.

Regarding standards, the calculation and the certification of the emission reduction are implemented in accordance with a number of industry-created parameters. This results in a variety of standards, giving project developers the liberty to choose the most suitable for their situation. Finally, a relevant advantage of the voluntary carbon market is that it provides additional funds to the Global South.



Nevertheless, VCMs also experience some challenges that still need to be addressed. First, due to the weakness of enforcement rules, there is a high risk of engagement from unreliable buyers or sellers. The lack of governance is also a challenge. Voluntary carbon markets do not have a regulatory body and common standards, since each standard establishes its own eligibility criteria for projects that it registers, as well as for entities that can obtain access to the registry and thus trade in carbon credits. This undermines the capacity to define the legal status of voluntary carbon units.

This market is also susceptible to common issues in other carbon pricing instruments such as additionality, double counting and the overestimation of baselines. Double counting can be generated due to the absence of consistent or complete accounting protocols and a lack of alignment between market jurisdictions or operators. In addition, only the companies know the baseline of their projects and external experts might have difficulties in unveiling this information.

Finally, greenwashing is a risk, where companies seek to appear as if they are making a greater contribution to environmentalism than the actual impact of their actions. Voluntary carbon markets can be a victim of such a phenomenon. In practice, it can be considered a 'right-to-pollute' since companies can, instead of reducing their own emissions, simply choose to purchase carbon credits generated elsewhere in order to achieve their net-zero targets.

2.3.3. Examples of voluntary carbon market standards

VERIFIED CARBON STANDARD

The Verified Carbon Standard (VCS) is an international voluntary GHG offset program developed and run by the non-profit Verra. It issues carbon credits, the so called Verified Carbon Units (VCU) to projects that reduce or remove greenhouse gas (GHG) emissions. Those VCUs can then be sold on the open market and retired by individuals and companies as a means to offset their own emissions.

Broadly supported by the carbon offset industry, VCS certification consists of validation of the project design and periodic verification of the volume of emissions reduction or removals that can occur during or after the end of the project. Validation and verification are required by VCS in order to guarantee that the VCS requirements are met and the methodologies are properly applied.



GOLD STANDARD

The Gold Standard (GS) is a voluntary carbon offset program focused on progressing the UN SDGs and ensuring that projects benefit their neighboring communities. The GS can be applied to voluntary offset projects and to Clean Development Mechanism (CDM) projects. It was developed under the leadership of the World Wildlife Fund (WWF), HELIO International, and SouthSouthNorth, with a focus on offset projects that provide lasting social, economic, and environmental benefits. For projects to be accepted by GS, they must conduct additional assessments of the project's communal impact and ensure neighboring populations are benefiting.

Gold Standard's Betulia Hydroelectric Project in Honduras

The hydroelectric power plant provides renewable energy to the national grid, whilst improving the quality of electricity for local communities in the department of Colón in Honduras. Improved access to electricity also reduces the dependency on fuel wood, helping to relieve deforestation pressures. The project generated 2970 carbon credits.



3. LOCAL GOVERNMENTS AND CARBON MARKETS

Local and regional governments can benefit from the carbon markets in multiple ways. Article 6 presents a solid framework that can be used as guidance by local and regional governments when engaging in carbon markets.

The rules, modalities and procedures for the mechanism established by Article 6.2 and 6.4 was a major step recognizing the importance of the subnational level and invitation to engage with the local communities. The same decision requests parties that activities shall undergo local and, where appropriate, subnational stakeholder consultation.

In addition, the “*Work programme under the framework for non-market approaches*” referred to in Article 6.8 calls for the replication of successful non-market approaches (NMAs), including in the local, subnational, national and global context. It urges parties to create enabling environments and successful policy frameworks that enhances the engagement of the private sector, communities, civil society organizations and vulnerable and impacted sectors. These COP26 decisions clearly position and empower local governments to articulate and represent their needs.

Participating in the mandatory carbon market (through Article 6) is also strongly linked to the achievement of the goals set in the NDCs . As explained in Section 2.1.1, having a solid and regularly updated NDC is also a prerequisite to participate in the Article 6 carbon market. In the Article 6.4 mechanisms, each activity has to explain and demonstrate how it relates to the implementation of the party’s NDCs and A6.4ERs may only be used towards NDCs.

Article 6.4 is also important as it acknowledges and encourages private sector engagement also in the mandatory carbon markets. This can be a useful tool in exploring alternative financing sources for local climate projects, especially the development of public-private partnerships (PPP), helping local governments to overcome some of the most common barriers in regards to access finance. National systems are key to enable the private sector's active involvement in carbon markets and ensure that a transparent and stable framework for the private sector engagement to plan emission reduction projects, trade emission reductions, and calculate potential revenues, is in place.

Finally, monitoring of GHG emissions is a fundamental stage of these projects and a key interest of host countries since it helps it to track the fulfillment of its obligations under the Paris Agreement. It is also important to consider that projects under Article 6 need to address SDGs.



As an advantage, local and regional governments normally have the same types of tools available as at the national level to reduce CO₂ emissions such as performance standards, technology standards, and carbon-pricing instruments, including both carbon taxes and emissions trading systems. Pricing approaches can also stimulate clean technology and market innovation, fueling new, low-carbon drivers of economic growth (World Bank 2021).

The choice of the most suitable carbon pricing instrument, whether the creation of a carbon tax or the development of an emission trading system, will depend on the level of political interaction between local and national governments, institutional framework and economic context.

Local and regional governments have a key role in achieving countries' NDCs. They can act in managing projects at the local level or helping in private sector engagement, also taking into account the local needs. Sub-national efforts can, for example, work as a facilitator of national schemes, identifying opportunities to engage communities in projects or raising awareness of the importance of such systems. Local governments can also develop projects that help to address the countries' emission reduction goals.

In some cases, national policies can face barriers that are less likely to occur at the local level such as extensive bureaucracy and intense lobby from different civil society groups. Local initiatives can also share specific information on emissions reduction at the local level that the national government would not have access otherwise.



ANNEX I - GLOSSARY

Cap-and-trade

Under this system, regulators/governments set a limit of emissions (**cap**) on the amount of GHG emitted by an industry or a sector. Then, the companies are encouraged to reduce emissions to stay under the caps. The cap constitutes a limited supply of allowances, set by regulation and political negotiation. These allowances are then neither created nor removed, but merely traded among participants.

Carbon pricing

Carbon pricing is an approach to reduce carbon emissions (also referred to as greenhouse gas emissions) that uses market mechanisms to pass the cost of emitting on to emitters. A key aspect of carbon pricing is the “polluter pays” principle. Carbon pricing can be done through two main instruments: one that focuses on a direct determination of the price (carbon taxes) or the emissions trading system that sets a limit on the quantity, which indirectly affects the price.

Carbon tax

A carbon tax represents a direct price on GHG emissions. The government sets a tax rate in one or more sectors and companies are obliged to pay for every ton of emissions released. It thus creates a financial incentive to lower emissions by switching to more efficient processes or cleaner fuels (i.e., less pollution means lower taxes).

Carbon market

Carbon market is a defined framework where emissions (also called carbon units) are traded. It turns CO₂ emissions into a commodity. It was created to encourage the reduction of GHG emissions since companies and countries can fund projects that reduce future GHG emissions in exchange for carbon credits.

Carbon offset

A carbon offset represents one tonne of avoided CO₂ emission. It is a project-based instrument where the reduction in emissions is made by a voluntary initiative designed specifically for that purpose. Thus, an individual or an organization can compensate for their CO₂ emission through the support of certified emission reduction projects that absorb or reduce CO₂ emissions.

Carbon credit or allowance

A carbon credit (or allowance) is a permit that allows the owner to emit a certain amount of carbon dioxide or other greenhouse gasses. It is the basis of the cap-



and-trade program. In practice, it is the right to emit a determined amount of CO₂. Companies or nations are allocated a certain number of credits and may trade them to help balance total worldwide emissions. It is not project related. Participants in a carbon market can not only buy additional credits/allowances, but also sell the exceeding ones, which were not needed because they reduce their own emissions. These credits can be sold privately or in international markets.

Carbon crediting

Carbon crediting is the process of issuing tradable units to actors that are implementing approved emission reduction activities. This means that emissions are lower as a result of these activities than they would be in a counterfactual scenario without the incentives from the crediting program. (World Bank 2020)



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